

21ST ANNUAL MEETING
OF THE **EUROPEAN**
ASSOCIATION OF
ARCHAEOLOGISTS
GLASGOW 2015
2-5 SEPTEMBER

EAA
GLASGOW
2015



ABSTRACTS

www.EAAGlasgow2015.com

EAA European Association
of Archaeologists

 University
of Glasgow



HISTORIC SCOTLAND
ALBA AOSMHOR

THE PICTISH BEAST

At the centre of the logo of the Annual Meeting is a creature which is unique to the north-east of Scotland. The beast is one of a group of symbols found on stone sculpture of the Early Middle Ages. The meaning of the symbols remains one of the great unresolved puzzles of Scottish archaeology. Our beast is modelled on the Crow Stane, Aberdeenshire and is named Weegie, in reference to the affectionate term by which Glaswegians are commonly known to other Scots.

ANCIENT GATHERING TARTAN

To commemorate the 21st Annual Meeting of the European Association of Archaeologists in Scotland, we commissioned a tartan. We named the tartan *Ancient Gathering* to celebrate this international gathering of colleagues interested in all things ancient. The tartan was designed by Scott Ogilvie, Post Creative Ltd, and is registered with The Scottish Register of Tartans. We hope that it will serve as a long-lasting reminder of EAA Glasgow 2015 and invite the EAA to adopt Ancient Gathering as their official tartan. The blues, white and gold of the University of Glasgow emblem have been combined with the purple of heather, a colour seen throughout the Scottish Highlands. *Ancient Gathering* is integrated into our branding and we have had it woven to produce kilts and other items including ties and scarves which will be available for sale during the Annual Meeting.

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**ABSTRACTS OF THE
ORAL AND POSTER
PRESENTATIONS**

PUBLICATION INFORMATION

**21ST ANNUAL MEETING OF THE EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS
2-5 SEPTEMBER 2015 UNIVERSITY OF GLASGOW, SCOTLAND**

ABSTRACTS OF THE ORAL AND POSTER PRESENTATIONS

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WELCOME FROM THE ORGANISERS

It is a great pleasure to welcome so many colleagues from so many countries to the 21st Annual Meeting of the European Association of Archaeologists. We are highly honoured to have been entrusted to organise the largest gathering of archaeologists in Scotland, which we hope heralds a new era of international collaboration for Scottish Archaeology.

Organising a conference on the scale of the EAA is daunting, not only because of the numbers involved, but because of wanting to present your home in the best light. In terms of pure tourism it has been easy: Glasgow is a city with abundant style and self-confidence and Scotland has been attracting large numbers of foreign visitors since the 12th century when the cult of St Kentigern took off. Although Glasgow is bold and the Scottish tourism industry is mature, Archaeology at the University of Glasgow is relatively young and modest in size. So from the outset we conceived of the Glasgow EAA Annual Meeting for 2015 as a national event; we sought support from colleagues in every corner of Scotland and received it with enthusiasm. All the national heritage bodies and all the universities which teach Archaeology are represented on the organising and scientific committees. So in real sense this has been a Scottish effort, this collective engagement is symbolised in the EAA *Ancient Gathering* tartan, which we commissioned for 2015.

At the time we applied for the honour of hosting the 2015 Annual Meeting we had no idea that this year would occupy such a pivotal moment in Scotland's political and cultural history. The international interest in our Referendum was surprising and gratifying, while the meteoric rise of Scottish identity politics could not have been anticipated. Indirectly connected to this increasing awareness of Scottish National identity there has been a marked increase of interest in Scottish cultural heritage including its archaeology. Also unknown when the announcement was made in Helsinki were the significant changes in the organisation of the Scottish state archaeology services. As the Cabinet Secretary will explain, the most significant reorganisation of Scottish archaeology in over 100 years coincides neatly with our Annual Meeting. In October the Royal Commission on the Ancient and Historical Monuments of Scotland (a survey and recording institute over 100 years old) will be united with Historic Scotland (a Government agency) to form a new organisation, Historic Environment Scotland, a charitable body which will combine the statutory and investigative functions. These organisational changes are underpinned by policy changes such as the 2014 introduction of a new historic environment strategy for Scotland, *Our Place in Time*, and a new Archaeology Strategy which will be announced at our Annual Meeting. For the first time in many years Archaeology is headline news, which must be a good thing.

This year's themes reflect Scotland's place in the world and the concerns which link us to the wider European community. In Gaelic Glasgow is known as *Baile Mòr nan Gàidheal* 'the Great City of the Gael', so it is natural that we should celebrate our *Celtic Connections*, but we are acutely aware of ethnic complexity that underpins contemporary Scottish identity and are sure that questions of *Archaeology & Mobility* and *Reconfiguring Identity* will resonate across Europe, as they do for us. Archaeological knowledge is driven by discoveries in the field as well as in the laboratory and the importance of this was emphasised by the *Science & Archaeology* and *Interpreting the Archaeological Record* themes, which attracted the largest number of submissions. As the discipline of Archaeology has matured and gained responsibility for managing cultural resources *Communicating Archaeology* to the public and other professionals has become increasingly central to our practice. Also with maturity comes reflection and the *Legacies & Visions* theme was intended to invite retrospective considerations and prospective discourse about where we as a discipline wish to go.

For the fourth year now the Medieval Europe Research Congress forms part of the Annual Meeting. The MERC contributions make up a significant component of the programme and as can be seen these are well spread amongst the themes. A strong MERC presence here represents a concrete effort to fight the tendency towards the fragmentation of the discipline. We hope that the MERC scholars will take inspiration from gathering in a medieval city, albeit one overlain by an Industrial past. Equally we hope that the MERC deliberations will be of wider interest across the EAA membership.

This year we are fortunate that the University's Hunterian Museum decided to mark the presence of the EAA by mounting a special archaeological exhibition which will open on Thursday September 3rd. I will be particularly pleased to welcome delegates to the display of work undertaken with my colleagues, research partners and students. Work on this scale could not have been undertaken without the support of Historic Scotland and it is to be hoped that the new body Historic Environment Scotland, will be as far sighted in supporting research. The *Cradle of Scotland* exhibition showcases the largest research excavations conducted in Scotland over the past decade. We believe the show provides a clear insight into the nature of archaeology in the heart of Scotland and highlights the deep prehistoric roots that sustained the central institutions of the medieval Scottish kingdom.

One of the unexpected pleasures of organising this conference has been working with so many colleagues who have generously contributed their time and energy to ensure that the 2015 EAA Annual Meeting is a success. The Organising Committee has overseen the development of the themes and shaping the excursions, the social programme and the artistic events, their guidance and advice has been vital and inspiring. The Scientific Committee, composed largely of different people, in many ways had the most demanding of tasks given the huge numbers of proposals and the short time to evaluate them. Before the submissions arrived this was a frightening prospect, but in the event their commitment and wisdom made the selection and organisation process go more smoothly than we could have hoped. You will all be able to see the quality of their selection and structuring of the programme. It has also been a great pleasure to work closely with the Board representatives, particularly Robin Skeates, who has ably and cheerfully guided us every step of the way, and with Sylvie Kvetinova who has been hugely supportive, responsive and effective. Finally, despite all of the support from the committees and colleagues, this meeting would have been impossible to organise without the fortitude, determination and brilliance of Dr Louisa Campbell, our Conference Coordinator, whom most of you will have corresponded with and who deserves the credit for laying the foundations and for making the organisation of the Annual Meeting so enjoyable.

I hope you will have a successful and pleasurable conference.
Tha mi an dochas gum bith comhdhail soireabhail is tlachdmhor agaibh uile.

Professor Stephen Driscoll
Chair of the EAA Glasgow 2015 Organising Committee

WELCOME FROM FIONA HYSLOP MSP, CABINET SECRETARY FOR CULTURE, EUROPE AND EXTERNAL AFFAIRS

It gives me great pleasure to welcome delegates to the 21st annual meeting of the European Association of Archaeologists to Glasgow and to Scotland this September.

Glasgow is a city steeped in its past: it retains a wealth of archaeology, historic buildings and artefacts which all link to the people and events which have shaped the vibrant city we enjoy today. You will have opportunities to see the archaeology not just of Glasgow but also of key archaeological and historic sites across Scotland, including several of our celebrated World Heritage Sites. From the prehistoric landscapes of Orkney and Kilmartin to the collections in our museums, and with visits to cutting-edge science facilities, there will be plenty of interest for everyone. I hope that many of you will be able to extend your visits to explore further afield and to enjoy the huge variety of heritage sites and cultural activities that Scotland has to offer.

2015 is Scotland's Year of Food and Drink, a chance to celebrate our abundant local produce, indeed, you will have the opportunity to sample our famous Scotch whisky at the conference, thanks to sponsorship from Glenmorangie. I am already looking forward to 2017, which will be Scotland's Year of History, Heritage and Archaeology. I hope that many of you will return to Scotland then, to share in our celebrations.

In addition to this conference, 2015 sees Scottish archaeology celebrated through Dig It! - offering a chance to discover Scotland's stories and opportunities for people of all ages to get involved in archaeology. You will find out more about Dig It! 2015 during the conference, and also marvel at some of the artistic responses to our archaeology – *Dig Art! 2015*. The winning pieces from this innovative archaeology, art and photography competition will be on display for you to enjoy. There is also a wider artistic programme to add variety and excitement alongside your academic programme. I am always delighted to see the different areas for which I am responsible providing creative inspiration across their traditional boundaries.

October 2015 sees the launch of Historic Environment Scotland – our new lead body for the historic environment, created by bringing together Historic Scotland and the Royal Commission on the Ancient and Historical Monuments of Scotland. This body will lead delivery of *Our Place In Time*, Scotland's Historic Environment Strategy, which launched in 2014. The Strategy sets out a ten year Vision to ensure that our historic environment is better understood, protected and valued. A strategy for Scotland's archaeology has also been created, seeking to promote the role that archaeology plays in helping us to understand our past through its material remains.

I am delighted that the Scottish Government, through a grant from Historic Scotland's Archaeology Programme, has been able to support Glasgow University in the preparation and delivery of this exciting conference. I wish you all an exciting and engaging conference, and hope that you will enjoy sharing Scotland's rich archaeological heritage with us.

Fiona Hyslop MSP
Cabinet Secretary for Culture, Europe and External Affairs

EAA OFFICERS' ADDRESS

Dear Members of EAA,

We wish all a very warm welcome to Glasgow, EAA's 21st Annual Meeting. We anticipate this year's meeting will exceed all our expectations and even the numbers that came to Istanbul last year. These growing numbers confirm the loyalty of existing EAA members, the interest of newcomers and the continuing success of our meetings of recent years. At the time of writing, no fewer than 2,000 members had registered. 1,600 lectures are programmed together with 230 posters. What a wonderful response to the call for sessions, papers and posters! We are immensely grateful to all, but especially to Professor Stephen Driscoll and Dr Louisa Campbell who have steadfastly steered the huge task of organising and managing this year's meeting and kept everything under control. We are very excited and confident that this meeting will be a new benchmark for EAA.

The consistent growth in membership and the increasing success of the annual meetings has been noted in the past years by the EAA Board and acted upon. In order to consolidate this constant growth and stimulate the continuing attraction of the association for members, we now look to Adrian Olivier's report, with its review and evaluation of the function, structure and organization of the EAA - you can consult the full report via the following web link:

<http://e-a-a.org/membersection/EAA%20Evaluation%20v2.1%20FINAL%20Distribution%20to%20Members%20copy.pdf>

We have already urged members to review this document. The Board, the past presidents and members of the Nomination Committee have discussed it thoroughly earlier this year. Based on these discussions, the Board (albeit without a president in the past year) has already had to take a number of urgent decisions to secure the future of the organization. These, and all other related matters, will be presented and explained to members at the **Annual Membership Business Meeting (AMBM), which takes place in Glasgow on Friday 4 September 2015 at 16.00 in the Boyd Orr Building, Lecture Theatre 1**. We hope, and indeed urge, members to make maximum use of the opportunity to hear what we have done, and to articulate their views in these important matters. The future and organizational structure of the EAA is at stake. It is first and foremost a membership organisation, that exists, works and functions for its members.

Last year a New Business Model (NBM) was adopted which was designed to provide better services to all members and establish an enhanced integration between the membership administration and the conference registration. The software system for this development is in the process of being installed. Full installation will take time. So much of the important decision-making required with regard to the NBM will occur next year under the guidance of a new President.

We see an opportunity for the EAA to spearhead a development towards becoming a stronger and possibly larger representative body for archaeologists and archaeology in Europe. But this is for members to decide. The Annual Meeting is the time and place to come together, exchange information, discuss ideas and take new initiatives. Other organizations are invited to contribute to the success of these meetings. One such, has been the inclusion of MERC within EAA. It has added depth to the organisation and now forms an essential asset to our conferences.

This year we shall launch the first issue of the EAA's new monograph series, *Themes in Contemporary Archaeology*. It is hoped that, with three to five volumes annually, this will become the major series in which the proceedings of EAA sessions can be published.

We are confident that that Glasgow will be a splendid venue for our Annual Meeting this year and we are promised tours to many fascinating locations and sites. Scotland has a rich tradition of archaeological practice and heritage management. It possess a truly remarkable and beautiful landscape and rightfully boasts of its many wonderful archaeological and historic sites dating from early prehistory to more recent times. Its history with rich traditions are unique and its modern urban culture is as diverse and any in Europe. The range of trips and excursions on offer is very impressive. Any of these will take you to individual places and sites of a kind that you will not encounter elsewhere in Europe.. The locations chosen for our various conference activities are equally exciting and the organization has done everything to make our visit attractive and enjoyable.

On behalf of the Board, we wish you all a very pleasant and successful conference with lots of interesting lectures and presentations, the opportunity to network and created motivating contacts for the future and, above all, an enjoyable and memorable experience in Scotland.

With our best wishes

Marc Lodewijckx and Margaret Gowen
EAA Officers

WELCOME FROM THE PRINCIPAL

Dear Delegates,

It gives me great pleasure to welcome the 21st Annual Meeting of the European Association of Archaeologists to the University of Glasgow. We are delighted to be hosting this prestigious event, the first time it has been held in Scotland in the Association's young but dynamic history. As a University which fosters and celebrates academic excellence and international links, it is fitting that we should host the premier European archaeology conference which encompasses the diversity of the archaeological endeavour from the excitement of discovery in the field, to analysis and interpretation, and the management of cultural resources. We warmly welcome conference delegates from across Europe and more than 75 countries around the globe, reflecting the international importance of the European archaeological tradition.

Glasgow is an ideal place to hold a meeting concerned with exploring the past; it has deep historic traditions but equally has a reputation for innovation and enterprise. It is particularly fitting that the Medieval Europe Research Congress is included within your meeting as Glasgow's origins stem from the Early Middle Ages. The earliest political focus was established on the Clyde at Govan before the centre of political gravity shifted upstream to the Cathedral. It was in the shadow of the Cathedral that the medieval town grew up and where the University was established in 1451. Although we moved to our present campus in 1870, some of the medieval character remains and even some of the original fabric of the Old College is to be found here. It is this mix of the deep history with the constant drive for improvement which has allowed the University to become one of the top 100 universities in the world (Times Higher Education World University Rankings).

The transformation to a modern university was fuelled by the strong Scottish Enlightenment tradition in Glasgow which, amongst other things, embraced the study of the past. Our leadership in this field is demonstrated by the Hunterian Museum, Scotland's oldest public museum opened in 1807. The Hunterian is one of the leading university museum's in Britain, with broad scientific and artistic collections, including outstanding antiquities, not least the main assemblage from the Roman frontier of the Antonine Wall.

Originally 'archaeological' studies at Glasgow were conducted by Classics professors and Hunterian staff, but in the 1960s the University committed to teaching and researching archaeology by establishing a department (now within the School of Humanities). This new department was committed, above all, to exploring the archaeology of Scotland, in British and European contexts, from the earliest post-glacial settlement to modern times. The University has supported and pioneered the development of scientific methods as exemplified by the SUERC Radiocarbon Dating Laboratory. In recent years we have also taken the lead in applied archaeology – using archaeology to shape government policy, to promote ethical management of cultural heritage and to improve the quality of life.

The Annual Meeting clearly has a very full and varied programme of academic and social events planned for the week and I wish you all an energising, stimulating time and hope that you enjoy everything that the Annual Meeting, the University, the City and indeed Scotland has to offer you during your time here.

Professor Anton Muscatelli
Principal and Vice-Chancellor
University of Glasgow

UNIVERSITY OF GLASGOW INFORMATION

The University of Glasgow was established by Papal Bull in 1451, making it the fourth oldest university in the UK. Over the last five centuries and more, we've constantly worked to push the boundaries of what's possible. We've fostered the talents of seven Nobel laureates, one Prime Minister and Scotland's first female First Minister. We've welcomed Albert Einstein to give a lecture on the origins of the general theory of relativity. Scotland's first female medical graduates completed their degrees here in 1894 and in 1957, the first in Scotland to have an electronic computer.



The University's reputation and standing as one of the world's leading universities is built upon the work of those men and women who have studied, taught and undertaken pioneering research here. All of this means that if you work, study or visit here, you'll be walking in the footsteps of some of the world's most renowned innovators, from scientist Lord Kelvin and economist Adam Smith, to the pioneer of television John Logie Baird. Here are some of the remarkable achievements of our staff and alumni:

1737 - Adam Smith, the father of modern economics and author of *The Wealth of Nations*, enters the University at the age of 14.

1881 - Eminent Glasgow Professor of Natural Philosophy, William Thomson, later Lord Kelvin, creates one of the first houses in the world to be fully lit by electricity on the University campus.

1892 - Queen Margaret College, the only college for the higher education of women in Scotland, achieves its aim of amalgamation with the University.

1896 - The world's first hospital x-ray department is opened at Glasgow's Royal Infirmary by graduate John McIntyre.

1914 - John Logie Baird, the pioneer of television, begins his studies at the University.

1949 - Glasgow graduate John Boyd Orr is awarded the Nobel Peace Prize for his scientific research into nutrition and his work with the United Nations.

1958 - The world's first ultrasound images of a foetus are published by Glasgow Professor Ian Donald

1995 - The West of Scotland Coronary Prevention Study, led by Glasgow Professor James Shepherd, shows that statins reduce the risk of heart attack.

2003 - Glasgow graduate Emma Richards becomes the first British woman to sail solo around the world.

THE UNIVERSITY COAT OF ARMS

The University of Glasgow's crest comprises four symbols closely associated with Glasgow's patron saint, Kentigern, who died in 612 and whose feast day is 13th January. The symbols are known affectionately as:

'the tree that never grew,
the bird that never flew,
the fish that never swam,
the bell that never rang.'

Not only do 'the bird, the bell, the fish and the tree' appear in the crest of the University of Glasgow and of the City itself, but can be spotted around the town decorating civic items, from buildings to lamp-posts. The University crest has the addition of the Book of Learning, a representation of the University Mace and a motto. The Mace is the symbol of the University's corporate dignity, made in 1465 it has a silver shaft and a hexagonal head of gold and enamel work. The Latin motto on the ribbon reads *Via, Veritas, Vita*, meaning 'the Way, the Truth, the Life'.



The symbols first appear on seals of the Medieval bishops of Glasgow where they represent episodes in Jocelyn of Furness's late 12th-century *Vita Kentigerni* 'Life of Kentigern'. Kentigern is said to be descended from Thanew, princess of the northern British kingdom of Lothian. His suitably noble name, means 'Hound Lord', in Old Welsh, but is more familiar to Glaswegians by his pet-name of Mungo.

The first two symbols relate to Kentigern's boyhood while he was a pupil at St Serf's monastery of Culross, Fife. The 'bird' is Serf's beloved pet robin which the young Kentigern brought back to life after his fellow pupils had killed it and attempted to frame him for its murder. The 'tree' is now usually depicted as an oak but was originally a green branch from the hazel hedge surrounding the monastery. The young Kentigern miraculously ignited the branch and thus thwarted the other boys who had let the monastery fire go out in order to prevent him performing his duty of lighting the church lamps. The 'fish' is the salmon which, later in life, bishop Kentigern pulled out of the river Clyde and cut open to reveal a special ring belonging to the adulterous Queen Languoreth, thereby saving her from execution by her jealous husband king Rhydderch Hael ('the generous'). This 'ring-in-the-fish' motif is possibly the earliest version of a tale found widely in Celtic literature.

The final element, the bell, does not feature in the *Life of Kentigern* but represents an actual bell venerated at Glasgow Cathedral as a relic of the saint and rung in front of funeral processions. Kentigern's bell survived the Reformation only to be replaced by a new 'mort bell' in 1641. Early images of it on episcopal seals reveal the distinctive form of a handbell of the type known throughout the early medieval Celtic-speaking world, especially Scotland and Ireland, and dating probably to the 9th century.

BOARDS OF EAA GLASGOW 2015

21ST ANNUAL MEETING OF THE EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS

SCIENTIFIC COMMITTEE

Prof. Ian Armit, Professor of Archaeology, University of Bradford
Dr. Louisa Campbell, EAA Glasgow 2015 Coordinator, University of Glasgow (Secretary)
Prof. Gordon Cook, Scottish Universities Environmental Research Centre (SUERC), University of Glasgow
Prof. Jane Downes, Head of Archaeology, Orkney College, University of the Highlands and Islands
Prof. Stephen Driscoll, Professor of Historical Archaeology, University of Glasgow (Chair)
Dr. Georg Haggren, Docent in Historical Archaeology, University of Helsinki, Finland
Mark Hall, Museum Curator, Perth & Kinross Council
Dr. Sophie Hueglin, Marie Curie Intra-European Fellow, Newcastle University
Prof. Marc Lodewijckx, Archaeology, KU Leuven, Belgium
Dr. Lesley Macinnes, Head of Strategy and Operations, Historic Scotland
Prof. Ian Ralston, Abercromby Professor of Prehistoric Archaeology, University of Edinburgh
Dr. Robin Skeates, Reader in Archaeology, Durham University
Dr. Nurcan Yalman, Center for International Heritage Activities and Cultural Awareness Foundation, İstanbul

LOCAL ORGANISING COMMITTEE

Prof. Stephen Driscoll, Professor of Historical Archaeology, University of Glasgow (Chair)
Dr. Louisa Campbell, EAA Glasgow 2015 Coordinator, University of Glasgow (Secretary)
Derek Alexander, Head of Archaeological Services, National Trust for Scotland
Dr. Nyree Finlay, Head of Archaeology, University of Glasgow
Dr. Sally Foster, Lecturer in Heritage and Conservation, University of Stirling
Prof. David Gaimster, Director, Hunterian Museum & Art Gallery
Dr. Simon Gilmour, Director, Society of Antiquaries of Scotland
Dr. Rebecca Jones, Head of Archaeological Strategy, Historic Scotland
Dr. Alan Leslie, Director, Northlight Heritage
Roderick McCullagh, Depute Head of Archaeological Strategy, Historic Scotland
Dr. Alison Sheridan, Principal Curator, National Museums Scotland
Dr. Robin Skeates, Reader in Archaeology, Durham University

CONGRESS SECRETARIAT

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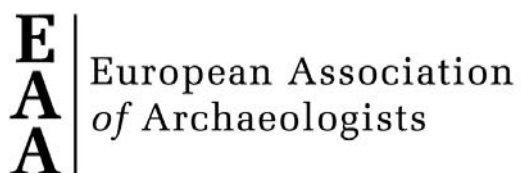
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21ST ANNUAL MEETING OF THE EUROPEAN ASSOCIATION OF ARCHAEOLOGISTS

2-5 SEPTEMBER 2015 GLASGOW - SCOTLAND

HOSTED BY THE UNIVERSITY OF GLASGOW

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GLASGOW**

GLENMORANGIE
SINGLE MALT SCOTCH WHISKY



Society of Antiquaries
of **Scotland**



SESSIONS AND VENUES

Lecture Theatre Name

Boyd Orr Lecture Theatre 1
 Boyd Orr Lecture Theatre 2
 Boyd Orr Lecture Theatre A
 Boyd Orr Lecture Theatre B
 Boyd Orr Lecture Theatre C
 Boyd Orr Lecture Theatre D
 Boyd Orr Lecture Theatre E
 Boyd Orr Room 709
 Maths Building 203
 Maths Building 204
 Maths Building 325
 Maths Building 326
 Maths Building 416
 Maths Building 417
 Maths Building 515
 Maths Building 516
 Joseph Black 408
 Joseph Black 419
 John McIntyre 201
 John McIntyre 208
 Kelvin Building 222
 Kelvin Building 257
 Kelvin Building 312
 Graham Kerr Building 224
 James Watt South 354
 James Watt South 375
 East Quad Lecture Theatre
 Humanities Lecture Theatre
 Gilbert Scott Room G466
 Hunterian Lecture Theatre
 Gregory Building Lecture Theatre

Thursday				Friday				Saturday				
Block 1	Block 2	Block 3	Block 4	Block 1	Block 2	Block 3	Block 4	Block 1	Block 2	Block 3	Block 4	
SA1				RI37				ABM	SA2			
RI7				CA29					LV16			
CA8				RI18		RI19			AR4		RI15	
CC1		CA3		AM9					AR7		RI16	
AR11			SA3	CA24		LV18			RI1			
CA17		AR6		RI13					RI2		CC7	
SA21		AR1		LV9					CA19			
CC2		AM10		AM6		LV24			CA14		AM1	
CA23				CA10					AR8		CA4	
AM20		AM18		LV19		LV27			AR14		AM12	
RI10		AM19		RI6					AM13			
CA22		CA25		CA27	LV15				RI32		RI31	
AR9		AR10		AM16					AM11			
RI24		RI25		AM17					LV10		LV20	
SA12				LV8					AM2		CA7	
SA8				LV11		RI26			AM7		LV4	
RI4		CA6		AR3					LV14		LV5	
SA24				RI33								
AM8				SA14					AR5			
CC5		CA12		AR2		SA18			CC4	RI17	LV25	
SA11		CC3		RI22					RI38		RI8	
SA20				SA10					SA16		SA15	
LV6				SA26					SA23		SA13	
RI34				SA9					AR19			
RI3				SA25					AR15			
AM14		CA13		LV21					RI5			
SA7		CA2		CA11				LV17				
SA6		CA26		CC6				SA17				
CA5		LV26		AM15				RI14		SA4		
FILM FESTIVAL												
LV22			CA16	CA18		RI36				RI9		
										LV28		

Seminar/Classroom Room Name

Boyd Orr Room 213 (Classroom)
 Boyd Orr Room 506
 Maths Building 214
 Maths Building 214a
 Gregory Conference Room
 Gregory - Alcock Seminar Room
 Alexander Stone 204
 Joseph Black 407
 Joseph Black 504
 James Watt South 355
 James Watt South 361

Thursday				Friday				Saturday			
Block 1	Block 2	Block 3	Block 4	Block 1	Block 2	Block 3	Block 4	Block 1	Block 2	Block 3	Block 4
LV23				LV29		AM3		LV2		CA20	
QUIET ROOM				QUIET ROOM				QUIET ROOM			
SPECIAL EVENTS											
SPECIAL EVENTS											
SPECIAL EVENTS											
RI21		SA22		SA19		AM4		CA21	CA15		ABM
AR20		RI11	AGE	RI28		LV30		AR12		CA1	
AM21		RI29		RI23				RI20		RI35	
AR18		RI12		LV3		LV12		SA5		AR17	
		AM22		AR16	CA28	CA9		RI30	LV1	LV13	AR13

EAA GLASGOW 2015 THEMES

The European Association of Archaeologists (EAA) represents archaeologists and heritage professionals from across Europe. The Annual Meeting has become established as the premier archaeological conference in Europe and the 21st Annual Meeting will be hosted at the University of Glasgow in September 2015.

We look forward to welcoming c. 2,500 delegates to the EAA Glasgow 2015. It will be the first, biggest and best cultural heritage event of its kind ever to take place in Scotland and we commemorated this by designing a special tartan entitled 'Ancient Gathering' (<https://www.tartanregister.gov.uk/tartanDetails.aspx?ref=11029>).

The EAA Glasgow 2015 will be a marketplace for ideas and is an excellent opportunity to share Scotland's rich, diverse and unique cultural heritage with an international audience. Scotland is also the perfect stage for the EAA's Coming-of-Age celebrations!

Seven key themes define the framework for the EAA Glasgow 2015 to ensure delegates with a broad range of interests can participate in the meeting:

ARCHAEOLOGY & MOBILITY

Europe in the 21st century faces several major challenges – economic, social and environmental – and one key to understanding and addressing those challenges involves issues related to mobility.

The theme of archaeology and mobility here stands not only for the physical & geographical movement of people but also the movement of people socially, economically and culturally. It includes too the mobility of knowledge and ideas, through innovation or necessity, and whether for altruistic, selfish or sinister reasons.

Sub themes encompass mobility and its impact on communication and the transmission of knowledge; mobility and its impact on social cohesion, integration and identity; the role of mobility in conflict; mobility as a driver for economic growth; and many more besides – the list is long.

In archaeology, we study people through their multifarious material manifestations, many of which engender or reflect the changes these movements have effected, aspirations as well as outcomes, failures as well as successes.

The challenge to us, as archaeologists, is to demonstrate how we may put our knowledge of the past to beneficial use in helping shape the future, including by highlighting and communicating knowledge and understanding of how to deal more successfully with the opportunities and challenges ever-increasing mobility presents to European societies today.

RECONFIGURING IDENTITIES

From the individual to the nation state identity is a critical concept for all of European archaeology. Definitions of identity stress shared distinctive features that serve to differentiate at the collective level of the group and articulate as nested sets of being and belonging. Identity also embraces unique and individualising traits that take contingent precedence in relation to personhood and change across the individual life course. Exploring both are essential for our examination of the everyday experiences of people in the past.

Identities are frequently contested and controversial. A significant area is the place of identity in heritage policy and the contemporary identification of cultural value and ownership. There are also wider disciplinary and professional identities to consider with implications for archaeological practice.

As a conference theme *Reconfiguring Identities* invites contributions that address, challenge and explore these diverse and often divergent archaeological engagements with identity. The goal being to ask new questions, critically examine the use of material culture and the application of theoretical approaches that seek to reconfigure identity for present and future pasts.

SCIENCE & ARCHAEOLOGY

'Hard' science has long been used as a major tool in archaeology, and its application and impact are growing: for example, recent advances in organic chemistry and recent applications of isotope analysis are helping to revolutionise our understanding of prehistoric diet and mobility. However, its use is not unproblematic. Misunderstanding of scientific techniques by archaeologists, and of archaeology by scientists, can lead to the wrong conclusions being drawn. Worse, the 'have analytical technique, seek archaeological fodder' phenomenon can waste precious archaeological resources. Conversely, the cost of analysis and uneven distribution of equipment means that some useful analysis fails to be undertaken. This theme will explore ways of linking the two communities, facilitating mutual understanding and ensuring that the right kind of analytical work gets done.

COMMUNICATING ARCHAEOLOGY

This is an emerging trend as highlighted by recent research in *Archaeology and Digital Communication: Towards Strategies of Public Engagement* (2012) edited by Chiara Bonacchi which recognises that "archaeologists now face a myriad of ways of engaging with the public – from print publication to exhibition formats, including 3D digitisation and visualisations, and increasingly both through and combining digital products and social media. It is critical that the potential and limitations of these vehicles are utilised effectively and appropriately to ensure optimal audience reach and participation. The theme of Communicating Archaeology encourages the exploration of how archaeology is now engaging the public in the rapidly changing world of visual and digital communication, museum exhibitions and other media as well as how this practice has changed over time to suit new audiences.

LEGACIES & VISIONS

The concept of an archaeological legacy seems to have four components: Inspiration, Trajectory, Achievements and Inheritance. The legacies from our predecessor archaeologists have inspired the present generation of archaeologists by the advances made in understanding and theory, by the invention or adaptation of techniques and methods, by particular papers, articles, books and exhibitions which broke new ground or changed ideas and by discoveries which profoundly changed perceptions. Each of these gifts provide us with trajectories of thought and idea: where did they come from and where did they take our predecessors and are taking us? What new main tracks of concept and knowledge did they reveal but also what side-tracks were explored (and what might be worth re-exploring now)? Were their dead-ends necessarily our blind alleys or can we learn from or should we explore their short-comings?

Our predecessors continue to inspire and challenge us by their targets and their surprises, their changes of perception and by their defeats and mistakes. And if they have left us a huge wealth of dynamic understanding what should we be thinking of passing on to our successor generations? How strongly should we try to influence what they do with our legacies, what hopes do we have for new knowledge and are there warnings that we must leave? The theme of Legacies and Visions therefore invites sessions and papers that acknowledge where we have all come from and look imaginatively to where we should go and what we must discover.

CELTIC CONNECTIONS

There is scarcely a place in Europe between Ireland and Anatolia that has not been touched by the Celtic language and culture at one time or another. The Celtic phenomenon has been described as the first European culture, and yet the very concept of Celtic remains contested. The links between Celtic languages and material culture remain problematic. Fundamental archaeological questions relating to the origins and flow of Celtic culture are currently up in the air with the traditional model of dissemination from central Europe being replaced with an Atlantic origin. The significance of the Celtic contribution to European culture in religious, political, artistic arenas are also debatable. In some regions Celtic carries a purely academic meaning, while elsewhere the 'Asterix' ideal has elevated the Celt to an archetype of resistance and independence. In Britain, the Celticity debate has encouraged certain Anglo-Saxon prehistorians to question the existence of Celts. Such a view finds little encouragement in Scotland, which is experiencing something of a Gaelic revival. All of which makes Glasgow, *Baile Mòr nan Gàidheal* – 'city of the Gael', as it was known in the 19th century, the ideal setting to discuss these and other Celtic issues.

INTERPRETING THE ARCHAEOLOGICAL RECORD

In addition to the six key themes that form the framework for the EAA Glasgow it is important to ensure sessions with a broader interest base are comfortably accommodated within the programme. The theme of 'Interpreting the Archaeological Record' provides a vehicle to for such sessions.

SESSION ABSTRACTS AND ORGANISERS

ARCHAEOLOGY AND MOBILITY

AM1 A BRONZE AGE MATERIALITY BEYOND BRONZES: TOOLS, TECHNOLOGY AND IDEAS

Dr. Joakim Goldhahn, School of Cultural Sciences, Sweden. Dr. Johanna Brück, School of Arts. Dr. Catherine Frieman, School of Archaeology and Anthropology. Dr. Anders Högberg, School of Cultural Sciences.

Recent innovations in interpretive and scientific analyses have revitalised Bronze Age research in Europe and shown that ideas, objects, people and animals moved over vast distances. Many suggested models of mobility and identity foreground the search for esoteric knowledge and its materialisation in the form of prestige objects, particularly those made of new materials. Bronze, the eponymous material of the period, is central to these discussions; objects made of bronze are iconic items of Bronze Age material culture. This session goes beyond the well-known Bronze Age bronzes to incorporate other materials and technologies into our discussions of the transmission of technological knowledge as well as of value systems, social structure and economics. People in different locations, time periods and social classes had access to a variety of different sorts of tools, technologies and ideas about material culture which they utilised in a very different ways in different places. We look for submissions which address: 1) the origin, exchange, technology, social position, economic value and interpretation of quotidian tool kits; 2) exotic materials, such as amber, glass, jet and gold which circulated in prestige networks alongside bronze; 3) organic materials, both those preserved in situ and those implied by the existing material record; or 4) the variety of other non-bronze objects or significant prestige or trade goods which Bronze Age people made, used and circulated, including ceramics, horses or even slaves. Papers in this session will seek to extend these perspectives by looking critically at the materiality of the Bronze Age toolkit. We will examine the use of a suite of materials in economic systems and identity formations, and suggest a picture of Bronze Age society built on circulation of a multiplicity of Bronze Age tools, technologies and ideas.

AM2 AFRICAN MOBILITIES

Dr. Ceri Ashley, University of Pretoria. Dr. Alexander Antonites, University of Pretoria. Andrew Reid. UCL, Institute of Archaeology

Mobility is a recurring theme in many African historical narratives, from origin stories and oral histories to large scale sub-continental migrations. However, a legacy of colonial association with migration, and often simplistic division between indigenist/migrationist explanations has made researchers wary of engaging with this powerful and multi-faceted dynamic. The session is a call for a renewed engagement, which recognises the often central place of mobility to the maintenance and reproduction of social institutions, as well as its role as the catalyst to socio-political change, and the creation of new structures. In a generalised sense, Africa is a continent rich in land and poor in people, and thus social, political and cultural structure are frequently mediated through the relocation and re-establishment of people and polities across the landscape. Mobility then is often an in-built mechanism for continuity, as well as an avenue for fission and dissonance. Multi-scalar in scope, from the impact of individual mobility in bride exchange or specialist itinerant craftspeople, to the institutional level where capitals would regularly re-locate, mobility is a crucial socio-political mechanism that can be fruitfully explored through a range of African case-studies. Shorn of the political baggage of colonial era migrationist rhetoric, this session is intended to expand and develop African-based research on this theme, but also to provide a theoretical perspective on alternative mobilities to a European audience

AM3 GLOBAL APPROACHES TO MODELLING AND THEORISING MOBILITY

Caroline Wickham-Jones, University of Aberdeen

This session collects contributions inspired by the theme of Archaeology and Mobility.

AM4 ARCHAEO TOURISM ON THE MOVE: DEVELOPING GUIDELINES FOR EUROPE

Mrs. Annemarie Willems, ArchaeoConcept. Dr. Cynthia Dunning Thierstein, ArchaeoConcept. Dr. Ben Thomas, Archaeological Institute of America

The primary goal for this roundtable is to establish a framework for a set of European guidelines on archaeological tourism. The themes for the program were selected from the ideas, issues, and concerns raised in a series of workshops and discussions on archaeotourism that have been held throughout Europe since 2012. Discussion Topics: · Establishing a working definition for archaeological tourism, using existing definitions of tourism and heritage tourism; · Distinguishing archaeotourism from public archaeology; · Identifying the stakeholders involved in archaeological tourism; · Investigating the five guiding principles for successful sustainable heritage tourism that were developed by the U.S. based National Trust for Historic Preservation. Could these principles form the basis for the European guidelines for archaeological tourism? They include: o 1. Collaboration – building partnerships; o 2. Find the fit – involve the local community; o 3. Make sites and programs come alive - interpretation with all five senses; o 4. Focus on quality and authenticity; o 5. Preserve and protect. We welcome participation and input from both archaeologists and tourism specialists on these topics and aim to develop a methodology for

archaeotourism that considers the risks and opportunities of archaeological tourism; how sites are chosen for touristic development; and how we can balance research and tourism without compromising the archaeological integrity of the sites. The outcome of this roundtable would form the building blocks of a set of European guidelines for archaeological tourism which will be useful not only in Europe but also around the world.



AM5 MERC - BRIDGING SCALES: LOCAL TO GLOBAL PERSPECTIVES ON MOBILITY, INTERACTION, AND TRANSMISSION IN THE FIRST MILLENNIUM AD

Ms.Kathrin Felder, Division of Archaeology, University of Cambridge. Dr.Susanne Hakenbeck, Division of Archaeology, University of Cambridge . Dr.Alison Klevnäs, Department of Archaeology and Classical Studies, Stockholm University

This session grapples with scales of interpretation in the first millennium AD. The archaeology of this period is traditionally situated within large-scale interpretive models – the demise of an empire, migrations of peoples, the fall and rise of long-distance trade – yet its evidence is approached from a human scale. We investigate physical, social, and ideational mobility at the micro-scale of human interactions, or through the human-thing-relationship rooted in the household, funeral event or on the surface of the single artefact. The aim of this session is to explore conceptual frameworks and methods for traversing these scales. We focus on connections, interactions, transmission, and the reshaping of social relationships through movements of people, things, and ideas across social and physical space. We welcome papers which develop practical methodologies and conceptual frameworks for examining relationships between global, regional, and local patterns and narratives. For example: Mundane lives in meta-narratives. How did large-scale social processes and transformations interact with the everyday realities of craftworkers, traders, men and women, rural communities, emerging elites? Transmission processes of styles, techniques, practices. Elements of early medieval craft styles are remarkably similar over wide areas. How were ideas about products and practices produced and communicated? Likewise, the end of the Roman empire saw widespread changes in mortuary ritual in the former frontier zones. Though based on local decisions, these followed similar patterns. How did individual agents contribute to the transmission of social practices over such large geographical areas? Groups, distance, identities. When and why is cultural transmission, and the formation of group identity, dependent on spatial proximity or distance? Does mobility – of people, material culture, or ideas – enable an overcoming of distance? Methodologies for mobility. Can we develop new, more dynamic, ways of tracing, visualising and analysing mobility and transmission patterns across Europe in the first millennium AD?

AM6 CASTING A GLANCE OVER THE MOUNTAINS: ARCHAEOLOGICAL AND BIOGEOCHEMICAL APPROACHES TO THE UNDERSTANDING OF VERTICAL MOBILITY

Dr.Claudia Gerling, IPNA/IPAS. Dr.Lucie Martin, University of Geneva / University of Savoie Mont-Blanc. Dr.Corina Knipper, Curt-Engelhorn-Centre Archaeometry gGmbH. Dr.Thomas Doppler, University of Basel

Prehistoric populations visited upland areas to exploit natural resources, for example flint, quartz, game, and wild plants, as early as the late Palaeolithic, around 17,000 BP. Finds like the Tyrolean Iceman in Italy or the glacier finds from Lenk-Schnidejoch in Switzerland show that (high) alpine regions were still used during the Neolithic and in later periods. In the Alps, as well as in the Caucasus, several archaeological sites, in the form of settlement, sheepfold or hunting camps, were excavated in mountainous and subalpine context. All these finds, combined with multi-proxy archaeobiological analyses, provide an indication of vertical (probably seasonal) mobility and the use of high altitudes, including for pastoral purposes. This session aims to bring together archaeologists, archaeozoologists, archaeobotanists and scholars from related scientific disciplines. The objective will be to discuss vertical mobility and niche construction through time using archaeological, archaeobiological and stable isotopic analytical approaches, with a special focus on the study of faunal and plant remains. We welcome papers on case studies about land- and resource use, animal and crop management, dairy economy, gathering and hunting, especially in mountainous regions, including their forelands. In order to stimulate a constructive discussion, we encourage submitting papers which elaborate on the following aspects: methodology – results – evidence and limitations – needs and perspectives.

Doppler

AM7 DARK HERITAGE - THE ARCHAEOLOGY OF INTERNMENT AND FORCED WARTIME MIGRATION

Mr.Andrew Johnson, Manx National Heritage. Dr.Suzie Thomas, Department of Philosophy, History, Culture and Art Studies. Dr.Susannah Eckersley, International Centre for Cultural & Heritage Studies

Last year's EAA conference session 'Archaeologies of War(s)' considered a century of conflict from a perspective focused mainly, though not exclusively, on battlefield archaeology. The last one hundred years has also seen the making of war on civilians developed to an unprecedented level and it is perhaps timely to contemplate the cultural legacy of civilian detention, internment and forced migration which has become a significant aspect of industrialised and sometimes global war. Systematised restriction of civilian populations, sometimes involving privation and even mistreatment, was by no means a new departure at the onset of WWI, and was pursued with still greater purpose during WWII. Even the Universal Declaration of Human Rights has not entirely prevented 21st century iterations of such behaviours, particularly where political and terrorist issues are involved. The deliberate displacement, concentration and incarceration of mass populations had many side-effects which have left varied physical and cultural legacies among both victims and perpetrators. For most it was a shocking or

sometimes even fatal experience; for others an opportunity to seek diversions which resulted in extraordinary cultural and artistic achievement. For those responsible it has led variously to guilt, redemption, cover-up and acknowledgement. In many cases there is a distinctive residue of sudden mixing or removal of peoples and their material and ephemeral cultures. We consider the archaeological, museological and interpretative consequences of this dark heritage through contributions focused mainly, though not exclusively, on internment and forced displacement during the 19th and 20th centuries.

AM8 EXCHANGE OF GOODS AND IDEAS. LONG DISTANCE TRADE IN SOCIAL AND CULTURAL CONTEXT.

Dr.Marta Zuchowska, Institute of Archaeology, University of Warsaw. Mr.Robert Zukowski, Institute of Archaeology and Ethnology. LI Yusheng, School of Cultural Heritage, Northwest University, Xi'an

In present session we would like to discuss long distance trade not only in terms of movement of goods and their influence on ancient economies, but rather as a complex process of exchanging ideas and cross-cultural contacts. We will focus on the contextual aspects of this phenomenon connected with the impact of trade on societies and their culture, looking also beyond the material, in order to understand the social background of ancient trade and exchange. We warmly welcome papers concerning such problems as: · The exchanged goods as the material evidence of social aspect of the trade: their cultural attributions and the issues connected to the change of value and meaning of objects transferred from one area to another. Production of trading goods and their consumption - the impact of the long distance trade on the cultures of societies involved in the process: local imitations of exotic goods, their functions and uses, changes of local production influenced by long distance trade, development of workshops producing goods for export, transition of motifs and forms, change of taste influenced by exchange of goods, visible in archaeological material, iconography etc. People of trade – evidence of ancient merchant communities living abroad reflected by the archaeological sources. We do not set any chronological nor geographical restrictions, we welcome all papers proposing the new methodological and theoretical approaches as well as the case studies concerning issues mentioned above.

Session organized in the frame of research project: "Exchange of goods and ideas. Trade in Asia between 4th and 10th c. AD" - financed from the funds of National Science Centre, Poland, granted by decision no. DEC-2012/07/E/HS3/01028.

AM9 FROM DOTS ON A MAP TO LONG-TERM LINEAR STRUCTURES: TRACKS AND ROADS AS MEANS OF COMMUNICATION THROUGH TIME AND SPACE

Ms.Pernille Foss, Saxo-Institute, Section of Archaeology, University of Copenhagen. Ms.Jette Bang, Danish Agency for Culture. Ms.Ingrid Smedstad, Faculty of Arts and Sciences, Dept. of Humanities and Cultural Studies,Telemark University College

As ancient monuments, roads and tracks are composed of numerous layers and features ranging through time and space. Hence they represent structures that have been used throughout several millennia. Ranging from the early Neolithic to well into Antiquity and Medieval times they convey many interesting perspectives in European history. To what extent is their purpose local, regional or even interregional? What means of transportation and goods were involved? Is it merely a local practical construction in ways of facilitating crossings? Is it leading into sacral places? Or is this a way of gaining new ground? These interpretations may comply with the better part of the known roads but there are others that still remain a conundrum. However, one question is always sought to be answered: what points of interest do they connect, that is, to where and from where do they lead? One way of answering is the exploring of long sequences of roads and tracks in the landscape and the digitalized mapping of comprehensive data that may well lead to a better understanding of these features as main corridors of regional mobility. The session aims to discuss roads in wider aspects, such as the context between roads, barrows and burial sites or as a matter of linking settlements, the question of being a geological phenomenon versus human construction, studies of roads in historic and visual context involving i.e. aerial photographs, LIDAR and digital elevation models, and lastly but not least the means of a closer dating. To this end we invite any case studies and site investigations that may provide new perspectives on transport, trade and interhuman communication in Prehistory and Antiquity and an opportunity to relate the particular elements to the general conception of local and regional mobility.



AM10 MERC - GLOBAL MARKETS AND LOCAL MANUFACTURING: WOOL PRODUCTION AND TRADE

Dr.Idoia Grau Sologestoa, University of Nottingham. Dr. Chiara Corbino, University of Sheffield. Dr. Alessandr Quercia, Soprintendenza per i Beni Archeologici del Piemonte e del Museo Antichità Egizie

The production and trade of wool and the commercialization of manufactured textiles constituted key aspects for many areas of Europe in different historical periods, not only at a household level, but also in the economic system of states. Economic history studies show how important this topic has been in Europe, in particular during the Middle Ages, while the potential contribution of archaeology has not yet been fully explored. Moreover, some archaeological and ethnographical approaches to this subject are focused on specific questions of the everyday life. But, on the contrary, interdisciplinary archaeological research looking at the technology and trading networks of wool craft in their social, economic and political contexts is still overdue. The aim of this session is to explore a variety of socio-economic aspects between the Roman period and the Early Modern Era, focusing the attention on to large-scale production, manufacturing and trade of wool and cloths. Some possible topics include: Trading networks: markets, urban supply, international trade, etc. Animal husbandry practices for large-scale wool production: transhumance, selection, improvement and trade of sheep breeds for producing wool. Archaeological record of

wool production and textile manufacturing: artefacts, tools and structures related to wool production and textile fabrication. Wool production and trade as indicators of globalization and/or local identity through time. Theme: Interpreting the Archaeological Record/MERC



AM11 MERC - HISTORICAL TRANSHUMANCE IN EUROPE: FINDING COMMON GROUND IN MARGINAL LANDSCAPES

Mr. Eugene Costello, National University of Ireland, Galway. Dr. Mark Gardiner, Queen's University

Belfast. Prof. Eva Svensson, KARLSTAD UNIVERSITY

This session seeks papers on European transhumant farming in the period, AD 600-1950. Transhumance is a form of pastoralism that has been practised around the world from early times and can vary hugely in form and scale according to the rhythms of the natural environment and human society. At its core, however, is the movement of livestock from one pasture to another on a seasonal basis. This movement is driven by a desire on the part of farmers to make sensible use of all grazing land available to them. Typically, livestock are brought to marginal pastures in hills, mountains, woodland, etc. at the start of summer and grazed there under the watch of herders until the approach of winter. They are then taken back to the winter settlement - often the main base of the family or community. Important work has already been carried out on the subject by geographers, historians and ethnographers, but it is really only in the last twenty years that archaeologists have started to think seriously about what they can contribute. This is a shame since the ruins of herders' huts and houses are sometimes the clearest evidence we have of transhumance taking place in past centuries. This session hopes to bring together recent archaeological scholarship on historical transhumance and pose a number of questions. How do we reconcile archaeological evidence for transhumance with historical and ethnographic accounts for the period in question? What social and economic pressures come to bear on the transhumant way of life as we enter the post-medieval period, and can these be explained with reference to the archaeology? Can scholars of Mediterranean, Alpine, Northern European and other forms of transhumance learn from one another, or is research so fragmented as to preclude academic co-operation in this international way of farming?

AM12 ISLANDS AND ARCHIPELAGOS IN EUROPEAN PREHISTORY: NAVIGATION CRADLES AND SEA-ROUTES JUNCTION

Francesco Tiboni, Université Aix-Marseille CCJ, UMR 7299. Dr. Kewin Peche-Quilichini, UMR 5140 ASM, Université Montpellier 3

The session will discuss the role played by islands and archipelagos during prehistory and proto-historical time in the field of maritime navigation and interconnection. The main aim of this session is to discuss the different problems linked to insularity during pre and protohistorical time, trying to reconsider the idea of isolation of islands and archipelagos. To do this, the session will include papers about navigation and sea-routes, commercial trades and human mobility from different areas like Mediterranean sea, northern Sea and Africa. The proposed studies could lead to shed a new light on the Mediterraneo-centric idea of European archaeologists as well as to reconsider the role played by northern interconnections and regional archaeology. The idea is to propose a new analysis of the data collected in the last years about human and animal diffusion in the Mediterranean Sea and the North, and to propose a new interpretation of the interaction between men and the sea as a way to transport goods, raw materials and knowledge to share with different cultures. The session will also try to investigate the role played by regional archaeology in the often-overestimated diffusionist pattern of prehistoric Europe, particularly concerning Mediterranean sea, trying to involve specialist of different topics including naval archaeology and ancient navigation, ancient metal crafts and proto-historical maritime trading.

AM13 LOST IN SPACE, OR THE INBETWEENERS: THEORISING MOVEMENT, MESHWORKS AND MATERIALITIES IN THE PAST

Dr. Catriona Gibson, University of Wales. Dr. Catherine Frieman, Australian National University. Dr. Kerri Cleary, University of Wales

In archaeology, while notable recent explorations of past dynamics exist, literature on mobility remains dominated by accounts of gatherer-hunters, or the long-distance exchange of materials. Refinements of scientific dating techniques, isotope, trace element and aDNA analyses, in conjunction with phenomenological investigation, computer-aided landscape modelling and GIS-style approaches to large data sets, allow us to follow the movement of people, animals and objects in the past with greater precision and conviction. Challenges such as tracing the less tangible journeys objects went on and the hands they passed through may be tackled through biographical approaches to artefacts, including the recognition that culture contact and hybridity affect material culture in meaningful ways. Furthermore, discrete and bounded 'sites' still dominate archaeological inquiry, leaving the spaces and connectivities between features and settlements unmapped. These are linked to an underexplored middle-spectrum of mobility, a range nestled between everyday movements and one-off ambitious voyages. We wish to explore how these travels may have involved entangled meshworks of people, animals, objects, knowledge sets and identities. By crossing and re-crossing cultural, contextual and tenorial boundaries, such journeys could create diasporic and novel communities, ideas and materialities. We now have several methodological and hermeneutic tools at our disposal to help tease out these ambiguous or blurred intermediate levels, and their temporalities, tempos and rhythms. This session seeks to

advance studies of mobility by using a range of novel methodological and hermeneutic tools and invites contributors: 1) to identify patterns of movement, changing function and meaning in material culture; 2) to recognise and understand the significance of inter-site or off-site spaces within landscapes; and 3) to discuss movement on a variety of scales, both temporal and spatial.



AM14 MERC - NORTH ATLANTIC ISLANDS: NETWORKS, SETTLEMENT, AND IDENTITY

Ms.Magdalena Schmid, The University of Iceland. Ms.Lara Hogg, Cardiff University

In the last decade island archaeology has been the focus of increasing research. This is particularly the case for the North Atlantic islands (including Britain and Ireland) which have received growing international attention especially on studies relating to mobility, settlement and identity. These studies have vastly increased our knowledge of past North Atlantic societies; these have emphasized movement, shared worldviews and social identities and this has led to engaging debates and challenged previously held interpretations of past North Atlantic island societies. This session explores the island archaeology of the North Atlantic. It is particularly focused on the early medieval and medieval archaeology but is also interested in chronological change and how later centuries may have been influenced by earlier developments. The primary issues to be addressed and considered are the networks between these islands and further afield, the nature of settlement and colonization and island identities. The session is particularly interested in papers that utilize evidence from a variety of different disciplines. Relevant topics could include research from various sources, including but not limited to: archaeological remains, human/animal DNA, radiocarbon dates and Bayesian models, human-induced vegetation change and extinctions, deforestation, sediments, volcanic activity, climate, sea routes, ships and trade, written sources, the origins of settlers, indigenous population, historical linguistics, population growth and decline, abandonment of places and collapse of civilizations.

AM15 POTS ON THE WATER: MARITIME TRANSPORT CONTAINERS IN THE MEDITERRANEAN BRONZE AND IRON AGES

Prof.A.Bernard Knapp, University of Glasgow. Dr.Stella Demesticha, University of Cyprus

The transport of goods in bulk is an unmistakable indicator of trade in the archaeological record, as it presupposes commercial mechanisms: agents, contact networks, control procedures, multiple transactions. Transportation by sea is one step more complex, as it involves a high-risk venture, nautical expertise and an advanced system of safe packaging for the transported goods. The most important type of archaeological artifact for this kind of information is what we term the Maritime Transport Container (MTC). More widely known in the Bronze Age as, e.g., the Canaanite Jar or Transport Stirrup Jar, and in the Iron Age as various types of amphorae, MTCs are a distinctive class of vessel, and have been systematically studied as such for later periods. The early phases of their development, however, the key formational stage of their history, remain comparatively obscure, because their maritime function and attributes often have escaped the attention of archaeologists. This session aims to bring together pottery specialists, maritime archaeologists, shipwreck excavators and other scholars with a specific interest in seaborne trade. The papers seek to enhance our understanding of the early stages (from the Early Bronze to Early Iron Ages) in the emergence and development of MTCs, and their role in maritime trade. These containers have long formed the focus of specific and detailed pottery studies but seldom have been examined diachronically as a commercial commodity pertinent to connectivity and trade throughout the Mediterranean. By reconstructing the earliest phases of their production and use, we will gain important insights into the initial phases of 'systematic' seaborne trade in the Mediterranean, and thus be able to consider to what extent maritime transport containers might serve as markers of trade mechanisms of different scale, or of economies that more or less depended on seaborne trade.

AM16 ROUND AND ROUND THE MEDITERRANEAN: INVESTIGATING THE APPEARANCE OF THE POTTER'S WHEEL AS A MOBILE TECHNOLOGY IN PREHISTORY

Dr.Maja Gori, University of Amsterdam. Dr.Jill Hilditch, University of Amsterdam. Dr.Marco Bettelli, CNR - Istituto di Studi sul Mediterraneo Antico

Traditionally, the potter's wheel has been studied as a very distinct technological phenomenon within separate regions of the Mediterranean, rarely allowing for comparative perspectives on the appearance, adoption and sustained use of this technology within prehistoric societies. Our aim is to investigate the mechanisms underlying the adoption of the potter's wheel across multiple Mediterranean communities by highlighting inter-regional parallels, or variation, in factors affording or limiting technological change within prehistoric potting communities. This session seeks to integrate case studies across the Mediterranean basin, including Egypt, Anatolia, Cyprus, the Aegean, Italy, the Balkans, the Iberian peninsula and other islands of this region. We will explore aspects such as:– the application of technological or chaîne opératoire approaches for characterizing the adoption of the potter's wheel;– the application of different models for explaining the spread of the wheel in the Mediterranean (e.g. diffusion versus independent invention, etc.)– the relationship between social organization and adoption of technological innovation;– the impact of the potter's wheel on regional assemblages and practices;– how to assess the rate, or perceived success of potter's wheel adoption;– archaeometric/macrotrace analyses for investigating the different uses of the potter's wheel within ceramic production. We particularly encourage papers that draw from a range of fields beyond traditional artefact studies.



AM17 MERC - STEPPING STONES IN SUPER-REGIONAL NETWORKS. LANDING PLACES WITHIN THE MARITIME CULTURAL LANDSCAPE (C. 550-1500 AD)

Dr.Sven Kalmring, Centre for Baltic and Scandinavian Archaeology. Dr.Natascha Mehler, Institut für Urgeschichte und Historische Archäologie. Dr.Mark Gardiner, School of Geography, Archaeology and Palaeoecology (GAP)

Simple landing places were much more common than the major harbour towns and ports. Landing places fulfilled different functions ranging from fishing harbour, food supply, shelter from storms, to transit harbour, ferry harbour, export harbour, harbour market and naval harbour. As places for overnight stays, landing sites often provided the 'stepping stones' within the super-regional networks of transport. There are few studies on landing sites, their systemic role along the major sea routes, and their relationship to major ports. The archaeological identification of landing sites is often hindered by the fact, that they did not have large, artificial harbour facilities, nor substantial logistical infrastructure. Their physical remains are often limited to very basic remains, such as mooring poles or berth reinforcements. The range of associated artefacts is often limited and – if there is no shipwreck or anchor – sometimes hardly discernable from other kind of settlements. The session takes Christer Westerdahl's definition of the maritime cultural landscape as a starting point. Landing places are studied from both the land and sea, using a perspective which includes churches, market places, navigation marks, waterways, place-names, shipwrecks and imported goods. Using this holistic view, we are able to add specific evidence of landing sites and even to transfer a comprehensive, almost settlement archaeological approach to our own limnic/maritime sphere. Therefore, the session will particularly address Methods for archaeological verification of landing sites Case studies of landing site localities in their wider regional setting both on land and on sea Maritime networks of landing sites as stepping stones along sea routes Landing sites in dependency to major hubs/nodal points The session focuses on landing places and harbours of Northern Europe but we also invite contributors from Central or Southern Europe to help broaden our perspectives.

AM18 THE ARCHAEOLOGY AND ARCHITECTURE OF MOVEMENT IN ROMAN LANDSCAPES

Prof.Michel E. Fuchs, Université de Lausanne. Miss Anouk Busset, Department of Archaeology, Glasgow University

This session focuses on the structures, concepts and practices associated with road building throughout Late Antiquity and Early Medieval Period. The importance of roads will be discussed as well as the idea of the creation of pathways. The Roman presence through the roads and paths can still be observed in the landscape and is sometime used nowadays, and certainly had a profound impact on social development. Fundamentally, we will explore how to explain the continuity and durability of the Roman imprint on the landscape. Other questions we will consider are: How does the human perception evolve from occasional paths to rooted roads? What are the implications of roads crossing water or travelling through mountains? What is the impact on the genius of the land ("génie du lieu") of the introduction of this means of rapid travel and mechanism of conquest? And finally, how did the "barbarian" Celtic landscape evolve into the "civilised" Roman landscape? This session will draw case studies which extend from Italy to the British Isles, including the St Bernard Pass, the via joining Tarnaiaie (Massongex), Eburodunum (Yverdon), Aventicum (Avenches) and Salodurum (Soleure), the Pierre Pertuis Pass and the Jura, the main paths of Burgundy around Epomanduodurum (Mandeure), the viae running from Tungri (Tongres) or Colonia Claudia Ara Agrippinensium (Cologne) to Bagacum Nerviorum (Bavay) and Vindunum (Le Mans), the Rhine route and the Channel crossing.

AM19 TRAFFICKING CULTURE: RESEARCH INTO THE GLOBAL TRAFFIC IN CULTURAL OBJECTS AT THE UNIVERSITY OF GLASGOW

Dr.Christos Tsirogiannis, University of Glasgow. Prof.Simon Mackenzie, University of Glasgow. Dr.Neil Brodie, University of Glasgow. Dr.Donna Yates, University of Glasgow. Ms.Terressa Davis, The Antiquities Coalition

This regular session will present results from the ongoing multidisciplinary research (Archaeology, Criminology and Law) into the global traffic in cultural objects, conducted by the team of the Trafficking Culture project at the University of Glasgow, during the last 4 years. Professor Simon Mackenzie will talk about the international antiquities market from a criminological point of view, using several case studies as examples. Dr. Neil Brodie will consider the organisation of the antiquities trade and the effectiveness of public policy in the 2010s. Since this policy dates back to the 1970 date of the UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property, is it still relevant after globalisation and the emergence internationally of neoliberal trading systems? Dr. Donna Yates will speak about on-the-ground barriers to the effective implementation and enforcement of cultural property policy in Bolivia and Belize using case studies from fieldwork. American lawyer Tess Davis will examine the Kingdom of Cambodia's fight — both in US courts of law and public opinion — to recover the many antiquities looted from the country during its long and bloody war with the Khmer Rouge. Ms Davis will also present lessons to be learned from this case study, which it is hoped will be relevant to all interested in cultural heritage preservation, and especially those working in conflict and post-conflict countries. Finally, Dr. Christos Tsirogiannis will present how our knowledge of the structure of the international illicit antiquities networks has been expanded during the last 4 years, based on cases of antiquities identified as illicit when they offered for sale in the London and New York market.

AM20 UNCOVERING HISTORICAL ROUTES FOR A SUSTAINABLE MOBILITY: METHODS, TOOLS, CASE STUDIES
Prof.Cinzia Tavernari, Abdullah Gül University. Prof.Carlo Citter, University of Siena

Uncovering historical routes for a sustainable mobility: methods, tools, case studies Mobility is one of the key aspects of 21st century's globalization. It may sound inappropriate to use the latter word when referring to past civilizations, however, it is indisputable that in past societies as well several groups of people were constantly on the move (merchants, pilgrims, craftsmen, soldiers). Because of their relevance to the understanding and explanation of many aspects of human behavior in the past, mobility studies are central to archaeological research. In addition, they gain increasing importance in view of the contemporary challenges posed by our society's ever-increasing mobility. Mobility must be supported by roads, routes, paths, tracks. In this sense we believe that "the history of roads is not the study of the dead past, but of the living present" (Taylor 1979). This consideration represents the core concept of the session and our goal is mainly to explore mobility through the routes that served as its backbone. In this session we especially wish to invite contributions that consider three main issues. First, we focus on mobility as a network of connected routes, also in relation to the spreading of goods, ideas, military conquest and domination. Second, we consider the materiality of routes, how did they make them, what does remain in the archaeological record. Third, we think that the recovering of ancient routes in relation to contemporary mobility can help the sustainable development of a given territory for, both, tourism and inclusive societies. The focus of the session is mainly methodological and theoretical and it is thus open to any chronological period.

AM21 CLASSICAL AND EARLY MEDIEVAL MOBILITY

Elizabeth Langridge-Noti, American College of Greece

This session collects contributions inspired by the theme of Archaeology and Mobility.

AM22 MARITIME MOBILITY

Sara Rich, Maritime Archaeology Ltd

This session collects contributions inspired by the theme of Archaeology and Mobility.

AM23 MATERIALITY AND MOBILITY

Karen Hardy, ICREA at Universitat Autònoma de Barcelona

This session collects contributions inspired by the theme of Archaeology and Mobility.

RECONFIGURING IDENTITIES

RI1 AT HOME IN THE NEOLITHIC: UNDERSTANDING DIVERSITY IN NEOLITHIC HOUSES AND HOUSEHOLDS

Dr.Penny Bickle, University of York. Dr.Ben Chan, Leiden University. Prof.Lech Czerniak, University of Gdańsk. Dr.Joanna Pyzel, University of Gdańsk. Dr.Christina Tsoraki, Leiden University

The aim of this session is to consider how to integrate different approaches to Neolithic houses and households, in order to investigate the diversity of ways in which communities related to their domestic architecture. It arises from the session who lived in longhouses?, held at EAA 2014, which focused on the longhouse architecture of the central European Danubian Neolithic. A variety of papers, combining bioarchaeological evidence with studies of the architecture itself, as well as the artefactual and faunal remains found alongside the houses, provided new insights into the organisation of Linearbandkeramik (LBK) houses. However, it became clear during the session that two key problems warrant further discussion: 1) what significance variability between households had for LBK and post-LBK communities, and, 2) how material remains relate to the practices from which they arose. Therefore, this session draws on the application of combined approaches to Neolithic domestic architectures across a much wider area, to compare and contrast the different material practices associated with Neolithic houses, and the effects that different degrees of preservation have on our interpretations of those practices. We invite papers which consider variability in the architecture of the Neolithic on varied scales, both within and between settlements of one region or culture, as well as those comparing and contrasting houses and households between different geographic regions. We encourage authors to address a specific range of questions: do different subsistence strategies and material remains indicate varied social groupings or can we understand variation in other ways? To what extent can we identify competition and co-operation between households? How confidently can we identify the practices associated with houses? To what extent did those practices shape emerging Neolithic societies? Beyond hierarchy, what are the other salient factors and scales for investigating differentiation?

RI2 BATTLEFIELD ARCHAEOLOGY: EXPLORING THE MATERIALITIES OF CONFLICT

Dr.Manuel Fernandez-Gotz, University of Edinburgh. Prof.Nico Roymans, Vrije University Amsterdam

The domain of battlefield archaeology has received increasing attention in recent years, from truly prehistoric contexts such as the Bronze Age battlefield of the Tollense Valley in Northern Germany to the traces of the Caesarian conquest in Gaul or the remains of Early Modern conflicts such as the Thirty Years War. This is directly linked to the importance given to the materialities of conflict and the increasing attention paid to short-term events as a complementary focus to long-term processes. The aim of this session is to explore a wide range of topics related to the archaeological investigation of battlefields and battlefield-related contexts, with a chronological focus in the Late Prehistoric and Early Historic period. This can include specific case-studies, different kinds of material evidence and general theoretical-methodological approaches. Among the different aspects we would like to discuss are:- Historical-anthropological reflections on warfare and battlefield contexts- Battlefields between texts and artefacts: interdisciplinary approaches- Fortification works related to battles (e.g. reinforcement of previous structures, erection of temporary military camps, etc.)- Traces on bones: The contribution of forensic anthropology- Weapons: The embodiment of violence- Post-battle remains (e.g. memorials, exhibition of trophies, mass graves, etc.)- Impact of battles on the wider environment (e.g. occasional depopulation of a region, avoidance of certain terrains based on past memories...)- Heritage management and knowledge exchange: battlefields as cultural and touristic resources

RI3 BEYOND THE TECHNOLOGICAL CHAIN. POTTERS IN SOCIAL NETWORKS

Dr.Petr Kvetina, Institute of Archaeology CAS, Prague. Dr.Louise Gomart, UMR8215 Trajectoires. Maison de l'Archéologie et de l'Ethnologie. Dr.Richard Ther, Department of archaeology UHK. Miss Klara Institute of Archaeology CAS, Prague

Formal and technological attributes of pottery mirror potters' habitus, actions, and decisions inhibited or stimulated by users of pottery. The variability of these attributes in time and space reflects networks of producers embedded in a complex social network. But how the knowledge of pottery manufacturing processes can be used to gain more accurate understanding of the society behind the "chaînes opératoires" when the basis for the interpretation is archaeological evidence? Can archaeologists reach reliable picture on relations between pottery technology and society? Can the interpretations be built on testable hypotheses? Those are painful issues accompanying all the archaeological attempts to understand variability and changes in pottery technology, the issues that motivate the main theme of the session: the pursuit of archaeologists to integrate pottery technology analysis to the complex interpretation of the past societies. In the session, we will discuss several aspects relating to analyses of ancient pottery technology: 1) The application of reliable methods of identification of manufacturing processes, which require clearly defined diagnostic attributes validated by experimental research; 2) Application of an appropriate combination of different analytical frames, from large scale macro analysis to focused detailed analysis; 3) General problems relating to the potential of archaeological assemblages to address relevant questions; 4) Alternatives to the study of large ceramic assemblages (e.g., systematic sampling to examine the variability of manufacture techniques). Case studies across prehistoric and early historic periods are welcome.



RI4 MERC - BORDER CULTURES: POTTERY AND THE SOCIAL DYNAMICS OF BORDER REGIONS IN MEDIEVAL EUROPE

Dr. Ben Jervis, Cardiff University. Dr. Jette Linaa, Moesgaard Museum, Moesgaard Allé 20

This session is organised on behalf of the Medieval Pottery Research Group (www.medievalpottery.org.uk). The utility of pottery for identifying boundaries and difference in the archaeological record has long been recognised (e.g. Hodder 1979). But boundaries are also places of interaction and mixing, as demonstrated by recent research (e.g. Naum 2011). How can we use pottery to explore the cultural and social dynamics of border regions in Medieval Europe? For the purposes of this session borders are defined in a broad sense, to explore the relationships between communities living on islands, and at the borders of territories, kingdoms and topographic regions (e.g. upland and lowland areas), which might have different, but connected, ways of life. Questions which contributors may choose to explore include: 'What is the impact of borders on the organisation of pottery production?' 'What evidence does pottery technology and decoration provide for cultural mixing and the development of social identities?' 'Did people living in border areas use pottery in distinctive ways, and does pottery offer evidence for the development of regional cuisine and food culture?' 'What can trade/distribution patterns tell us about the permeability of borders?' 'How did pottery production and use contribute to the emergence of distinctive identities in border regions?' Papers are welcome from across Europe and contributions which explore new and innovative approaches to the study of identity and material culture are particularly welcome. References: Hodder, I. 1979, 'Economic Stress and Material Culture Patterning', *American Antiquity* 44(3), 446-54. Naum, M. 2011, 'Ambiguous Pots: Everyday Practice, Migration and Materiality. The Case of Medieval Baltic Ware on the Island of Bornholm (Denmark)', *Journal of Social Archaeology* 12(1), 92-119.

RI5 BRONZE AGE TURNING-POINTS

Dr. Serena Sabatini, Dept. Historical Studies, Göteborg University, Sweden. Dr. Ann-Louise Schallin, Swedish Institute, Athens, Greece. Prof. Helène Whittaker, Dept. Historical Studies, Göteborg University, Sweden

The purpose of this session is to investigate periods of rapid political, social, and cultural change in the European Bronze Age from a comparative perspective. Our overarching interest is in understanding the transformative processes that can lead to the reconfiguration of social and cultural identity and the ways in which this may be reflected in the material evidence. We invite papers that discuss the evidence from specific cultural contexts. We are interested in all periods of the Bronze Age and we have a broad definition of Europe. Bronze Age turning-points can be defined as periods of political, social, and/or cultural transformation as a result of climate change, warfare, the movements of people, social unrest, economic situation upswings and downswings, including the complex interplay between demand and access to raw material/manufactured goods. The transition from the Middle to the Late Bronze Age or from the Bronze Age to the Iron Age, for example, can be considered obvious turning-points, but other periods in different parts of Europe can also be regarded as turning-points. Turning-points can be understood negatively and be represented by social and political collapse, but may also be represented by periods that are characterised by an increased prosperity and the establishment of contacts with the wider world. We are particularly interested in papers that attempt to investigate periods that have generally been interpreted in terms of a worsening of social and political conditions from a more positive angle, but we are open to all perspectives. By comparing the different parts of Europe in different periods of time, we hope to shed light on the various factors that may have played a key role in Bronze Age "turning-points". Can we discern common factors and to what extent do separate developments and events have their own trajectories?

RI6 CONSUMPTION PREFERENCES AND AGRICULTURAL CHOICES: AN ECONOMIC APPROACH TO IDENTITY IN ARCHAEOBOTANY

Dr. Jutta Lechterbeck, Landesamt für Denkmalpflege Baden-Württemberg. Dr. Tim Kerig, University of Cologne. Dr. Julian Wiethold, Chargé opération et recherche Institut national de recherches archéologiques préventives (Inrap)

Archaeobotany focuses foremost on production and consumption of all kinds of plants. Two concepts borrowed from economic anthropology promise new insights: agricultural choices and consumption preferences. What archaeologists see as markers of identity are traces of consumption practices which can also be interpreted in terms of consumption preferences: individuals sharing material culture may often consume the same things. Actual consumption is what an agent may practice under the given natural and societal circumstances. A hierarchical order represents the agent's priorities of goods according to their assumed utility, for instance preferring white flour to rye porridge, and porridge to acorn. Agricultural choices aim at evaluating the efficacy of producing certain cultigens. The choice is always from practices pooled from a societal repository. The assumed utility of the choice depends on one's consumption preferences. These preferences and practices form identity, be it of internal or external origins. This is obvious for food preferences: high prestige as well as daily food is used to make clear social distinctions, communities are created and maintained by ritual food sharing, and ethno-linguistic groups may be defined by an actual or assumed fondness for certain foods. Fibre and dyeing plants are essential for costume and for adding paint to the body as well as to artefacts; these important consumption preferences are thus closely linked to notions of identity. Agricultural practices reproduce identities through associated daily activities: there is often no real difference in the performance of various harvesting techniques, whilst several practices may exist side by side. Some tasks may be taboo for one group or another

according to gender, age, religion or ethnicity. Classes may be divided by consumption. Invited are all contributions to issues of identity in archaeobotany. We invite especially evidence-based papers focused on consumption preferences and agricultural choices.

RI7 CURRENT APPROACHES TO ARCHAEOLOGICAL JUVENILE BURIALS

Dr.Eileen Murphy, Queen's University Belfast. Ms.Melie Le Roy, University of Bordeaux

Juvenile interments are frequently discovered within a variety of funerary and domestic contexts. Each burial has its own form; the body is positioned in a particular manner and they are sometimes associated with funerary goods and the remnants of grave furnishings. How can we interpret these different components of mortuary ritual? What insights can we gain concerning the wishes and beliefs of those who buried the children? What methodological approaches might enable these questions to be addressed most successfully? The majority of archaeological studies about children in the past derive their information from funerary contexts. What are the processes being used by researchers to analyse juvenile remains and to identify taphonomic processes at play within burials? Can funerary practices related to the age and, in some cases, the sex of the individual be identified? How are such mortuary rituals manifest both temporally and chronologically? Regardless of the time period or geographical location, childhood is not solely a biological stage but is also defined by cultural and social parameters. By contextualising the data collected in both the field and laboratory it is possible to gain a more nuanced understanding of the attitudes that were shown towards the young in the past. We can move beyond generating purely scientific data to gaining an understanding of key facets of past life, including the emotional attitudes that were shown towards children during life and in death, as well as their place in the social strata and ritual activities of their societies. In this session we hope to assemble a panorama of studies about juvenile burials which will enable us to gain a better understanding of current methodologies and investigative tools. The speakers will demonstrate how these are being used to generate more holistic narratives about the identity of the young in past societies.

RI8 DEFINING SEX AND POWER: GENDER, SEXUALITY, AND HIERARCHIES IN ANCIENT MEDITERRANEAN MATERIAL CULTURE (AGE SESSION)

Miss Sanja Vucetic, Institute of Archaeology, UCL. Dr.Mira Green, University of Washington

In recent years, the question of cross-cultural effects on sexual identities under colonial rule became a topic of interests for archaeologists (Voss and Casella 2012; Voss 2008). These works have set the stage for new research in Mediterranean archaeology that probes questions of gender and sexuality in relation to different power dynamics produced through cross-cultural interactions and colonial expansion. Scholars have noted that research on gender and sexuality of the provincial populace is under-theorised and under-studied despite compelling arguments that these are integral to the formation of identities (Joyce 2001; Meskell 1999; Schmidt and Voss 2000). Others have observed that the physical realities of the ancient world, i.e. architecture, objects, and landscapes, created and maintained the structure of social interactions and gender performances (Severy-Hoven 2102:542; Joshel and Murnaghan 1998:18-20). These works suggest that post-colonial approaches done within the broader context of the Mediterranean world would reveal the complexity, multiplicity and particularity of ancient people, and the nuance of power relations in the physical environment (e.g. Mattingly 2011; Riva and Vella 2006; van Dommelen and Knapp 2010). Moreover, they hint at the wider implications of connections between gender and sexuality to other axes of difference (e.g. class, ethnicity, race, age, and disability). Interdisciplinary in its scope, this session takes up questions of gender/sexuality within diverse societies of the ancient Mediterranean world, from Prehistory to Roman times. The goal is to present innovative research that is theoretically informed and contextualised in personal and institutionalised forms of gender and sexuality. The session will explore various social discourses through which gender and sexuality are shaped within specific Mediterranean cultural contexts. It aims to instigate a discussion on the ways gender/sexuality studies can be integrated into broader archaeological debates of ancient Mediterranean colonialism, cultural change, relationships of power, and the construction of the material world.

RI9 DIFFUSION AND TRANSFORMATION OF BURIAL PRACTICES IN THE ITALIAN PENINSULA. INVESTIGATING THE CONNECTIONS BETWEEN FUNERARY CUSTOMS IN EUROPE AND THE MEDITERRANEAN DURING THE BRONZE AGE AND THE EARLY IRON AGE

Dr.Luca Alessandri, University of Groningen. Dr.Maja Gori, University of Amsterdam. Prof.Alessandro Guidi, Università di Roma Tre. Dr.Serena Sabatini, University of Gothenburg

The Italian Peninsula is the crossroad of the Mediterranean and a doorway to Central Europe. Between the 3rd and the beginning of the 1st millennium BCE Italian prehistoric communities adopted different types of burial practices which at times show similarities with practices adopted in other Mediterranean and European regions. In some cases the resemblances could be explained as the outcome of a common over-regional cultural background. In other cases, the similarities could be regarded as the direct influence of overseas and continental communities upon the local ones. By adopting a comparative perspective, the purpose of this session is to investigate different types of funerary practices in the Italian Peninsula, examining the dynamics underlying their adoption, development and decline and their relation to types of Mediterranean and European burial customs. A vice versa perspective examining Italian influences on distant funerary practices is also adopted. Evidence for

possible connections should explore: types of ritual and customs, types of funerary architectures, grave goods assemblages, body treatments Our main aim is to assess the ways in which the changes in burial rituals may reflect transcultural connections and in which way these connections and mutual influences can be related to the reconfiguration of local social and cultural identities.

RI10 FARMING FRONTIERS

Dr.David Clive Orton, University of York. Prof.Daan Raemaekers, Groningen University

The complex and multi-directional spread of Neolithic farming practices, in Europe as elsewhere, inevitably entailed the formation of boundary zones, or 'frontiers'. In this session we will explore the nature of such frontiers, and particularly their role as hotbeds of innovation and adaptation, where established practices erode or become re-interpreted while new ones are developed or adopted in response to novel experiences and circumstances. In focusing on frontiers, it is not our intention to privilege models emphasising either the spread of people or the spread of ideas. Rather, we hope to highlight the complexity of processes involved in Neolithisation, and the diversity of scenarios of contact to which they gave rise. 'Frontiers' might refer to transitional zones where pioneering farming communities encountered foraging groups and/or faced unfamiliar environmental challenges and opportunities. Equally, however, it might refer to interfaces between different complexes of Neolithic traditions and technologies, or to borders between zones of markedly differing landscape use by the earliest farmers. Perhaps the best known Neolithic frontier is the circum-Baltic region. Other examples might include zones of contact between continental and maritime Neolithic traditions, such as in the western Balkans or France, or lines of apparent standstill followed by rapid innovation and expansion, as at the genesis of the LBK. The aim of this session is to create a platform where findings and approaches from otherwise highly regionalized research programs on farming frontiers can be compared. To what extent can we draw parallels between farming frontiers in different times and places? What are the mechanisms that govern frontier experiences? We welcome papers that deal with Neolithic frontiers, broadly construed, in any part of the world. Contributors are encouraged to address the role of frontier zones in fostering innovation in farming practices, particularly based upon zooarchaeological, archaeobotanical, and/or settlement/landscape use datasets.

RI11 GOOD FENCES MAKE GOOD NEIGHBOURS? BOUNDARIES WITHIN LANDSCAPES AND SETTLEMENTS AS EVIDENCE OF SHARED IDENTITY

Mr.Brian Durham, University of Oxford. Dr.Sabrina Pietrobono, Newcastle University. Dr.Niels Algreen, Møller Museum of South West Jutland

Experience teaches us that 'good fences make good neighbours', while the ninth and tenth commandments imposed a commitment on at least one Bronze Age society to be neighbourly. Already by that time even the extremities of Europe had ditched plot boundaries, some of them demonstrably stable. This session aims to examine a range of landscapes and townscape for evidence of: The prehistoric origin of discipline and rectangularity in plot outlines; Re-used boundaries; Arbitrariness versus discipline in plot size and shape; Continuity versus amalgamation or subdivision of land parcels; Friction leading to dispute resolution (London Assize of Nuisance from 13th century); Land without boundaries, and 'the tragedy of the commons'. Enculturation of sociability would be expected within hunter-gatherer groups, as with other primates. Outside the biological group however there may have been little scope for 'neighbourliness' until population pressure brought the need for settled agriculturalism with territorial boundaries. In the re-use of boundaries over successive generations, a straight line between private holdings would make sense, but what about the corners? How long did it take for humanity to recognise the efficiency of the 90 degree angle in land use, or the optimal plot size? Arguments would arise and would require new behaviour patterns, even 'institutions', but to what extent might they be detectable in the archaeological record? This session will look beyond the 'archaeology of conflict' for evidence of negotiation with 'co-residents' and with 'familiar others', suggesting agreement and concord as a contribution to shared identity (Giles, M. in Haselgrove and Moore 2007).

RI12 GRAVE DISTURBANCES: THE SECONDARY MANIPULATION OF BURIALS

Dr.Nils Müller-Scheeßel, Römisch-Germanische Kommission. Matej Ruttkay Archeologický ústav SAV

Building on earlier EAA-sessions, this session sets out to develop a better understanding of how and why graves were reopened in ancient times, a behaviour which has formerly been dismissed all too easily as mere „grave robbery“. We are not concerned with modern looting, sad and dispising as it may be, because this is certainly a topic for its own session. We view the secondary opening of burials as a thoroughly cultural practice, which is inescapably embedded in social notions of what is proper, what is necessary and what is possible. This does not inhibit economically driven motives, but we must ask the question as to how far such a behaviour was cultural accepted or even required. Additionally, the last years have seen vast improvements in the excavating of such burials as well as in the understanding of the transforming processes which took place during burial and afterwards. Therefore, this taphonomic transformations should be another focus of the session, concentrating on the questions which features can be attributed to the secondary opening of the respective burial and which have to be seen in the context of the burial itself. In terms of the chronological scope, all case studies from pre- or protohistoric periods are welcome; however, they should present more than merely a description of a certain burial, but strive above all to enlighten the cultural context of secondary burial manipulations.

RI13 HUMAN REMAINS IN CAVES: RECONFIGURING IDENTITIES OF THE DEAD

Dr.Lindsey Büster, University of Bradford. Prof.Eugène Warmenbol, University of Brussels

The very nature of caves, occupying a liminal space between the above ground world of the living and the underworld inhabited by gods, spirits and ancestors, makes them frequent foci for ritual activity, often including the deposition of human remains. The nature of deposition, manipulation and performance associated with these remains can reveal much about the ways in which living communities perceived and renegotiated their lived identities in relation to those of the deceased and the otherworld of which they became a part. Following two previous EAA sessions which, in 2013 and 2014 respectively, examined the ways in which caves were used and perceived in early medieval and later prehistoric Europe, this session draws together more thematic papers on the ways in which human remains seem frequently to have been deposited and redeposited within cave environments. Far from representing normative burial rites, these deposits often appear to be specific, complex and protracted, with the unusual taphonomic factors of cave environments also often playing an integral role. Though the association between caves and human remains is well-attested, there has been little synthesis on commonalities and differences in practice over time and space, and between different types of cave environment. What can this tell us about the cosmologies of prehistoric communities and the roles that caves played within them? Papers are invited which deal with specific caves and cave systems, as well as more thematic or theoretical contributions.

RI14 IDENTITIES AT WAR: CONFLICT, MATERIAL CULTURE AND SOCIAL DISCOURSE DURING MEDIEVAL AND EARLY MODERN EUROPE

Dr.Rachel Askew, University of Sheffield. Mr.Maxime Poulain, Ghent University

Recent studies in conflict archaeology have demonstrated how buildings and artefacts are crucial in the construction, maintenance and transformation of group identities during times of war. In addition to military items such as armour and weaponry, everyday objects such as ceramics, glass and metalwork are, alongside the structures in which they are consumed, important elements in establishing group identity and providing a sense of common belonging to individuals brought together by extraordinary events. The negotiation of identity during such times of crisis is not restricted to the armies involved, but is also incorporated within the social discourse of non-combatants, including camp followers, army supporters and all those affected by conflict. This session draws from wars and battles across medieval and early modern Europe to explore the social, as opposed to martial, aspects of conflict archaeology and provide new insights into the way in which material culture and the built environment were used to construct, challenge and change concepts of identity during this period.

RI15 IDENTITIES IN CONSTRUCTION: RECONSIDERING THE LATE NEOLITHIC TO EARLY BRONZE AGE TRANSITION IN WESTERN EUROPE

Dr.Kerri Cleary, Centre for Advanced Welsh & Celtic Studies. Dr.Neil Carlin, School of Archaeology, University College Dublin. Dr.Ana Jorge, Department of Archaeology, University of Aberdeen. Dr.Laure Salanova, CNRS, Maison de l'archéologie et de l'ethnologie

This session explores how Late Neolithic societies responded to materials, objects and technologies during the third millennium BC and the subsequent influence of these novelties in the construction of Early Bronze Age societies. The geographical focus will be western and north-western Europe, where regional interpretations of the 'Bell Beaker ideal' demonstrate that some aspects of settlement patterns and burial practices were readily adapted, incorporating new developments while simultaneously maintaining pre-existing traditions. The various ways in which material culture was developed and used in this region during these 'transformational horizons' is key to understanding how societies participated in interaction spheres, the role of these networks in the construction of group identities and the degree of change that occurred. By exploring the levels of social complexity that were in existence before, during and after the adoption of metal and Beakers, is it possible to untangle the emergence and decline of multiple identities? Were these developments in response to proposed conflicts in worldviews or increasing networks of dependency? Or were the various expressions of identity continual, naturally evolving manifestations of the past in the present?

RI16 INTANGIBLE CULTURAL HERITAGE AND ARCHAEOLOGICAL STUDIES OF SOCIAL IDENTITY.

Ms.Leonora O'Brien, AECOM. Dr.Gerry Wait, Nexus Heritage. Dr.Ibrahima Thiaw, Laboratoire d'Archéologie

Connecting archaeological identities to ethnic and social identity is a contentious area of archaeological and anthropological theory and practice. This session explores these debates through the lens of Intangible Cultural Heritage. The UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage came into force in 2006. It defines Intangible Cultural Heritage (ICH) as the practices, representations, expressions, knowledge, skills – as well as the associated instruments, objects, artefacts and cultural spaces – that communities, groups or individuals recognise as part of their cultural heritage. ICH practices are an important component of contemporary cultures, transmitted from generation to generation and providing communities with a sense of identity and continuity. ICH raises questions of authenticity, as practices evolve in the face of globalizations, cultural transformation and displacement. The ownership of ICH may be contentious. In Scotland the practices of non-indigenous groups are considered equal to those of indigenous groups. Elsewhere ICH has been linked to exclusive ethno-nationalist or 'authorised heritage' narratives. Emphasis on ICH by state authorities attracts international prestige and tourist income, but may encourage the commodification of culture. Papers are invited which examine policy and practice concerned

with the identification and safeguarding of ICH: the role of experts, community involvement and participatory approaches to ICH in the context of public value and social inclusion practical challenges in the implementation and valorisation of intangible heritage studies conflicting expressions of the past, multivocality and the role of ICH in intercultural dialogue and community integration studies exploring the overlap between tangible and intangible heritage

RI17 INTERPRETATION OF MULTIPLE IDENTITIES IN ARCHAEOLOGICAL CONTEXTS

Dr. Laure Salanova, CNRS. Prof. M. Pilar Prieto-Martínez, University of Santiago de Compostela. Dr. Marie-France Deguilloux, University of Bordeaux. Dr. Alison Sheridan, National Museums Scotland

Since the beginning of archaeology, the relationship between archaeological remains and the identities of the past populations has been a central debate. Prehistoric social and cultural identities have mainly been discussed on the basis of material culture, but now biological analyses have added a new dimension. These analyses, undertaken on human bones (by means of DNA, stable isotope analysis, study of non-metric traits, examination of markers of activity-related stress, etc.) often reveal multiple identities within a single community, even though the material culture relating to that community may belie this, presenting an impression of homogeneity. These interdisciplinary approaches, which try to understand aspects of identity at varying and inter-related scales, have made the question of identifying and characterising identity more complex. After a period of theoretical deconstruction and of the testing of new analytical methods, what are we able to say nowadays? How are we to organize and synthesise the different levels of information involved in our attempts to reconstruct past identities in all their diversity? What aspect of identity was the most important for past populations? What was the strongest structuring element that we can detect? And is the answer to these questions invariable across diverse chronological, cultural and environmental frameworks? This session follows on from previous work undertaken on identifying strategies for expressing identity through pottery production, and on DNA analyses to identify genetic diversity (Prieto-Martínez and Salanova 2009; Deguilloux et al. 2012; Salanova and Sheridan 2014). We would like to broaden this topic to encompass the work of other specialists who study complex examples of identity expression. The proposed contributions should have a strong methodological orientation, but should also have clear archaeological applications and exemplars.

RI18 MARGINAL ARCHAEOLOGIES/ARCHAEOLOGIES OF MARGINS

Dr. Jessica Smyth, University of Bristol. Dr. Laura McAtackney, University College Dublin. Dr. Panagiota Pantzou, University of Patras

This broad, interdisciplinary session will examine different aspects of marginality in the archaeological record and the various approaches that have been developed to tackle it. Marginality can manifest itself in many ways that are salient to studies from the deepest past to the present day, from interpretative to scientific perspectives. The session aims to widen conversations that often take place in sub-disciplinary silos, by exploring marginality from very different perspectives. For example, regions that have poor preservation of organic remains, or which yield generally ephemeral traces of human activity, are methodologically challenging and can fall to the margins of archaeological enquiry. Similarly, uneven histories of research and dissemination can lead to certain areas being considered central or focal in the past, with other areas appearing peripheral. In other cases, the marginality is that of areas or communities that today are economically or socially on the fringes of society or who link to narratives that are considered too politically sensitive to explore more fully. In this session marginality can relate to archaeological research conducted in any temporal or spatial context that has been affected by inconsistencies in survival, and which faces either material lacunae or deliberate sidelining. We welcome papers on all aspects of marginality in the archaeological record, asking contributors to address issues of balance and bias, and how we might construct more representative narratives.



RI19 MERC - MARGINALIZATION IN EUROPE'S NORTHERN PERIPHERY 800-1600 AD

Prof. Orri Vésteinsson, University of Iceland. Dr. Ingrid Mainland, University of the Highlands and Islands

Between AD 800 and 1600 societies at the northwestern peripheries of Europe, from northern Norway across the North Atlantic to Greenland (including the Atlantic seaboard of Scotland and Ireland), moved from being self-confident, and economically and militarily vibrant to a position of marginality when compared to other areas of Europe. Once a dynamic and expanding frontier, these societies became conservative and inward looking, dominated politically by their neighbours in Southern Scandinavia and England and economically exploited as well from Germany and the Netherlands. Hitherto dominated by a historical narrative, this session aims to examine these social developments from an archaeological point of view, inviting participants to discuss different types of evidence - from symbolic expression and elite consumption to resource extraction and trade networks - which can throw light on the process of marginalization in Europe's northern periphery. Papers analyzing comparable cases of marginalization in other periods and parts of the world are also welcomed.



RI20 MERC - MEDIEVAL ROYAL CENTRES, THE HERITAGE OF POWER AND NATIONAL IDENTITY

Dr. Oliver O'Grady, OJT Heritage. Dr. John Ljungkvist, Uppsala University. Dr. Jana Marikova-Kubkova, Archeological Institute of Academy of Sciences of the Czech Republic

Medieval royal centres, the heritage of power and national identity. This session will explore interpretive facets of medieval

royal centres, and the diverse archaeological monuments, buildings and landscapes found at such places. New archaeological explorations of these often complex sites have allowed critical re-evaluations of the physical environment of assembly places, the evolution of the social and political institutions and national identities embodied in such locations, and the resonances and associations which royal centres still have in the popular consciousness throughout Europe. The effectiveness of monuments and landscapes to support ruling hierarchies during the medieval period are increasingly understood in terms of the capacity for flexibility in the siting and content of inaugurations and political gatherings. This includes the use of culturally meaningful 'props' and ceremonies rooted in shared symbols of the past that were given cultural relevance by re-enactment in the present. Reconstructing medieval orientations of space and architecture are an important project in understanding such processes of innovation, by which rulers attempted to project collective assent. The session papers will also encompass innovative ways in which the complex and sometimes contested stories and historiographies of medieval royal centres are related to the wider public. This includes new opportunities from digital media applications and campaigns for the conservation and promotion of royal centres and political support for application to UNESCO World Heritage Status.

RI21 NEWCOMERS TO THE GRAVE: APPROPRIATION OF PRE-EXISTING FUNERAL SPACES

Miss Caroline Laforest, university of Bordeaux. Miss Camilla Cecilie Wenn, Museum of Cultural History/University of Oslo. Mr. Hallvard Rübner Indgjerd, University of Oslo

In many ancient societies, the re-use of graves as well as of entire necropoleis are very frequent, and usually concern individuals of the same group that originally created the funeral space. However, occasionally such re-use testify to the arrival of a new group, which shows more or less clearly its identity, and which disturbs or rearranges the funeral space and/or its contents. We would like to address a series of questions relating to how funeral spaces are appropriated by new groups. How is it possible to identify and characterize such new occupation? How do new groups appropriate pre-existing funeral spaces and manifest their identities, compared to that of the original users? How do they manage human remains and cultural vestiges already present in the graves? Are the original contents removed, pushed aside, or left in situ? What individual and collective memories the new uses ascribed to the old tombs and it is an important part of the process of appropriation? In summary, how do new groups negotiate its identity with regard to the identity of the original group? How can we aim at understanding how and why an original funeral space has been appropriated? We invite scholars to present case studies from a wide chronological and geographical range to serve as the basis for a discussion about the challenges in these issues. We aim to identify various modes in which appropriation can be determined, how it is expressed, and how groups with different identities can be discerned in grave contexts, so as to create a methodological tool kit when working with graves that may have been appropriated by new groups. A variety of sources and disciplines may be included for the discussion, such as archaeological contexts, inscriptions and texts, architecture, anthropological studies, various analyses in sciences, and so forth.

RI22 OPERATIONALIZING HYBRIDIZATION IN THE MEDITERRANEAN. A MULTISCALAR APPROACH ON MATERIAL CULTURE DURING THE BRONZE AND IRON AGES.

Miss Francesca Chelazzi, University of Glasgow. Miss Angela Massafra, University of Glasgow. Prof. Peter Van Dommelen, Jukowsky Institute for Archaeology and the Ancient World

Concepts of hybridity and hybridization have been variously interpreted and conceptualized in archaeological studies. For many years, though, the discussion remained restricted to the theoretical arena, arguing about the proper terminology and definitions. A few attempts to operationalize an archaeology of hybridity have been made in the last years, keeping the question still vibrant. What have these theories brought to archaeological studies and vice versa? How can we, as archaeologists, translate this fruitful debate into the interpretation of archaeological data? Within the field of Mediterranean Archaeology, this session hopes to stimulate discussion, through a focus on material culture, on the different dynamics of borrowing, negotiating and reconfiguring multifaceted identities. We invite contributions dealing with communities and societies of the Bronze and Iron Ages. Particularly welcome are papers investigating hybridization not only at the colonial large-scale of analysis, but also integrating inter- and intra-regional approaches: hybridization can be addressed both as the result of encounters of different societies and inside one discrete social scenario. Traces of this entanglement may be exemplified by the relations between Egypt and Palestine that, during Bronze Age, progressively led to a hybrid Egypt-Palestine set of cultural practices. We are looking for papers dealing specifically with material culture, but inviting speakers to expand the narrative to the cultural, social and economic significances behind material culture itself, such as production and consumption, behavioural routine, dietary habits, mobility and network patterns, attribution of gender, architecture, etc.



RI23 MERC - PATHWAYS TO POWER IN IRON AGE/EARLY MEDIEVAL NORTHERN EUROPE

Dr. Gordon Noble, University of Aberdeen. Dr. John Ljungkvist, Dep. of Archaeology and Ancient History, Uppsala University. Dr. Álvaro Carvajal Castro, UCD School of Archaeology. Dr. Patrick Gleeson, National University of Ireland Galway. Dr. Jan Henrik Fallgren, University of Aberdeen

The first millennium- early second millennium AD period was a watershed in northern Europe – a time of fundamental changes in world views, political structures, and trade economies, which ultimately resulted in the emergence of new kingdoms and national identities in England, Scotland, Ireland, Frankia, Scandinavia and the Baltic region. This session aims to create an

increased dialogue between researchers in a climate where research on power and the origins of modern national identities has tended to remain focussed within the boundaries of single modern nation states. Themes for comparison can include: The role of Rome, particularly at the edges or beyond the edges of empire in the ethnogenesis of particular polities The differing materializations of power in the first millennium AD – e.g. the role of halls, hillforts, mints The emergence of places of assembly and the role of powerful and sacred places in inauguration and expressions of hierarchy The role of religion, particularly pre-Christian practices in the symbology of rulership Evolution of settlement form and land ownership The importance of monumentality (burial mounds, inscribed monuments, etc) The Pathways to Power in First Millennium AD Northern Europe session offers an opportunity for archaeologists and scholars from other disciplines to meet and discuss how their research is illuminating the different ways in which the early medieval kingdoms of northern Europe developed, and how power was negotiated and communicated. Interdisciplinary contributions that chart the transformations that irrevocably changed the political and economic landscape of northern Europe between the 5th and 12th centuries are particularly welcome. It is hoped that the synergies produced by bringing together specialists from different regions, who are working on similar research questions, will expose scholars to ideas outside of their traditional national dialogues and lead to new collaborative initiatives that cross-cut national and disciplinary boundaries. 7 speakers confirmed to date

RI24 PHRYGIAN IDENTITIES, IDENTIFYING PHRYGIA

Dr. Catherine Draycott, Durham University. Ms. Yasemin Özarslan, Koç University. Prof. Hakan Sivas, Anadolu University

Over the past few decades the archaeology of Phrygia has seen important new developments. Explorations at Gordion, identified as the central seat of the Iron Age Kingdom of Phrygia have readjusted the stratigraphy, showing overlaps of Hittite and Phrygian period occupation, and dramatically moving the heyday of the site back to the 9th century BC. Surveys at the same site are expanding understanding of the site's limits and later occupation, while those in the Phrygian Highlands to the West have discovered new monuments from various periods. The discovery of Phrygian inscriptions and new sculptures at the site of Kerkenes Dağ east of the Kızılırmak River (the ancient Halys) has expanded the territory thought to have been occupied by Phrygian speaking groups. Although new discoveries have been rich, however, so far there has been little overall consideration of approaches to Phrygia and Phrygian culture as larger concepts. Usually considered to be immigrants from the Balkans, who entered Anatolia at around the turn of the first millennium BC, this origin 'myth' sets up notions of ethnic purity and cultural contiguity that continue to inform Phrygian archaeology. Are Phrygians a 'pure' race? How does one identify 'Phrygians' and define 'Phrygian culture'? Is it consistent and stable or does it change over time and space? How are definitions of Phrygia and Phrygians entangled with modern notions of national and ethnic identity? This session invites speakers (established, early career and graduate students) to collectively address these and related questions. Papers may address theoretical approaches and problems in the identification and definition of 'Phrygia' and 'Phrygians'; the concept of pan-Phrygian culture; and/or regional variations particular to local conditions, which nuance the term 'Phrygian' and the idea of Phrygia.

RI25 RECONFIGURING IDENTITIES

Dr Jeremy Hayne, Independent Researcher

This session collects contributions inspired by the theme of Reconfiguring Identities.



RI26 MERC - RELIGION AND THE GRAMMAR OF DEFENCE IN EARLY MEDIEVAL POWER CENTRES

Dr. Adrian Maldonado, University of Chester. Dr. Patrick Gleeson, National University of Ireland, Galway. Mr. Russell Ó Riagáin, University of Cambridge. Dr. Andy Seaman, Canterbury Christ Church University

It is no longer necessary to say that early medieval power centres consisted of both secular and religious elements. While this insight has allowed for a more nuanced understanding of the nature of power in the period, this has had arguably less impact on the study of religious belief and practice. This session proposes to explore the religious, cosmological and ontological implications of hillforts, enclosed hall sites and other power centres with 'defensive' elements. While it has long been assumed that these sites can be easily read off as reflecting a hierarchical social order with powerful kings, papers are invited for this session which explore how such sites and the activities that took place within them illuminate cosmological and collective concerns, rather than the means and authority of an elite or ruling class. It is argued that, similar to recent studies of the role of funerary rituals and stylistic motifs on early medieval art, a concern for spiritual defence and purity permeated early medieval life. Is it possible to interpret defensive architecture not as a physical barrier from violence but an evocation of a symbolic 'grammar' of defence? The sacro-religious, symbolic and cosmological role of such ceremonial centres has the potential to reveal the nexus of political authority, collective actions, and defensive/military concerns within contemporary belief systems. By exploring how ceremonies such as feasting, gift exchange and inauguration were implicated in transforming such centres into supernatural arenas, and making places sacred, papers will explore the implications for the study of pagan and Christian belief in the early medieval period.



RI27 MERC - SIMILAR OBJECTS, SIMILAR MEANINGS? MATERIAL CULTURE AND THE FORMATION OF IDENTITY IN URBAN AND RURAL AREAS OF NORTHERN EUROPE AD 1200-1700

Mr.Joakim Kjellberg, Uppsala University, Dep. Archaeology and Ancient History. Dr.Natascha Mehler, Institut für Urgeschichte und Historische Archäologie. Dr.Roos van Oosten, Faculteit Archeologie, Provincial Roman & Medieval Archaeology

From the 12th century onwards more and more towns were emerging in Scandinavia, the Baltic and Northwestern Europe. The process of urbanization, triggered to a great extent by the commercial revolution of the middle ages, led to the emergence of a new bourgeois culture that was expressed through town buildings, a growing merchant class and distinctive types of material culture. But parts of Northern Europe were largely unaffected and therefore remained marginal. The insular societies of e.g., Iceland, Shetland, Orkney, Faroe and Greenland never developed towns, merchant classes or any significant production of material culture during this period. As a consequence, material culture was traded and exchanged not only between the towns of Northern Europe but also with the periphery. Key questions for this sessions are: How does material culture transport identity? To what extent is the archaeological material similar in core and peripheral areas? And what does this signify, in terms of identity and cultural affiliation? Are cross-regional material culture traits a distinctively urban feature? Does material culture differ between from one urban context to another? Can we explain similarities as a sign of 'Europeanization', a gathering momentum that emerged in the late 12th century? Or do we have to explain differences as a consequence of the Hanseatic trade, in accordance with David Gaimster's 'Hanseatic urban culture' theory after which step-gabled architecture, stove-tiles, majolica and (German) stoneware can be considered as a clear sign of a Hanseatic urban cultural identity, and where Stoneware seems to be a type-fossil that is spread by Hanseatic trader residents ('expats') and was occasionally deliberately rejected by indigenous peoples. We invite papers that discuss material culture from Baltic, Northern Atlantic areas and North-Western Europe, from towns and rural settlements, to allow for a cross-cultural examination of material culture and its potential to transport identity.



RI28 MERC - STONE ACROSS TIME AND SPACE: NEGOTIATING IDENTITY THROUGH THE USE AND RE-USE OF CARVED STONE IN NORTH-WESTERN EUROPE 400 TO 1400 AD

Dr.Victoria Whitworth, Centre for Nordic Studies, University of the Highlands and Islands. Ms.Anouk Busset, Université de Lausanne (Suisse)

Carved stone monuments are tangible links to the past which often have carried multiple meanings throughout their lives. This session will look at such uses of stone in Scandinavia, Ireland and the British Isles. Early medieval Scotland, especially, produced a substantial number of carved stones which marked both cultural identity and the meeting of different cultural groups. This session draws on new scholarship covering the millennium from the sub-Roman period to the high and late middle ages to look at the ways in which monumental stone was used and re-used within the changing landscape. It moves beyond iconographical and typological questions to focus particularly on social contexts, the ways in which stone could be moved and/or recut, and on comparisons between Scotland and other monumental landscapes of north-western Europe, both within and beyond the frontiers of the Roman Empire. Papers will examine not only the uses and meanings of these monuments as they evolved over time, but also their enduring legacies in the formation of the component identities of these regions.

RI29 THE ARCHAEOLOGY OF CONFINEMENT

Dr.Iain Banks, University of Glasgow. Prof.Marek E. Jasinski, Norwegian University of Science & Technology

The confinement of individuals in PoW camps, concentration camps, internment camps, and prisons has been receiving archaeological interest in recent years. There are substantial differences in the circumstances and histories of these forms of confinement, but also strong similarities. These can assist in our understanding of the relationships and power structures that played out between guards, inmates and surrounding communities, and the physical manifestations of these relationships. Confinement is an important topic for study for a range of reasons, one of which is clearly the emotional impact of the histories of the different forms of confinement. A further reason is that such situations create environments where social rules are created and acted out, leaving physical manifestations that can be studied and interrogated; there are rich oral histories to draw upon, and in many cases, eyewitnesses and participants who can provide critical information and interpretation. Equally, confinement produces strategies of compliance, conflict, resistance and control that will leave traces in the archaeological record. Finally, there can be a legacy of reconciliation, rehabilitation, memorialisation and explanation in which the physical remains of camps can be critical. This session seeks to bring together researchers working on these different forms of confinement and take stock of what has been achieved over the past few years, and see what directions future research will go. The focus will largely be on the modern era because of the plethora of data from the First World War onwards, but papers are welcome from any era.

RI30 THE CONTENTIOUS OF HERITAGE: CONSTRUCTION AND RE-CONSTRUCTION OF IDENTITIES

Mr.Veyssel Apaydin, UCL. Mr.Veyssel Apaydin, Institute of Archaeology, University College London. Mr.John Jameson, ICOMOS Committee on the Interpretation and Presentation of Cultural Heritage Sites(ICIP)

The increasing significance of widespread understanding of the past and past materials have always received great attention by nation states, groups, and individuals to protect their identities constructed on past materials. Increasingly, particularly nation states have tended to follow more manipulative approaches to interpretation of those sites, and the protection and preservation of those sites have been neglected. There are many examples of contested heritage sites, worldwide that have

been construction and re-construction of identities. For instance, the Ani site in the east of Turkey could be a good example as it contains mostly Armenian monumental heritage, and Seljuk period, etc. However, this site has been presented as part of Turkish heritage in order not to lose the "ownership" rights of the site. In this case, the Turkish state has reconfigured the identity of the site to Turkish. In this session, we discuss how archaeologists and heritage specialists deal with contested heritage sites. Specifically, we explore ways in which heritage sites have been contested between groups, or nation states and minority groups, and resultant experiences, perceptions, and outcomes for local communities.



RI31 MERC - THE CONTROL AND MANAGEMENT OF BURIAL IN CHRISTIAN CEMETERIES

Dr.Elizabeth Craig-Atkins, University of Sheffield. Dr.Jonny Geber, University College Cork. Ms.Jennifer Crangle, University of Sheffield

The burial rites of Christian communities present considerable variation across time and space. In recent years this variability has been explored in growing detail, for example, in considerations of social status, gender and age identity of the individual and as reflecting aspects of belief regarding this world and the afterlife. Those who study funerary rites have, however, yet to afford comparable attention to aspects of the organisation, control and management of burial practice. In response, this session seeks to explore the control and management of burial in the cemeteries of Christian communities across Europe. Key themes raised by papers in this session might include rationale and decision-making regarding burial rites and the organisation of funerary space. Relevant topics include: the notion of ideal cemetery layout; the development and dissemination of new funerary rites; shared understandings of cemetery topography; cemetery planning; the role of individuals such as grave-diggers and celebrants in the practical and ceremonial aspects of burial; and the process and effect of administration of cemeteries used over multiple generations. Moreover, this session also provides an arena for discussion of physical interactions between the living and the dead including the preparation of the corpse, interment, intentional disturbance of graves during exhumation and charnelling and accidental encounters with bones in the graveyard. The management of graveyards and the manipulation of human remains formed both part of the renegotiation of the identities of the living into the dead, and an arena in which the continued physical presence of the dead was felt in the world of the living. Thus this session will explore the implications of evidence for the control of burial on our understanding of religious and cultural responses to mortality, death and the afterlife.

RI32 THE FARM AS A SOCIAL ARENA

Prof.Liv Helga Dommasnes, University of Bergen. Dr.Kristin Armstrong Oma, University of Stavanger. Dr.Doris Gutmiedl-Schümann, University of Bonn

All over Europe people have lived on farms, at least from the Bronze Age onwards. Farms, whether isolated or in hamlets or villages, have been important elements of the social structure for thousands of years. The session "The farm as a social arena" focusses on the social life of prehistoric and Medieval farms and its importance for the development of society as such. Farms were both workplace and home for its inhabitants, women, men and children, and perhaps extended families, frequently sharing their space with domestic animals. Larger farms could also house farm workers and other specialists as well as guests and slaves. Sometimes important events such as feasts, religious services and funerals also took place here. The household thus became a multi-faceted arena, which brought together a variety of community members that both shaped - and were shaped by - its social dynamics. Farm work and other daily tasks have often been regarded as necessary, back-breaking labour, belonging to the domestic sphere and therefore foreign to concepts like development and change. However, change can also be propelled by the social dynamics at the household level, from a bottom-up perspective. This session will address the question of what can be learned about society by analyzing the farm as a social unit. Could for example increased mobility influence farm life and the ways that its people defined who they were? If so, was that purely a one-way influence, or could it be argued that work and other activities defined by the social arena that was the farm also affected long-term developments of politics and society as such? Should we change our perspective not only from the economic to the social, but also from the social elites to ordinary people?

RI33 UNRAVELING EPISTEMOLOGIES OF IDENTIFICATION AND IDENTITY-MAKING IN PREHISTORY

Dr.Emily Miller Bonney, California State University Fullerton. Dr.James Johnson, Vienna Institute for Archaeological Science

Prehistoric social groups do not leave us with written or otherwise easily recognizable accounts of their identity. As a result, it is difficult for archaeologists to agree on what we mean by the concept of identity. Identity is especially problematic because identity formation is a process situated in time and space, and its history is accessible to the scholar only through the wordless material objects those social groups left behind. We cannot know whether our concept of identity which reaches from the individual to a series of collectives - family, community, region and beyond - is even applicable or in fact would have mattered to the groups being discussed. Undeterred we assign identities - Minoans, Beaker People - that imply a possibly, if not probably, illusory socio-cultural coherence that then becomes embedded in cultural heritage, e.g., witness the presence of the Minoan Snake Goddess at the 2004 Athens Olympics. Such assertions of coherence make and are made by socio-economic and political structures, and depend in part on unreflective assumptions about self and community in prehistory. This session seeks

to uncouple such assumptions from identification to better interrogate the concept of identity as an ongoing process. We invite papers that reflect on and challenge the ways in which archaeologists have collectivized people under specific socio-cultural umbrellas. What are the appropriate parameters for finding commonality within and between settlements - similar ceramic style, organization of space, presence (absence) luxury goods? What evidence can (should) we cite for identity differentiation within a community? How did the different roles of the makers of material objects shape their identities and set them apart from the rest of the community? What were the consequences of technological development for individual, local or more regional identities? How do epistemological shifts in archaeology influence the identification(s) of prehistoric communities?



RI34 MERC - URBAN IDENTITIES IN THE EARLY-MEDIEVAL OF TOWNS OF EUROPE: ARCHITECTURE, SOCIAL SPACE AND SENSE OF PLACE

Prof. Dries Tys, Brussels Free University. Dr. Karen Milek, University of Aberdeen, dpt of Archaeology. Dr. Volker Hilberg, Stiftung Schleswig-Holsteinische Landesmuseen Schloss Gottorf. Dr. Dirk Rieger, Archäologie und Denkmalpflege Abteilung Archäologie Hansestadt Lübeck. Dr. Sven Kalmring, Zentrum für Baltische und Skandinavische Archäologie

During the early medieval period (7th-11th c.) new trade-focussed settlements with harbours emerged along rivers and coastal inlets from the Baltic to the Atlantic and from the Irish Sea to the Mediterranean. These settlements differed from the existing rural settlements around them, with a distinctive urban infrastructure, fabric and use of space. How did the materialisation of early medieval 'urbanity', with its new social spaces, reflect a distinctive new 'urban identity' and sense of place? Were there clear distinctions between the mentalities and concepts early medieval societies drew upon to construct, situate and organise rural and urban settlements and houses? For example, did house architecture take on a new agency aimed towards the specific needs of these communities, such as spaces for trade negotiations and storing goods? To what extent were regional differences manifested in the conceptualisation of urban space, housing culture, and harbour infrastructures? This session aims to address these questions, and to contribute to the wider debate about the socio-economic transitions associated with the rise of urbanism in the early medieval period, by drawing on examples from different parts of Europe, such as Kaupang in Norway, Sigtuna and Birka in Sweden, Ribe in Denmark, Trüso, Bolin, Lübeck, Haithabu and Schleswig in Germany, Dublin and Wexford in Ireland, Domburg and Dorestad in the Netherlands, Antwerp in Belgium, Douai in France, Novgorod in Russia, Kiev in the Ukraine, Southampton/Hamwic in England, Commachio in Italy, and other places. We want to compare not only these urban centres in their regional settings but also different methods and interdisciplinary approaches that may be used to better understand these social spaces.

RI35 REGIONAL AND CONCEPTUAL APPROACHES TO IDENTITIES

Bryan Miller, University of Oxford

This session collects contributions inspired by the theme of Reconfiguring Identities.

RI36 RECONFIGURING IDENTITIES IN CHILDHOOD

Mario Novak, University College Dublin

This session collects contributions inspired by the theme of Reconfiguring Identities.

RI37 APPROACHING IDENTITY THROUGH BURIAL

Cecilia Rossi, Université Aix-Marseille - Centre Camille Jullian

This session collects contributions inspired by the theme of Reconfiguring Identities.

RI38 GENDER AND POWER STRUCTURES IN THE MEDITERRANEAN PAST

Estelle Orrelle, University of East London

This session collects contributions inspired by the theme of Reconfiguring Identities.

SCIENCE AND ARCHAEOLOGY

SA1 (RE)WRITING THE PAST USING 'NOVEL' SCIENTIFIC TECHNIQUES

Dr.Derek Hamilton, Scottish Universities Environmental Research Centre. Dr.Krisztián Oross, Institute of Archaeology

The discipline of Archaeology is renowned for the adoption and implementation of methodologies and technologies from the natural sciences to unlock hidden potentials in archaeological datasets. In more recent times, archaeologists increasingly are being trained directly within these fields and developing the techniques and methodologies to overcome archaeological problems. Oftentimes, the implementation of scientific techniques allows us to produce a fuller, more nuanced interpretation of the past. However, sometimes the information obtained from the use of scientific techniques does more than simply add a new dimension to our narratives, and actually causes us to take a pause and reconsider the very 'beliefs' we held so dear prior to undertaking the analyses. The papers in this session illustrate cases where the use of techniques from the natural and biological sciences (e.g. absolute chronological methods, stable isotope analyses, aDNA) or the implementation of a complementary multi-technique approach have provided that richer story and, in many cases, completely altered our perception and understanding of the past. They might include papers relating to chronology, trade, subsistence strategies, diet, migration, kinship ties and origins of communities.

SA2 3D CULTURAL HERITAGE: SCIENTIFIC APPLICATIONS AND COMMUNICATION MEDIUMS

Dr.Lyn Wilson, Historic Scotland. Dr.Stuart Jeffrey, Digital Design Studio, The Glasgow School of Art. Mr.Robert Shaw, Discovery Programme. Mr.Anthony Corns, Discovery Programme. Alastair Rawlinson, Digital Design Studio, The Glasgow School of Art

3D digital documentation is now a well-established discipline in cultural heritage, with digital data often re-purposed to meet a range of objectives. This session will examine two areas where digital data is being applied, bridging two of the conference themes: 1) Scientific applications using 3D data, and 2) Communicating cultural heritage using 3D data. Scientific research and the application of using digital imaging is furthering our knowledge of the impact of human and environmental processes (coastal erosion, climate change) and the development of sustainability models across the cultural heritage domain. Specialised archaeological research, including: osteoarchaeology, paleopathology and artefactual studies have utilised the 3D data for the automated analysis of massive archaeological assemblages through automated processing. The development of virtual (BIM) and real (3D Printing) models of cultural heritage assets are assisting in their monitoring and management. This session will explore these and other scientific applications and discuss the challenges and benefits of integrating 3D/4D data with scientific techniques. It will also look to the future and discuss potential directions for applied 3D heritage science. Communicating cultural heritage using 3D data has significantly enhanced our understanding and ability to interact with heritage in recent years, through technologies such as augmented reality, 3D printing, motion capture and even haptics. Remote and virtual access tools and immersive environments (e.g. dome and head-mounted displays) are changing the way we relate to heritage collections and sites. 3D techniques are also being effectively used to engage communities and sustain a sense of ownership over sites and monuments. The focus of this session will be to discuss the challenges faced in using 3D technologies in communication and to explore the range of opportunities and benefits.

SA3 ARCHITECTURES OF FIRE: PROCESSES, SPACE AND AGENCY IN PYROTECHNOLOGY

Prof.Dragos Gheorghiu, National University of Arts – Bucharest. Mr.Derek Pitman, Bournemouth University

Since their earliest use technologies that employ fire have been considered some of the most complex endeavours of humankind. This is because they involve both the transformation of materials and require careful and precise control over furnace, kiln and hearth environments. The need to control the internal conditions of pyrotechnical features has resulted in an archaeological approach that, in many cases, has sought to establish and characterise these conditions primarily through scientific study. We are then familiar with studies that discuss reducing/oxidising conditions of kilns and furnaces or establish the operating temperatures of various processes. This focus on the internal conditions of such features has, arguably, been at the expense of a more holistic consideration of the features themselves. This session will discuss such features not in terms of their enclosed technical process, but as a form of specialised architecture: pyrotechnical architecture. This will allow a broader analysis which considers space, engagement and agency. Unlike most architecture, pyrotechnical architecture does not define an internal space to be occupied but instead defines a specific space that is inhabited in a manner that ensures a specific set of internal conditions. From this perspective new approaches to these types of features may be considered that can extend from excavation strategies to how we employ archaeological reconstructions. We welcome contributions that seek to address these matters in both theoretical and practical terms.

SA4 CLIMATE AND SETTLEMENT IN MOUNTAIN ENVIRONMENTS

Prof.Philippe Della Casa, University of Zurich. Prof.Karsten Lambers, University of Bamberg. Dr.Thomas Reitmaier, Archaeological Heritage Service of Grisons

This session will investigate the relationship between global as well as regional climatic developments and settlement processes

including land use dynamics in mountain environments of Europe and beyond (e.g. Andes, Caucasus, Himalaya). Recent investigations using a variety of archaeological and palaeoecological proxies indicate a strong correlation between climate and settlement dynamics in some contexts, but a weak correlation in others. The focus of the session is on processes of settlement, desettlement and repopulation, specific resource strategies, and social impacts or effects of climate change, in a diachronic view reaching from the Mesolithic to the Little Ice Age, and across different scales (global, regional, and local). A comparative perspective, contrasting developments in different regions and epochs, will lead our way. We invite archaeologists, but also climatologists, environmental specialists, anthropologists and historians, to contribute to this session with targeted new research and case studies.

SA5 CLIMATE AND SOCIETY IN THE ANCIENT NEAR EAST: NEW PALAEOCLIMATE AND PALAEOENVIRONMENTAL RECONSTRUCTIONS, CLIMATE MODEL SIMULATIONS, AND ARCHAEOLOGICAL IMPLICATIONS

Dr.Bülent Arikan, Istanbul Technical University. Dr.Pascal Flohr, University of Reading, Department of Archaeology and Centre for Past Climate Change. Prof.Dominik Fleitmann, University of Reading, Department of Archaeology and Centre for Past Climate Change

Reconstructing past climate, especially with the aim of studying its effect on societies, has become a well-established part of archaeology. The issue is relevant globally, but certainly so in the (semi-)arid Near East. While much progress has been made, many questions still remain, and while multi-disciplinary projects have become common, in other cases communications between proxy specialists, modellers, and archaeologists could be improved. This session therefore aims to bring together researchers from various disciplines, to share new developments and further the understanding of how to study climate within archaeology. The session is divided into three parts: 1) Proxy-based reconstructions: High resolved and precisely dated palaeoclimate and environmental reconstructions are required to study the impact of climate on societies. Though their number is increasing steadily, uncertainties associated with dating, resolution and proxy quality are still a major obstacle, which we aim to address. 2) Palaeoclimate modelling and proxy-model integration: The increasing amount of climate research reveals the complex and non-linear aspects of parameters and variables affecting the climate. Currently, there are several approaches to model past climate, each model different in terms of spatio-temporal resolution, forcings, variables, and algorithms used. Results from different palaeoclimate models, covering single Near Eastern regions and archaeological periods, will be discussed, and compared with proxy-based reconstructions and among themselves. 3) Social aspects: Climate reconstructions will be integrated with the archaeological record in various case studies to study potential impacts of climate change on past communities. We invite papers that present palaeoclimate and palaeoenvironmental records from the Near East or new studies on climate proxy development; papers that deal with methods of palaeoclimate modeling, issues in modeling the ancient climate, and quantitative comparisons among models and proxy data; case studies and methodological papers assessing the (absence of) impact of climate/environment on Near Eastern societies. 8 participants confirmed

SA6 COMPLEX ISSUES IN DATING COASTAL AND ISLAND SETTLEMENTS

Dr.Anthony Krus, Scottish Universities Environmental Research Centre. Dr.Victor Thompson, University of Georgia

Numerous issues often hinder archaeological interpretation of the temporality of human activity on coasts and islands. Local radiocarbon offsets brought about by marine and/or freshwater reservoir effects can result in radiocarbon ages being erroneously old by up to several hundred years. The drift of marine animals and debris, as well as diets mixing terrestrial, marine, and/or freshwater resources, can further complicate dating. In addition to these concerns, uncertainty of deposition and post-depositional processes can add to the confusion of exactly what kind of events are being dated. This session will concentrate on individual cases of complex problems encountered in dating archaeological activity on coasts and islands. Already invited case studies will cover the processes undertaken to estimate and correct for local offsets, and other issues encountered in the creation of chronologies and dating of events. Contributions for both papers and posters are invited from colleagues, in line with the aim of presenting and discussing the complex problems involved in the creation of coastal chronologies.

SA7 CONSTRUCTION TECHNIQUES AND TRANSFER OF TECHNOLOGICAL SKILLS BETWEEN NEIGHBOURING REGIONS: THE MACROSCOPIC AND MICROSCOPIC ARCHAEOLOGICAL RECORDS

Ms.Marta Lorenzon, University of Edinburgh. Ms.Cindy Nelson-Viljoen, University of Edinburgh. Mr.Jonathan Devogelaere, Aix-Marseille Université, CNRS, UMR 7299 CCJ, LabexMed. Ms.Rossana Valente, University of Edinburgh. Ms.Chamsia Sadozai, CRATerre. Dr.Michael Toffolo, Institut für Naturwissenschaftliche Archäologie, Eberhard-Karls-Universität Tübingen

Border areas have a documented history of cultural interaction between different groups. Historical and archaeological sources suggest that in those areas technologies were exchanged and skills transferred. Such mobility of technology and acquisition of new know-how have a large impact on the socio-economic structure of a human group. Building forms and materials are the result of the assimilation of new technical and engineering skills, and provide evidence of their persistency in the building

technology, together with the adoption of new models. This becomes especially apparent when looking at the spread of plaster/mortar technology, the exploitation of specific raw materials or changes in building shape and function. Therefore, the study of architectural remains in border areas is a crucial step in understanding the structure of past societies, and the way they related to different environmental settings and neighbouring groups. Previous research has been focused mainly on the macroscopic analysis of buildings (e.g. architectural forms). However, the last two decades featured an increasing attention towards the microscopic archaeological record, i.e. the chemical compounds that make up building materials and occupational deposits, which requires the aid of microscopes and spectrometers in order to be characterised (e.g. infrared/X-ray spectroscopy, soil micromorphology, phytoliths, etc.). The integration of the macroscopic and microscopic records provides a complete picture of the cultural contexts in which new building technologies were developed. This session aims at presenting integrative research approaches to building techniques in border areas during pre-modern times, which should address the following issues: provenance of raw materials as revealed by spectroscopic methods; extent of building shape diffusion and its cultural significance; role of the microscopic record in the interpretation of architectures; evolution and spread of plaster/mortar technology; identification of activity areas within architectural remains; preservation of the archaeological record and effects of post-depositional processes on buildings.

SA8 DON'T PUT YOUR EGGS IN ONE BASKET: MULTI-DISCIPLINARY APPROACHES TO THE STUDY OF POULTRY EXPLOITATION IN EUROPE.

Dr. Julia Best, Bournemouth University. Dr. Luminita Bejenaru, Alexandru Ioan Cuza University. Dr. Ophelie Lebrasseur, University of Oxford. Dr. Mark Maltby, Bournemouth University. Dr. Idoia Grau Sologestoa, University of Nottingham

Although the study of the domestication and exploitation of mammals in Europe has been the subject of much research and debate, less attention has been given to birds, including the world's most common domesticate: the chicken. Human attitudes towards birds and their exploitation for meat and other products encompass a wide range of economic, social, and cultural themes. These include: taming and domestication; breeding and husbandry practices; migration and diffusion; local and long-distance trade; diet and cuisine; belief systems and ritual practices; status and wealth; sport and pastimes - and any combination of the above. This session welcomes papers that explore human relationships with tamed or domestic birds (focusing on, but not limited to, chickens). Approaches from traditional zooarchaeology, novel scientific techniques, anthropology, and material culture studies are all encouraged, particularly those that combine the use of scientific techniques with other archaeological and anthropological studies. Through these papers this session will explore the many aspects and modes of poultry exploitation, showcasing both large-scale and micro-focused data, whilst also demonstrating how problem-driven scientific application can answer complex and varied research questions.

SA9 EXPLORING THE PRODUCTION AND CONSUMPTION OF FERMENTED BEVERAGES AND FOODS IN PRE- AND PROTOHISTORIC COMMUNITIES

Ms. Shira Gur-Arieh, Max Planck Research Group on Plant Foods in Hominin Dietary Ecology Max Planck Institute for Evolutionary Anthropology. Dr. Domingo Carlos Salazar Garcia, Departament de Prehistoria i Arqueologia, Universitat de Valencia. Prof. Cynthianne Debono Spiteri, Institut für Ur- und Frühgeschichte und Archäologie des Mittelalters, Eberhard Karls Universität Tübingen

Fermentation is an important process in the production of some of the staple food products and beverages in the human diet. It is brought about by the action of yeast, enzymes and bacteria, which convert carbohydrates into alcohols, organic acids and gas. Examples of these are the leavening of bread, the production of beer, wine, mead, cider, yoghurt and the souring of milk. These fermented products are not only important for their nutritional value, their potential to store otherwise perishable foodstuffs, their increased digestibility (e.g. yoghurt for lactose intolerant individuals), but also for their social aspect. Indeed, they play a central role in cultural, celebratory and ritual aspects of different human communities around the world. Identifying the production and consumption of fermented foods and beverages is not straight forward since they rarely preserve in the archaeological record, especially in pre- and protohistoric periods. Attempts to identify these dietary products often require a multidisciplinary approach, including the use of macroscopic (e.g. charred grains) and microscopic (e.g. phytoliths and starches) plant remains from archaeological finds including stone tools and sediments, or directly from skeletal remains such as dental calculus and stomach content. Fermented food and drink products can also be identified using spectroscopic techniques to identify residual biomolecules trapped in porous, unglazed pottery vessels. Other lines of evidence are derived from the study of historical references such as art and decoration, ancient texts, typological pottery studies, and ethnographic or ethnoarchaeological studies. This session will focus on research carried out at identifying fermented food and beverage products, and their dietary and cultural significance to the communities that produced them. We invite submissions aimed at exploring the role of fermented products in the human diet, and their contribution to our understanding of the development and spread of complex food production processes and cultural ideas.

SA10 FROM ISOSCAPES TO FARMSCAPES

Dr. Ingrid Mainland, University of the Highlands and Islands. Dr. Phillipa Ascough, Scottish Universities Environmental Research Centre. Dr. Anthony Newton, School of Geosciences, Marie Muséum national d'Histoire

naturelle Balasse

From isoscapes to farmscapes: Unlocking the potential and avoiding the pitfalls of integrating isotopic and archaeological data to reconstruct diet and subsistence strategies. During the last two decades the use of stable isotope measurements has revolutionised archaeological research, providing invaluable insight into diet and mobility in the past. Initially applied to human remains, isotope analysis is now increasingly used to explore past farming practices through analysis of zooarchaeological and archaeobotanical material. Methodological advances such as sequential sampling of dentition, multi-element analysis and isotope extraction from charred seed assemblages have further enhanced analytical resolution, and are starting to open up the potential for a more nuanced understanding of past subsistence and farming practice. Recent examples include: modelling landscape exploitation, access/control via cultivation practice/grazing regimes; seasonality of farming practice via evidence for manipulation of birthing season, foddering strategies, etc.; mechanisms for enhancing fertility and productivity via manureing and supplementary foddering. There is, however, a growing realisation that such analyses require better integration between environmental archaeologists and isotope specialists not only to help identify relevant questions relating to animal and plant husbandry but to delineate relevant analytical limits in both disciplines. More significantly, in order to move beyond simple and often ad hoc dietary reconstructions based on a few individuals, it is apparent that further methodological innovation is required, such as a shift towards larger scale isotope analysis, development of secure modern analogue baselines and isotopic landscapes ('isoscapes') for specific regions and of integrative approaches with palaeoeconomic datasets. This session aims to explore the opportunities and challenges offered by the application of isotope data to diet, subsistence and past farming practice through targeted case studies which consider these topics for any period or region alongside papers which address more specifically the methodological or other limitations encountered by researchers in attempting to do so.

SA11 IDENTIFICATION AND INTERPRETATION OF PAST EPIDEMICS: FROM ARCHAEOLOGICAL EVIDENCE TO MULTIDISCIPLINARY ANALYSIS

Prof.Dominique Castex, UMR 5199 PACEA du CNRS. Prof.Pascal Sellier, UMR 7041 Arscan, Ethnologie préhistorique. Dr.Eline Schotsmans, AGES, School of Life Sciences, University of Bradford. Prof.Johannes Eberhard-Karls-Universität Tübingen Krause

Over the last 20 years, research on past epidemics has increased considerably, bringing together several disciplines such as history, archaeology, bioanthropology and paleo-biochemistry. Those interdisciplinary studies of archaeological sites have led to important results and interpretations regarding the nature and contagion mechanisms of abrupt deadly infectious diseases of the past. A well known example is the second plague pandemic during from the 14th to the 18th centuries. Unfortunately there are not many opportunities for those different disciplines to discuss their methods and results. It is important to exchange knowledge on past epidemics across different countries and chronological contexts without focusing on individual paleopathological case studies. In this respect the session aims to bring together international researchers from different scientific backgrounds to pursue in more detail the analyses and interpretations regarding past epidemics. This session will have four main focuses : (1) The primary focus lies in funerary paleo-ethnology and will explore burial types and funeral treatments during epidemic crises. (2) A second focus will cover the analysis of the mortality profiles of different epidemics such as plague, scarlet fever, typhus and famine, etc, and their specific impact on the population. (3) The third discussion focuses on the state of health of populations from an epidemiological point of view. (4) Finally, recent developments in molecular biology will be addressed concerning the identification and evolution of different pathogens.

SA12 INTEGRATED APPROACHES TO SPATIAL ANALYSIS IN DOMESTIC AND INHABITED CONTEXTS

Mrs.Hayley McParland, University of York. Dr.Robyn Inglis, University of York. Dr.Francesco Carrer, University of York.Carla Lancelotti, Universitat Pompeu Fabra

This session showcases interdisciplinary approaches to debates surrounding the use of space in domestic and inhabited space in archaeological sites through the application of multi-proxy techniques. Presenting research from across the globe and ranging in temporal focus from the Palaeolithic to the medieval period, it highlights the wide variety of differences in applicable analytical techniques to these different contexts and research questions as well as providing a forum for the discussion of the efficacy and potential of these techniques. Analyses of activities carried out within domestic and inhabited contexts can inform debates surrounding perceptions of 'interior' and 'exterior' activities, as well as the complexities of inhabited spaces, particularly within ephemeral contexts where the limits of space are not clearly defined. The use of conventional archaeological methods of spatial analysis, including microartefact or artefact distribution, integrated with the development of scientific approaches such as bioarchaeology and geoarchaeology, and combined with the application of spatial statistics and geostatistics, provides a powerful toolkit to detect evidence of activities and their spatial patterning within domestic and inhabited contexts, and their implications for the use of space within archaeological sites. In addition, the use of ethnography and experimental archaeology can aid our interpretation of the spatio-temporal aspects of domestic space, clarifying and mitigating common taphonomic issues in the application of these techniques. By bringing together the proposed participants from the UK and Europe who work in a variety of temporal and geographic foci, and extending the call to researchers beyond this list, this session will review the state of the art with relation to the integration of scientific and conventional archaeological methods to further our understanding of the use of space in the past, and to identify avenues for potential future growth in these areas.



SA13 MERC - METALLURGICAL CRAFTS IN THE 1ST MILLENIUM AD EUROPE: TECHNOLOGY AND PRACTICES

Dr. Daniel Sahlen, The Archaeological Research Laboratory, Department of Archaeology and Classical Studies, Stockholm University. Dr. Thomas Birch, Institut für Archäologische Wissenschaften der Goethe-Universität Frankfurt am Main. Mr. Guðmundur Sigurðsson, Skagafjörður Heritage Museum

The transformation from Late Antiquity to early Medieval Europe witnessed change and continuity in technological practices. From Frankish garnet cloisonné, to Anglo-Saxon gold, and Viking crucible steel swords and pattern-welding, the 1st Millennium AD witnessed some of the finest metalwork known in history. But this was also a period when metal products became a natural part of most households. Metals played a fundamental role in everyday life and provide a valuable insight into social and economic relations during this period. Metal craft technologies were widely spread during the 1st millennium, resulting from the movement and dissemination of technical knowledge and practices throughout Europe. This clearly demonstrates that metal working and production was no longer a local affair, but now a wide spread and common phenomena. Archaeometallurgy has in the last decade been an important approach to the study of metal production and consumption following the development of analytical techniques and the adoption of theoretically informed approaches. This session aims to provide a multidisciplinary venue for presenting research in archaeometallurgy that relates to this dynamic period. The focus will be on technology and practices of metallurgy associated with the production of metals and manufacture of objects. The session will explore the continuity, change and developments in metallurgical crafts during the 1st Millennium AD in Europe. The interdisciplinary nature of the session will promote archaeometric studies, where scientific methods have been harnessed to enrich our understanding of technological practices in metallurgy and to explore how technology was spread and developed. We welcome both technical papers and archaeological discussions, but all contributions should demonstrate the use of scientific approaches to answer specific archaeological questions.

SA14 NEW APPROACHES TO METALS TRADE AND PEOPLE MOBILITY: INTEGRATING SCIENTIFIC DATA WITH ARCHAEOLOGICAL THEORY

Dr. Lois Armada, UCL-Institute of Archaeology. Dr. Mike Charlton, UCL-Institute of Archaeology. Dr. Mercedes Murillo-Barroso, UCL-Institute of Archaeology. Dr. Thomas Oliver Pryce, CNRS

New approaches to metals trade and people mobility: Integrating scientific data with archaeological theory. Session coordinators: Armada, Charlton, Murillo-Barroso and Pryce. The circulation of metal has long been viewed as a catalyst for social, economic and population changes in Europe. These theories are rooted in the distribution of metal objects across time and space. New techniques and perspectives derived from archaeological science can shed new light on the understanding of the movement of people, materials and technological knowledge. This session seeks to integrate archaeometallurgical data with archaeological theory to address longstanding questions about past mechanisms of exchange, mobility and social complexity. Advances in the characterization of metals and metallurgical residues (including bulk elemental composition by XRF/pXRF and trace elemental and isotopic analysis by ICP-MS) combined with more sophisticated approaches to data analysis add greater resolution to provenance studies. Though offering better pictures of artefact source, the explanation of artefact distribution across geographic space requires the use of theoretically informed models and solid archaeological evidence to discern differences between the circulation of raw materials, ingots, objects, craftspeople and populations. Full characterization of metals circulation is essential to understanding its impact on social practices and the emergence of complexity and linguistic and cultural transfers of interacting peoples. We are interested in papers on the following themes: Archaeometric based models of exchange Invention, innovation and transmission of metallurgical knowledge Research on comparative assemblages integrating archaeometric and typological analysis Characterization and discrimination of different modes of material circulation Archaeometric based studies on the impact of metals on social complexity

SA15 QUANTITATIVE AND QUALITATIVE APPROACHES TO PREHISTORIC WARFARE

Dr. Andrea Dolfini, Newcastle University. Dr. Christian Horn, Christian-Albrechts-Universität zu Kiel. Dr. Marion Uckelmann, Durham University. Dr. Rachel Crellin, University of Leicester (from Jan 2015)

The last twenty years have seen a renewed interest in the study of prehistoric warfare including, among others, (1) examinations of the combat injuries detectable on human skeletons; (2) body-centred reappraisals of the identity of the prehistoric warrior based on funerary evidence and rock art; (3) martial-art approaches that have tested possible uses of prehistoric weapons and armour in combat experiments; (4) and use-wear analysis of the combat marks visible on prehistoric stone and bronze weapons. Despite the wealth of new data and interpretations contributed by these studies, research on prehistoric warfare is still largely divided along traditional disciplinary lines. In particular, the subject suffers from a dearth of multi- and cross-disciplinary investigations that make use of scientific techniques and experimental archaeology in order to illuminate archaeological, historical and iconographic sources. Unresolved problems range from how to meaningfully design laboratory and field experiments with long-disappeared weapons and long-forgotten fighting styles to how to establish shared analytical protocols for the use-wear analysis of combat marks, thus enabling comparison between different studies. Other open questions concern the possibility of cross-fertilising osteological and weaponry research in order to assess the nature of prehistoric warfare, and what scientific techniques can be best employed to evaluate the material properties of weapons and armour, and how these affected their functionality on the battlefield. The papers presented at this session will seek to explore

problems concerning warfare and combat in world prehistory from the Palaeolithic onwards, paying special attention to how integrated multi- and cross-disciplinary examinations of archaeological, osteological, experimental and analytical evidence can address a broad spectrum of questions regarding the nature, frequency, and intensity of prehistoric warfare, and the use of identifiable fighting styles.

SA16 RECYCLING THINGS AND IDEAS: LINKING SCIENTIFIC, ARCHAEOLOGICAL AND CONCEPTUAL APPROACHES TO THE REUSE OF MATERIALS IN THE PAST

Dr.Peter Bray, RLAHA, University of Oxford. Dr.Aurélié Cuénod, University of Leicester, School of Archaeology and Ancient History. Dr.Chloë Duckworth, University of Leicester, School of Archaeology and Ancient History. Patrick Degryse, KU Leuven. Marianne Mödlinger, University of Vienna, Department of Prehistory and Historical Archaeology

Recycling touches upon all aspects of archaeology, but it often suffers from its perceived 'invisibility' in the material record. Reuse, reforming and mixing of material alters its composition and shape, and can therefore directly affect conceptions of source, provenance, technology and chronology. The malleability and reuse of material challenges simple ideas of identity, value, economy and exchange. Despite the profound effects of recycling it is often difficult to identify and quantify in the archaeological record, particularly for materials and artefact-based studies (by comparison with, for example, architecture). This means that the manufacture of objects from 'prime' raw materials is often implicitly assumed to be standard practice. We are also in danger of relying on modern conceptions of recycling that focus on ecological concerns and coping with scarcity. Improved communication and co-operation across a range of disciplines offers new ways to better understand the flow of materials in the past. This session aims to provide a forum for these discussions and will highlight new approaches and models. Papers will examine how lab-based science, experimental archaeology, excavation and artefact-led archaeology, and conceptual archaeology can come together to identify and quantify recycling and its effects. This will be in conjunction with considering the challenges involved in pursuing inter-disciplinary work.

SA17 REMOTE SENSING, MULTIMODAL SOLUTIONS AND QUANTITATIVE METHODS IN HERITAGE MANAGEMENT

Dr.William Megarry, University College Dublin/ The Johns Hopkins University. Dr.Till Sonnemann, Leiden University. Dr.Douglas Comer, CSRM/ Johns Hopkins University

The availability and affordability of remotely sensed data and imagery over recent decades has revolutionised the way we understand and explore archaeological sites and landscapes. Data captured using techniques like airborne laser scanning (ALS), synthetic aperture radar (SAR), multi-system geophysics and multi as well as hyperspectral platforms contains surface and subsurface variation at ever increasing resolution and at increasing scales. This session will explore multimodal approaches to sites and landscapes using remotely sensed data and imagery. It will focus on how this data can be used to generate tailored solutions to specific research questions, and in doing so greatly reduce the computational demands of the data. Central to this is the integration of different but relevant data types. The session will also focus on the site and landscape management potential of remotely sensed data and imagery. It will do this by exploring modelling techniques and quantitative analyses which address the unique opportunities and challenges associated with archaeological heritage.

SA18 SCIENCE AND ARCHAEOLOGY: ISOTOPIC APPROACHES

Michael Buckley, University of Manchester

This session collects contributions inspired by the theme of Science and Archaeology.

SA19 SCIENTIFIC ANALYSIS OF ARCHAEOLOGICAL OBJECTS IN MUSEUMS: MODERN TECHNOLOGIES AND LIMITATIONS OF THE COLLECTIONS

Prof.Robert Tykot, University of South Florida. Dr.Andrea Vianello, Oxford University

Museum and storage collections have been increasingly targeted by new research thanks to the availability of portable analytical equipment (e.g. portable XRF, XRD, Raman, NIR, FORS). At the same time, conducting any kind of destructive analysis or having to transport the materials out of the museum is more regulated and often limited. When compared with traditional laboratory-based analytical methods, there are technical and human issues that raise questions about the results produced by portable instruments. Do they produce the same quality results? Can they still answer the research questions being addressed? Depending on the material being tested, what are the limitations of conducting non-destructive analyses? If only small powder samples rather than solid pieces are allowed, is that sufficient? What kind of training is necessary? At the same time, many of the objects on display in museums are from older excavations or surface collections, or were acquired by purchase or donation, and thus lack detailed contextual information. Frequently, they are not representative of all the artifacts that were excavated or collected. Certain materials have been specially cleaned or treated with preservatives, while others are weathered or in some stage of decay. How can this be dealt with? We welcome presentations focusing on real-world cases in which any of such issues have been faced. Any materials including lithics, ceramics, metals, glass, organics, and paintings can be discussed. We also invite presentations on the ethical and practical conditions involved in archaeological museum studies, including those related to identification of forgeries. Our aim is to produce an updated review of methods, pitfalls and solutions for conducting scientific research outside the laboratory.

SA20 SCIENTIFIC APPROACHES TO THE EUROPEAN IRON AGE

Prof. Hrvoje Potrebica, University of Zagreb, Department of Archaeology. Dr. Matija Črešnar, University of Ljubljana. Dr. Philip Mason, Institute for the Protection of Cultural Heritage of Slovenia

The study of the European Iron Age has often been characterised as conservative in approach, with an outdated reliance on cultural historical frameworks and traditional modes of analysis. In recent years, however, scientific approaches have started to make more of an impact across many regions of Europe. This session takes the opportunity to examine the impact of certain key scientific applications and methodologies on our understanding of Iron Age communities and their interactions. Examples of such approaches include (but are by no means restricted to) geophysical prospection, LIDAR survey, AMS dating, archaeometallurgy, geochemistry, 3D visualisation, stable isotope analysis and organic residue analysis. This session draws on a core of papers from the current HERA-funded ENTRANS Project, examining the Iron Age in south-east Europe and the East Alpine region, and we invite other perspectives drawn from various parts of Europe. Papers dealing with the impact of scientific approaches on specific European regions or themes related to the Iron Age are invited. Confirmed speakers Ian Armit (University of Bradford, UK) and Katharina Becker (University of Cork, IRE) Hrvoje Potrebica (University of Zagreb, CRO) Matija Črešnar (University of Ljubljana, SLO) Philip Mason (Institute for the Protection of Cultural Heritage of Slovenia, SLO) Rebecca Nicholls (University of Bradford, UK), Jo Buckberry (University of Bradford, UK) and Hannah Koon (University of Bradford, UK) Branko Mušič (University of Ljubljana, SLO) and Peter Turner (University of Bradford, UK)

SA21 SLUM-DWELLERS REVISITED: BIOARCHAEOLOGY, DOCUMENTARY ARCHAEOLOGY, AND THE CASE FOR AN INTEGRATED APPROACH TO 19TH CENTURY POVERTY

Prof. James Symonds, University of Amsterdam. Prof. Mary Beaudry, Boston University

Excavations in New York in the 1990s inspired a global interest in former urban industrial landscapes and the archaeology of slumlands came to play an important role in the process of urban regeneration. Many of the archaeologies of poverty which emerged at this time were characterised by their detailed use of historical sources and the analysis of tens of thousands of artefacts. Such studies also advocated the use of the historical imagination and storytelling, linking discarded items to known individuals and families. These innovative interpretive archaeologies broke new ground as they exposed the fact that 19th century slums were 'imagined constructions' promoted by the contemporary bourgeoisie. By delving into the actualities of daily life archaeologies of poverty went further by suggesting that far from being social outcasts, or down-and-outs, 19th century slum dwellers were often skilled and resourceful individuals who cared for themselves and their families and embraced the ideas of respectability and self-improvement. This session aims to take a fresh look at the archaeology of 19th century poverty and will take full advantage of recent advances in archaeological theory, and the new techniques which have become available through developments in bioarchaeology. Papers are welcome on the following topics:- Analyses of human skeletal remains for evidence of diet, nutrition, and health.- Evidence of traumas (work related, or through acts of violence)- Evidence of gendered activities in the home and or workplace- Lifecycle studies linked to environmental variables- Studies which relate health/life expectancy to income, occupation, class- Studies of human health and sanitary conditions- Evidence for food supply, preparation, consumption, and storage- Evidence for the consumption of alcohol, tobacco, and other narcotics- The impact of charitable institutions and places of confinement- Bioarchaeological evidence of migration into industrial cities from rural areas

SA22 THE IN-SITU CHARACTERISATION OF ARCHAEOLOGICAL MATERIALS, BUILDINGS AND ARTWORKS: IMPLICATIONS FOR THE PRACTICE OF ARCHAEOLOGY

Dr. Richard Jones, Glasgow University. Dr. Costanza Miliani, Istituto CNR di Scienze e Tecnologie Molecolari (CNR-ISTM). Dr. Roger Doonan, University of Sheffield. Dr. Effie Photo-Jones, Scottish Analytical Services for Art & Archaeology

The organisation and management of the archaeological process has been formalised and subsequently refined over the last five decades by a number of European National Heritage agencies. The same may be said of cultural resource management in Europe involving preservation, restoration and conservation. One of the most enduring and extensive features of the archaeological process has been the physical and temporal separation of specialist finds processing and fieldwork. To a large extent the entrenched relationship between excavation in the field and finds analyses in a laboratory remains in place. Theoretical perspectives have often been put into practice, yet the importance of the laboratory as a place has often held back change. More recently there have been a number of developments in portable equipment that allows conventional analyses to be undertaken outside the laboratory in the field, the museum or other location; these in-situ, non-destructive and rapid analyses are applicable to the whole spectrum of inorganic materials, many organic materials as well as soils. The implications of these methods are far reaching especially when employed in light of recent theoretical perspectives. Their role and capabilities have already been the subject of discussion among archaeological scientists, but that discussion has not always extended to the end users in museums and in cultural heritage more generally. In this session we therefore hope to review the implications of increasingly portable analytical equipment for how we practice archaeology and how they are best deployed in cultural resource management. Speakers are invited to contribute experience and positions on a number of topics: the ability of non-invasive techniques to more directly inform excavation strategy, identifying their limitations, the issue of resource

availability, how current traditions of practice might be better reconfigured, and the shift in relations between archaeologists, archaeological and conservation scientists and other specialists.

SA23 THE SOCIAL CONTEXT OF METALLURGY: MATERIAL AND IDENTITY

Ms.Vana Orfanou, Institute of Archaeology, UCL. Ms.Ruth Fillery-Travis, Institute of Archaeology, UCL.

Mr.Thomas Birch, Institut für Archäologische Wissenschaften der Goethe-Universität Frankfurt am Main

In recent decades, archaeometallurgy has significantly grown within the field of archaeological science. Currently, the use of more accessible/affordable analytical instruments and techniques such as, for example, portable XRF equipment, has made archaeometallurgical studies increasingly popular, while considerable datasets are being generated each year. Considering the large volume of analytical data developed by both archaeologists/archaeometallurgists, this session aims to explore and expand the contribution of scientific analyses to archaeological interpretation beyond a mere presentation of quantitative data. Past metallurgical activities and the finished objects were a well-embedded element of past societies, while they were the products of the socio-economic structures and organisation of the respective communities. Metal objects have been diachronically and widely used to cover peoples' various everyday needs, as well as they have communicated more personal and intimate sentiments as gifts to the gods or the dead. Thus, the investigation of ancient metallurgy has the potential of referring back to and revealing to a greater extent the elements of the society/-ies which contributed in the materialisation of these technologies. The present session invites papers which employ scientific methods in the study of past metallurgy including finished objects/tools, e.g. metallurgical ceramics, by-products, e.g. slag, and/or structures, e.g. furnaces, and which use these data to discuss the social context of metallurgy amongst past communities. Of interest would also be the expressions of individual/collective identity/-ies and the materiality of metallurgical practices/objects as seen from the investigation of techniques and patterns of production/consumption of the metal artefacts. Research focus may relate to all periods and stages of metal technology's cycle and the metal objects' biographies including primary and secondary production, (re)use, and disposal. Overall, the session aims to shed light on the manifold cultural expressions and technological choices that were practiced during metal production and left their imprint on the metal objects.

SA24 WHAT HAVE ISOTOPES DONE FOR ARCHAEOLOGY LATELY?

Dr.Ricardo Fernandes, University of Cambridge, McDonald Institute for Archaeological Research. Dr.Klervia Jaouen, Department of Human Evolution

Stable and radiogenic isotope analyses provide increasingly important contributions to archaeological research. These include the establishment of chronologies, the description of past environmental and climatic conditions, and the reconstruction of human subsistence strategies and mobility patterns. These aspects are often interrelated and an optimal approach to archaeological research is one that integrates multiple sources of isotopic and archaeological data. For example, isotope-based human diet reconstruction requires a careful characterization of the isotopic composition of potential food groups. However, such an isotopic baseline will be influenced by environmental (e.g. climate) and anthropogenic (e.g. agricultural techniques) parameters. Furthermore, populations with high levels of mobility or that engaged in food trade could potentially have access to food groups having diverse isotopic signatures. Thus, a reliable isotope-based diet reconstruction requires the study of multiple facets using a combination of archaeological and isotopic data. Conversely, dietary information is crucial when chronologies are based on the radiocarbon dating of human remains given the potential for radiocarbon dietary reservoir effects resulting from the intake of aquatic food groups. These examples illustrate the need for an integrated approach to archaeological research. The main goal of this session is to demonstrate how isotopic data can be usefully employed to answer relevant archaeological questions. The session will especially welcome interdisciplinary contributions that integrate multiple sources of isotopic and archaeological data to put forward reliable interpretations of past human behaviour and of its development through time. Also welcomed are contributions that address methodological aspects of the use of isotopic data in archaeological research. These include discussions on adequate interpretations of isotopic data, reporting of the potentialities and limitations of different isotopic proxies, and the introduction of novel isotopic proxies relevant to archaeological research.

SA25 SCIENCE AND ARCHAEOLOGY: PEOPLE AND PLACES

Louise Loe, Oxford Archaeology

This session collects contributions inspired by the theme of Science and Archaeology.

SA26 SCIENCE AND ARCHAEOLOGY: EARTH, WIND AND FIRE AND RESIDUES

Gill Campbell, Historic England

This session collects contributions inspired by the theme of Science and Archaeology.

COMMUNICATING ARCHAEOLOGY

CA1 "EUROPEAN ARCHAEOLOGY"? PAST REALITY, PRACTICAL AGENDA, OR POLITICAL BANNER?

Dr. John Robb, University of Cambridge. Dr. Stasa Babic, University of Belgrade

The concept of "European archaeology" has proven attractive both to archaeologists seeking to understand the coherence of the region and to people in politics and heritage who seek to promote the identity and unity of Europe. But, just like the term "Europe" in modern political discourse, the concept masks many agendas and ambiguities. This forum discusses a range of questions centered around the concept of "European archaeology". How accurate is it as a characterisation of past regionalities? What is the historical derivation and politics of the concept? How does its use now relate to various geographical or politicised definitions of what constitutes "Europe"? Is it interdependent with the aspirations of political organisations (potentially including ones sponsoring archaeological research) such as the European Union? And what impact upon Europe and its self-consciousness can archaeology have?

CA2 ARCHAEOLOGY AND TOURISM

Dr. Sonja Jilek, Institute for History, Vienna University. Mr. Chris Corlett, National Monuments Service (DAHG). Dr. Gavin MacGregor, Northlight Heritage

There has been an explosion of interest in the dynamics of cultural heritage tourism across Europe. Cultural tourism has long been established as a means of regional development. The specific quality of archaeological heritage tourism lies in the relation between monument(s) in their setting, their presentation and interpretation and the learning processes of the cultural tourist. The optimum outcome would be to change tourists from "people who stare" into "people who care", as Ms. Sue Millar, Vice-President of ICOMOS, put it. In its Tourism Charter ICOMOS defines a number of guiding principles. The Charter encourages the archaeological community and the tourism industry to work together to protect and present the world's heritage. But do archaeologists actually understand tourism? Does the tourism community understand archaeology? Does archaeological research inform tourism? This session examines best practice approaches to presenting archaeology to tourists, and to promoting public interest in the cultural and natural environment of areas that are tourist foci. This requires critical and constructive frameworks for investigating the tourist potential of sites and the representation of the past. This is an important issue; interpretations of the past have the potential to have an impact not only within nation states but also on international politics and global markets.

CA3 ART, CRAFT AND ARCHAEOLOGY

Dr. Stuart Jeffrey, Glasgow School of Art. Mr. Kai Salas Rosenbach, INRAP. Mr. Lex ter Braak, Jan van Eyck Academie, Netherlands

Art, craft and archaeology Amongst the many apparent advantages of providing audiences with access to forms of archaeology mediated by via creative response is the ability this affords us to engage people on an emotional as well as an intellectual level. This form of engagement can lead to meaningful interactions with the past where the audience can be challenged and intrigued by what is being presented to them and, hopefully, transcend the traditional role of passive consumers of archaeological data. Consequently archaeologists are increasingly collaborating with artists and crafts people working in all fields from sound, music and dance, to sculpture and the visual arts. Such collaborations often have the objective of broadening audiences and increasing levels of community engagement. This session will explore the interface between forms of creative practice and archaeology. This can be through the use of artistic reconstruction, direct creative response, and co-design and co-production of artistic and craft works using archaeological material as its source. The Topics of interest will cover forms of archaeological practice not normally considered in this context but with a strong creative element. This might include digital representation, reconstruction and data visualisation, addressing questions of artistry and craft in the creation of digital versions of the archaeological past. As well as offering an opportunity for archaeologists and creative practitioners to demonstrate their recent work, this session will focus on the issues that surround the integration of art with archaeological practice and the impact that this has on the process of archaeological interpretation from both the perspective of the archaeologist and of their audiences. Therefore we welcome papers that consider issues of multiple or competing interpretations and the craft nature of archaeological representations as well as examples of collaborative working between artists and archaeologists.

CA4 CLUSTERS OF KNOWLEDGE PRODUCTION: CONVERSATION AND CREATION OF KNOWLEDGE IN ARCHAEOLOGY

Dr. Kathleen Sheppard, Missouri University of Science and Technology. Dr. Ulf Hansson, University of Texas at Austin. Dr. Julia Roberts, Honorary Research Fellow

Throughout the discipline's history, archaeologists have shared knowledge with their scholarly communities through various forms of interaction like publications, conferences, seminars, lectures, and exhibitions. These public events and the responses they provoke constitute an open scientific dialogue indispensable for the community's accumulation and revision of collective knowledge. A key role in the processes of knowledge production preceding such public events is played by informal clusters or networks of scholars: dynamic systems of exchange loosely constituted by individuals and groups who generate and

communicate knowledge and ideas both within the system and with external actors and communities. This regular session, chaired by Pamela Jane Smith and including papers by Andrew Bednarski, Anwen Cooper, Margarita Diaz-Andreu, Elin Engström, Anna Gustavsson, Ulf Hansson, Elisabeth Arwill Nordbladh, Julia Roberts, Kathleen Sheppard, and Francesca de Tomasi, fits the "Legacies and Visions" theme because it problematizes knowledge production and mediation in archaeology over the last 150 years, and critically examines how various informal modes of exchange between individuals and groups affect the trajectories of their public ideas about material culture and past civilizations. The papers focus on how archaeologists who have created and continue to create knowledge within their respective fields both influence and are inspired by the networks in which they operate through the more informal and private but significant exchanges that take place when they meet and talk to each other, in person or through correspondence. As a unit, the papers argue that the informal character of these gatherings inspired the generation of scientific ideas and thus affected the dynamic process of knowledge production in other but equally significant ways than knowledge produced within more formally restrained contexts. The presenters' varying viewpoints will allow for a more holistic exploration of the instrumentality of informal clusters of actors in the production and mediation of data.

CA5 COMMITTEE ON PROFESSIONAL ASSOCIATIONS ROUND TABLE

Dr. Gerry Wait, Nexus Heritage. Dr. Kenneth Aitchison, Landward Research Ltd

EAA Committee on Professional Associations in Archaeology Round Table Gerry Wait (Co-Chair) Kenneth Aitchison (Co-Chair) and Jaime Almansa-Sanchez (Secretary) The EAA's CPAA will be meeting to discuss the variety of types of archaeological organisations in Europe and the services they offer to members, with the objective of identifying the significant gaps of services desired but not readily available. The Round table will consist of a series of updates on the character and activities of as many existing European archaeological associations/organisations as possible (3-4 minutes per organisation). This will be followed by a discussion focusing on the primary questions that arose from the 2014 meeting in Istanbul: To aid the discussion, a 'wiki-based' format created by the CPAA for associations to 'fill-in' the relevant information about themselves what each one does and how they work will be presented for discussion. The wiki will also seek to establish the degree of direct formal governmental control over archaeological practice on the basis that the value of professional associations is arguably greatest where governmental control is weaker or less direct. Other subjects for discussion include the possibility of some professional association to serve members outside their country of origin (e.g. CIfA) and how the CPAA might foster more active support to individuals in countries where no professional archaeological associations exists and desired services are not available. The round table will be followed by a short formal Annual Business Meetings (normally 20 minutes).

CA6 COMMUNICATING AND DEMOCRATISING ARCHAEOLOGY THROUGH DIGITAL TRANSPARENCY

Mr. Jason Wood, Heritage Consultancy Services. Ms. Loura Conerney, Daca Studio. Ms. B. Nilgün Öz, METU Department of Architecture

This session brings together a thought-provoking set of case studies to explore the benefits of open data as a driver for empowerment in public archaeology in the UK and in European settings. In seeking to unpack debate in this context, areas for examination will focus on access and communication of linked data; associated tools for interrogation, analysis and sharing; and crowd sourcing. Key themes will include how academics, heritage professionals and citizens can come together as a persuasive force to create new perspectives on, and relationships with, archaeological data; the formulation of groups to influence decision makers and take ownership of data; opportunities for interdisciplinary co-design and knowledge exchange with universities, creative industries and media professionals; and how to measure impact and effectiveness in an ever-changing digital environment. Contributions are promised or are being currently sought from academics, heritage and media professionals and industry, and will be drawn from the UK, Turkey and at least one other European country.

CA7 COMMUNICATING ARCHAEOLOGY

Dr Ben Thomas, Archaeological Institute of America

This session collects contributions inspired by the theme of Communicating Archaeology.

CA8 COMMUNICATION AS COLLABORATION: DIGITAL METHODS, EXPERIENCES AND VALUE

Dr. Chiara Bonacchi, University College London. Dr. Bodil Petersson, Linnaeus University

This session focuses on those communications of archaeology that take the form of a collaboration with members of the public, aided by digital and web technologies. In the last few years, digital innovations have blurred the previously sharper separation between producers of content and consumers. A digital "prosumption" (Toffler 1980) society is affirming where citizens are offered increasing opportunities to collaborate with archaeologists working in institutions such as museums, archives, commercial units, or academia, to collect, enhance, analyse and interpret a diverse array of archaeological data. To examine the topic of co-produced research as a specific form of communication, we invite papers that present case studies where digital communications about archaeology relied on crowd-sourcing, social media or other platforms and tools allowing the public to contribute information. Presentations will discuss the individuals and groups involved; the ways in which they interacted with each other and engaged with archaeology-themed content; and the cultural, social and economic benefits that these

experiences generated for the people and institutions participating. Presenters are also encouraged to highlight whether and how this kind of communication was intertwined with other public engagement initiatives they had pursued.

CA9 COMMUNITY LED HERITAGE ACTION

Ms.Cara Jones, Archaeology Scotland. Mr.Ian Doyle, The Heritage Council of Ireland. Ms.Ulla Lähdesmäki, Tampere museums, Finland. Ms.Tuija-Liisa, Tampere Museums, Finland Soinenen. Mr.Philip Richardson, Archaeology Scotland

The opportunities for anyone to get actively involved with their local heritage are increasing and the opportunity for this engagement to be community-led is seen increasingly favourable by funders, politicians and community heritage professionals. One of the many challenges facing heritage professionals includes harnessing a participant's enthusiasm for the historic environment and directing this energy towards positive and sustainable engagement activities that facilitate the mobility of ideas and experiences about cultural heritage. We know of some great examples throughout Europe and beyond, however we also know that it can be a challenge to create such engagement frameworks, where community or public archaeology is still very much led by a top down approach. we would like to discuss How can we start or develop existing engagement frameworks which lead to beneficial actions for the historic environment and for people who engage with it? How can we make these benefits and impacts clearer to see? How can we facilitate sustainable community-led action and widen these active engagement opportunities? Successful and unsuccessful community-led case studies that have benefited heritage, motivated communities and created new advocates for the historic environment outside of the profession The focus of the round table will not simply be on a series of community-led projects but will press participants to think and to share what the key outcomes have been in attempting to shift practice from a traditional State-led model to a more facilitative community basis. This round table will be divided into two parts. Part one will take place indoors and invites participants who wish to present a short 5 minute position statement or case study on the themes above, and then open the floor for discussion. Part two will be field trip to an active Adopt-a-Monument project where we hope to explore these issues further.

CA10 CULTURAL COMMUNICATION AND ARCHAEOLOGY

Ms.Carol Ellick, Archaeological and Cultural Education Consultants. Hirofumi Kato, Hokkaido University, Sapporo

We study people who are the ancestors of contemporary/living communities by looking at the materials they left behind. We speak for those people and communicate what we know to those our cultures. We speak the jargon of a scientist and a humanist and can easily relate information to others within our profession, but often lack the skills needed to communicate to others outside of our personal and professional culture. As anthropologists we are taught concepts of ethnocentrism and cultural relativism; however, in archaeology we sometimes forget we are anthropologists. In this session, we will explore ways to better reach target audiences through discussions of cultural communication styles within individual cultural groups and offer suggestion on how to relate archaeological information to people's base of knowledge and will examine how programs are working with descendent communities to establish projects using community-based decision making and outcomes. Authors will share examples from projects, provide options for improving communication with groups outside of our own archaeological and scientific culture and demonstrate ways in which archaeologists can weave alternative perspectives into the interpretation of the archaeological record in order to reach and represent a broader range of cultural groups. NOTE: Participants have been invited from the U.S., Japan, and Canada. Additional participation is being sought from individuals in Russia, New Zealand, and Australia. I didn't hear back from my colleagues in time to submit this proposal, but heard today from my colleague at Hokkaido University in Japan that he has a strong interest in participating in this session. I realize that it is now past the submission deadline but wanted to finish the submission on the off chance that there is space in the program.

CA11 ENGAGING THE PUBLIC WITH ARCHAEOLOGY THREATENED BY CLIMATE CHANGE

Dr.Tom Dawson, SCAPE Trust / University of St Andrews. Dr.Courtney Nimura, UCL / MOLA. Dr.Marie-Yvane Daire, University of Rennes. Dr.Elias Lopez-Romero, Durham University

There is a long-established tradition of rescue archaeology at sites threatened by development, and the principle of the 'polluter pays' is referenced in the planning guidance of many countries. But what happens when there is no developer? Who should take action when natural processes put sites at risk? The threats are many, including flooding, erosion, desertification, sea level rise, thawing of permafrost, and the drying of waterlogged deposits. Worryingly, climate change predictions suggest that the problem is likely to increase in the future. Heritage managers around the world are developing mechanisms for dealing with the severe challenges, and there is much to learn from the natural heritage sector, which has long worked with the public in practical recording projects. Increasingly, archaeologists are engaging with this tradition, and citizen science projects involving communities are being developed. These initiatives develop partnerships that include using mobile technology to collect data; sharing new digital recording techniques; undertaking a range of practical projects; and using innovative outputs to make information available to all. By involving the public in projects and making data accessible, archaeologists can help engage society and policy makers in the debate on threatened heritage at a time of climate change. With examples from across Europe, the US and Australia, this session will detail the scale of the problem and will show how heritage professionals are engaging with the public to raise awareness. It will examine differing responses and will question what more we can do to engage with the growing number of sites that are under increasing threat of destruction. **Lopez-Romero**

CA12 FROM WRITTEN SOURCES TO ARCHAEOLOGICAL FIELDS: ANCIENT HISTORY AND ARCHAEOLOGY IN A RENEWED INTERDISCIPLINARY DIALOGUE

Miss Anna Miaczewska, Uniwersytet Marii Curie-Skłodowskiej w Lublinie. Mr. Edoardo Bedin, University of Padova. Dr. Anna Busetto, independent researcher

The communication of archaeological data has been in the past couple of decades undergoing a vibrant and successful development. The progression of the newest and most effective computer and social media technologies allowed for rapid changes in areas of researching and sharing the results of archaeological projects. However, the application of the most advanced information technologies has also, to some extent, triggered a process of marginalising the most "traditional" disciplines, which have been always closely related to archaeology. Due to their literary and textual contexts, ancient history and classics are these days often being overlooked as insufficient in their relevance to the field of archaeology. In comparison to the most recent technological means of communicating archaeology, the two aforementioned areas have been slowly losing its significance in various areas of archaeological research. Despite numerous attempts to enable a close scholarly relationship between ancient history/classics and archaeology, there still functions a notion that text-based and often highly theorising writing of history of the past cannot fulfill the needs of the 21st century archaeology (which nowadays appears to be often progressing independently from related studies). The purpose of this session is to renew the dialogue between ancient historians and archaeologist who are successfully balancing the interdisciplinary approach in their work and whose projects are based on encouraging the transmission of ideas between the respective fields. Since the two disciplines both have their roots in the inquiries into the past and, in specific cases, can complement each other most closely, the session's goal is to present the theoretical and practical approaches to the merging of these areas of study. The speakers are encouraged to present the examination of case studies where the application of both disciplines is vital for their work as the relationship between them effectively establishes the foundations for research progress.

CA13 IT BELONGS ON THE INTERNET - COMMUNICATING ARCHAEOLOGY ONLINE

Mr. Tristan Boyle, Landward LLC. Mr. Chris Webster, Digitech LLC

Social media is a complete and utter mess, stringing together marketing strategies, rants about sports or news or politics, and pictures of food. Often our Facebook feeds are scattered with adverts alongside what's happening in our friend's lives but what about the pages we like? What place does social media have for archaeology? Is social media just for headlines, for news or discovery? Or can we develop online archaeology to bring fresh perspectives to the public and discipline? Should we be interpreting at the tweet's edge? Serious issues in archaeology need a platform, like the discussion of legislation's effect on archaeology and cultural heritage, is social media that platform? This session will focus on presenting online archaeology through any media, whether it is on Youtube, in podcast form or other on other platforms. We are calling for papers describing experiences and thoughts on this form of outreach. Any perspective on online archaeology i.e. Blogging, Podcasting, Social Networking, Crowd Sourcing, Crowd Funding, Wikis, email lists, or anything that involves digital engagement, from all over the world is welcomed. **Lopez-Romero**

CA14 LIVING HISTORY, OPEN AIR MUSEUMS AND THE PUBLIC

Mrs. Helga Rösel-Mautendorfer, Freilichtmuseum Keltendorf Mitterkirchen. Dr. Jutta Leskovaar, OÖ. Landesmuseum. Dr. Romana Scandolari, Museo delle Palafitte del Lago di Ledro. Mrs. Ida Sagnlandet Lejre, Demant

All over Europe, living history is performed in reconstructed buildings, villages and urban quarters of archaeological or historical open-air museums. Dressed in more or less authentic garments, contributors assume - consciously or unconsciously - the role of past people of a particular time. Venues range from one-day events to events lasting several days such as Celtic festivals and medieval markets. Throughout the year, these roles are also performed by employees of the museums. The reenactors welcome visitors, guide through museums, demonstrate craft techniques and are available to answer questions. In addition, long-term projects lasting several weeks take place, which aim to test authentic details of (pre)historic everyday life and communicate the gained experiences to museum visitors. The following questions arise in this context: What kind of experiences do open-air museums have with living history as a knowledge-transfer concept? How do visitors respond? Does living history generate interest? What does the feedback about living history in museum entail? Were specific evaluations carried out concerning visitor engagement? Does living history achieve the transfer of archaeological or historical knowledge? What strategies are applied to show facts as accurately as possible and avert a false historical understanding by the performers? The aim of the session is to gain an overview of the diverse experience of European open-air museums in relation to public response to the transfer of archaeological or historical knowledge.

CA15 MAKING (PUBLIC) ARCHAEOLOGY POLITICAL

Jaime Almansa-Sanchez, JAS Arqueologia. Dr. Lorna Richardson, UCL

Since the conception of WGPA, we have defined the indefinable, tried to theorize the discipline, surfed the ethical side of our work and now it is time to consider public archaeology and politics. WGPA's round table for 2015 will delve into the political aspects of public archaeology, and explore the means through which we affect politics, and therefore wider society, through our work. The role of archaeology in politics has been widely debated, especially through the consideration of different forms of

nationalism. But politics and archaeology goes beyond the question of nation, and extends into the small actions that happen every day. We are "political animals" (Aristoteles' Zoon politikon), inserted in a system where our decisions as professional archaeologists, public archaeologists, affect others more than we think or perhaps consider. This session remains open to traditional areas for debate on the role of politics in archaeology, or indeed the role of archaeology in politics, but also aims to debate about the role of public archaeologists as political animals. How does our work affect political decisions? How can our work affect political decisions? Should archaeology be used as an instrument of policy and politics? Is this ethical? Can political activism align with our work or vice versa? Should we 'use' archaeology instead of 'do' archaeology? Can we do so? Public archaeology is a place and practise where issues of politics, power relations, participation, individual agency and social inequalities are explored. Born as a critical awareness of traditional ways of doing archaeology, we believe that public archaeology must engage with dissent and avoid the false comfort zone of 'the community'. Instead we must aim to navigate bigger political, economic and social landscapes. If you agree, or (better) if you disagree, please join this round table and help to keep the debate open.



CA16 MERC - MEDIEVAL EUROPE RESEARCH FORUM

Prof. Dries Tys, Vrije Universiteit Brussel. Prof. Martin Carver, University of York

THE MEDIEVAL EUROPE RESEARCH FORUM is an annual meeting held at EAA to promote active archaeological research in the medieval period (AD400-1600) in every country in Europe. It is the intellectual successor to the series entitled Medieval Europe inaugurated at York in 1992, and staged at Bruges in 1997, Basel in 2002 and Paris in 2007. A change of direction occurred in 2012 when new thinking suggested that medieval archaeology would develop more powerfully within the broader ambit of prehistoric and historic archaeology as a whole. Accordingly the representatives of the conference accepted an invitation from EAA to merge the two conferences. This duly occurred at Helsinki and has continued at Pilsen and Istanbul. The medieval agenda is promoted by the Medieval Europe Research Committee (MERC), which views itself as in academic partnership with EAA. The purpose of the forum is to: * highlight the performance of medieval archaeology in the host country * highlight the medieval and medieval-related sessions at the conference * table new research themes pertaining to Europe with special emphasis on links with prehistory * debate new initiatives for teaching, publication and publicity for the subject. The discussions aim to conjoin medieval archaeologists working in the academic, government and commercial sectors and to encourage students to research the period by attending the EAA conference and our Forum. In addition to invited speakers and speakers from the floor, the Round Table will be hosted by: Martin Carver, Chairman, martin.carver@york.ac.uk Dries Tys, Vice Chairman, Dries.Tys@vub.ac.be Sally Foster, Secretary, sally.foster@stir.ac.uk Katarina Predovnik, Treasurer, katja.predovnik@ff.uni-lj.si

Programme to follow

CA17 METAL DETECTING IN CONTEXT: NEW FOCUS IN AN OLD DEBATE?

Dr. Pieterjan Deckers, Vrije Universiteit Brussel. Dr. Michael Lewis, Deputy Head, Portable Antiquities & Treasure, and Curator, Medieval Collections

Attitudes towards amateur metal detecting in Europe generally fall into two camps. In many countries it remains both illegal and vehemently opposed by professional archaeologists. However, some northern European countries have adopted a policy of engagement, arguing that the scientific gains of recording metal-detected finds outweigh potential risks. This difference in attitude is often presented as a deontological debate of principle, resulting in antagonistic positions among archaeologists of different nationalities or even of different generations. In reality however, both the potential costs and benefits of amateur metal detecting and professional attitudes towards it are conditioned by contextual factors which differ throughout Europe. These include the nature of the archaeological record, the socio-economic background of detector users, and the historical development of archaeological legislation which result in differing relations between amateur and professional archaeologists. The session aims to transcend this deontological debate, instead focusing on the conditions which determine the impact of metal detecting, the motivations of detector users, attitudes of professional archaeologists, the legislation surrounding the practice, and the integration of metal-detected finds in archaeological research. Participants are invited to reflect on these issues through, for example, case studies focusing on particular countries or more overarching, comparative contributions. **Vrije Universiteit**

CA18 POLITICAL STRATEGIES FOR THE EAA?

Dr. Jean-Olivier Gransard-Desmond, ArkéoTopia. Prof. Raimund Karl Prifysgol, Bangor University

After two decades the EAA has by European archaeological standards become a very large organisation. At its Annual Conferences archaeologists from all over Europe and beyond meet, present their research and discuss professional issues. As much as words and writing can change the minds of people, the results remain theoretical and intellectual, but do have very little direct impact on the situation of archaeology and archaeologists. Is that the successful path to follow or should the EAA think about developing a political strategy on a European level? Up to now the EAA has not played an active role in European politics. Not being "political" is actually leading to an implicit support of existing structures and to an inability to react to important developments. In this Round Table we would like to draw on the experiences and expertise of EAA members which have in their official role or by their own initiative acted politically in the interest of archaeology. Together with them we would

like to develop proposals for a future political strategy of the EAA. With the support of the EAA Executive Board and a majority of the members – to be sought for at the ABM – these proposals could be integrated into the new Business Model that is currently being developed to professionalize the EAA. Apart from the invited contributors, we would like to encourage all members of the EAA to share their experiences and ideas with us before during and after the Round Table.

Submissions are not invited in the Call for Papers for this roundtable. Confirmed participants: Marc Lodewijckx, EAA Secretary, Professor of Archaeology, KU Leuven, Belgium; Adrian Olivier, Honorary Professor University College London, former head of English Heritage, UK; Diane Scherzler, President Deutsche Gesellschaft fuer Ur- und Fruehgeschichte, Berlin, Germany; Kenneth Aitchison, Executive Director at Landward Research Ltd, Leader of DISCO(ving the Archaeologists of Europe), UK.

Vrije Universiteit

CA19 RE-DEFINING AUTHENTICITY IN THE AGE OF 3D DIGITAL REPRODUCTIONS

Dr.Paola Di Giuseppantonio Di Franco, McDonald Institute for Archaeological Research, University of Cambridge. Dr.Fabrizio Galeazzi, University of York. Valentina Vassallo, Science and Technology in Archaeology Research Center of the Cyprus Institute

Archaeology is becoming increasingly 'digital'. The use of 3D laser scanners, computer vision and photogrammetric methods is well established in the archaeological field now, since these techniques allow to digitally preserving the information through time. Three-dimensional metric replicas of the archaeological record are powerful tools for the analysis, understanding and interpretation of tangible heritage, since they give the opportunity to virtually revisit the archaeological information by multiple experts, without the limitations of space and time. Today digital archives and the web allow preservation, sharing and accessibility of 3D data, favoring an unprecedented dissemination of information. Thanks to the advancement of technologies, 3D digital objects can now also be recreated using 3D printers. This gives researchers and the public the ability to not only see objects, but also engage and interact with their reproductions. Three-dimensional printing affords the use of tactile information not typically utilized when simply viewing static 2D photographs or looking at objects displayed in a museum. What is the value of 3D digital and physical replicas of ancient material culture? How should we consider these digital and virtual reproductions? Are they authentic representations of our cultural heritage or just virtual and physical 'fakes'? We welcome papers that discuss how 3D digital and printed replicas challenge and reconsider the notion of authenticity in archaeology and heritage studies. We would like potential papers to explore the concept of authenticity in relation to:-Three-dimensional digital replicas of ancient artefacts.-Three-dimensional printed replicas of ancient artefacts.-Three-dimensional virtual replicas of the archaeological excavation process. -Cultural diversity. How different cultures cope with replicas.-Museum experiences.

CA20 RE-FOCUSING INTERPRETATION: FROM EXPERT TO INDIVIDUAL AND COMMUNITY VALUES

Ms.Nicole Deufel, University College London. Mr.John Jameson, ICOMOS ICIP

This Round Table invites participants to reflect on and discuss current philosophies and associated practices of communicating, or interpreting, archaeology to the public from a position of expert values. The Round Table will start with a short review of the diversification of heritage values in recent policies, such as English Heritage's Conservation Principles of 2008, which strengthened communal values, and consider the demands placed on interpretative practice by increased emphases on the public benefits of heritage in legislation and policy nationally and internationally, for example by the Council of Europe's Faro Convention of 2005. The Round Table will provide participants with a brief overview of relevant critiques of current practices by, for example, Laurajane Smith, who in her 2006 book *Uses of Heritage* spoke of an Authorized Heritage Discourse. The co-organizers will offer their own work as further impulses for discussion.

Participants will be encouraged to consider the implications of these critiques and research findings for their own interpretative practice at archaeological visitor destinations, and to debate the need for a new philosophy of interpretation that reconciles expert values with individual and communal values, and a focus on public benefit. It is hoped that the Round Table discussion will provide participants with practical ideas for implementation at their own sites. This is an Open Round Table particularly for those working in the presentation and interpretation of archaeology to a wider public.

Nicole Deufel is currently completing her doctoral thesis on interpretation and heritage benefit, which suggest that a greater focus on individual and communal values creates greater impact of interpretative practice.

John Jameson is recently retired from the U.S. National Park Service. An assistant editor of the *Journal of Community Archaeology and Heritage*, he is currently helping to lead efforts in South Carolina to create, manage, and interpret a city-owned archaeological park.

CA21 REPORTING, PUBLICATION AND PUBLIC OUTREACH

Miss Victoria Donnelly, University of Oxford. Dr.Eva Skyllberg, National Heritage Board. Dr.Corina Bors, National History Museum of Romania

Session Proposal: Reporting, publication and public outreach. Engaging with the public is now a common goal for archaeologists operating in a wide variety of roles and situations. Public outreach in one form or another is often built into archaeological project design, while the Valetta Convention encodes the production of a scientific summary paper and publication of results as part of any archaeological investigation. While public engagement and outreach is on the increase it is

critical to understand what archaeologists are currently producing and why. Although there are many new and innovative approaches to public outreach, from pop-up city centre outdoor talks to night-time site visits, standard scientific summary papers or grey literature continues to account for the vast majority of public outreach fulfilment across Europe, especially when considering the impact of development-led archaeology. There appears to be a growing divide between the aims of scientific archaeological grey literature reporting and publication and outreach to the general public; is this a necessary division? Are the goals of public outreach and scientific dissemination fundamentally incompatible? The open access movement and the increase in digital archiving have the potential to revolutionise approaches to archaeological reporting and outreach. In order to understand the current situation, it is necessary to explore what are the current regulations and best practice surrounding reporting, publication and public outreach across Europe and to consider what solutions are now in development for the common issues facing archaeological dissemination. We would like to gather papers discussing the situation in different countries. Do we have common problems and which solutions and ideas are being developed?

CA22 RETHINKING ARCHAEOLOGICAL COMMUNICATIONS: NEW APPROACHES TO PUBLICATION

Mrs. Erin Osborne-Martin, Society of Antiquaries of Scotland. Ms. Judith Winters, Internet Archaeology. Dr. Frank Siegmund, Heinrich Heine Universität Düsseldorf

This lightning session aims to get right to the heart of the current state of archaeological publishing. We're looking for novel and practical – and perhaps provocative! – ideas on how we can communicate archaeology more effectively for both familiar and new audiences. Do you have an idea about how to make archaeological publication better? How can archaeologists best present our work to the public? How can we engage with a wider audience? What are the challenges and opportunities in publishing archaeology within an open access world? What can we learn about publishing from other disciplines? How has online and digital publishing changed archaeology, and where will it take us in the future? Is publication still the primary unit of scholarly communication? With a focus on highlighting new publication concepts and case studies rather than theory, talks should be just nine minutes (and nine slides) each with an equal amount of time given for questions. This will allow for an insightful, ideas-packed but fun session that is intended to foster discussion and innovation in archaeological publishing.

CA23 SUSTAINABLE HERITAGE TOURISM

Prof. Christopher Prescott, University of Oslo. Prof. Peter F Biehl, University at Buffalo. Dr. Hilary Soderland, University of Washington. Dr. Douglas Comer, Cultural Site Research and Management

Archaeology has long been a major component of the tourism industry, and archaeological or heritage tourism is closely but not exclusively connected to the World Heritage List. On a global, national and regional level heritage tourism recognizes and draws on the cultural richness of a region's history and identity, and has the potential to bring local or descendant communities financial gain. This session examines collaborative approaches to the relationship between heritage management and tourism development. What is the role of the archaeologist in the sustainable and responsible development and maintenance of archaeological and heritage tourism? How can archaeologists and heritage managers engage with local and descendant communities to communicate best practices for sustainable heritage tourism to the public, tourist companies, as well as legislators and policy makers? The session invites speakers to discuss their own field research and case studies showing positive and negative examples of communicating archaeology via tourism. Contributors are also encouraged to engage in the discussion of owner- and stewardship that archaeological heritage tourism has brought forward in national, regional, and global contexts.

CA24 SUSTAINABLE PRACTICES IN ARCHAEOLOGY

Mr. Krijn Boom, University of Leiden. Mr. David Barreiro, Institute of Heritage Sciences (Spanish National Research Council). Mr. Rocío Varela-Pousa, Institute of Heritage Sciences (Spanish National Research Council)

The economic impact of archaeology has been the subject of impact evaluation studies in the last decades, but the sociocultural impact of archaeology only recently gained attention. The cause for this is the growing pressure on governments to deal with sociological aspects, mainly based on rapid social change. As a result, the importance of the sociocultural impact of archaeology has been acknowledged by institutions such as the European Union, UNESCO and ICOMOS. However, there is a lack of knowledge on how to evaluate and measure sociocultural impact and how to integrate this data with the, often already available, economic data. The latter aspect is essential since there is a growing need to develop sustainable archaeological practices around the world, based on both aspects. The integration of economic and sociocultural impact could be the key in the creation of a comprehensive and practical framework usable in future heritage practices and is the focus of this proposal. As members of the NEARCH project, which aims to create new and sustainable ways of interacting with heritage communities, we propose to organize a session on sustainable archaeological practices and call for papers which can be submitted into three categories: a) Theoretical contributions: covering the key concepts of the session: economic and social impact, sustainability, social innovation, heritage value, relationships between social and economic value; b) Analytical and empirical contributions: covering concrete experiences in measuring the generation of economic and/or social value relating to heritage and archaeology, and in measuring the economic and social impact of archaeological heritage. c) Contributions on Social Innovation: covering new ways of generating social and economic value, for example, crowdfunding, social currency, and ethical

finances. While various NEARCH partners will contribute papers to this session, it is also open for proposals by external parties and welcomes each contribution.

CA25 TEACHING ARCHAEOLOGICAL THEORY: ROUND TABLE OF THE COMMITTEE FOR TEACHING AND TRAINING OF ARCHAEOLOGISTS

Mr. Hüseyin Çınar Öztürk, ASCSA / University of Cincinnati. Dr. George Bruseker, Foundation for Research & Technology – Hellas (FORTH). Prof. Ian Ralston, University of Edinburgh / Secretary of CTTA

As ever-increasing numbers of archaeologists adopt and adapt theoretical positions developed in sister social and positive sciences to pursue their research goals, a familiarity with the different theoretical perspectives deployed in archaeology has become a necessary pre-requisite for following a considerable part of the archaeological research. Consequently, archaeological theory courses, especially in British and North American universities, have become a core component of archaeological education. And yet, archaeological theory is largely taught as a unit isolated from the rest of the student's study, and is taxed to deliver information on the long-term history of archaeological thought, rather than the application of theory in archaeological practice. The result of this situation is that students are introduced to theory often in a cursory and summarized fashion, and many students are left without any profound ability to engage with or challenge the various burgeoning methods proposed for archaeological research. Moreover, the fact that the place of archaeological theory in graduate and post-graduate education in Central and Eastern Europe is strikingly different than its place in the Anglo-American archaeological world further complicates the picture. The pedagogical challenge this situation provokes is the following: Provided we accept the importance of archaeological theory to its practice, how can we present and embed a progressive understanding of the uses and abuses of theory in archaeology into the core curriculum in a manner which will challenge students to take up, apply, critique and advance archaeological theory? The round-table intends to gather archaeologists from different disciplines and traditions in order to create a productive discussion regarding the question in hand. We would rather our round table be a part of a broader theme, specifically 'Methods & Theory', if possible.

CA26 THE ROLE OF RESEARCH IN ARCHAEOLOGICAL HERITAGE MANAGEMENT

Ms. Margaret Gowen. Prof. Willem Willems, University of Leiden (deceased)

The role of research in Heritage Management (session now dedicated to Prof. Willem Willems)

In spite of the successes of the Valletta Convention and its seminal influence in the protection of archaeological heritage in Europe, there is a developing concern that some administrative and bureaucratic developments in Heritage Management have marginalised the crucial role of enquiry-based research. Following entry into a national register or inventory of monuments, research and management concerns can justifiably become focused on legal and practical mechanisms for protection and conservation. This rather limited approach however, assumes that the sites, their contexts, their heritage significance and their cultural value is fully identified and completely understood. This session seeks to examine: current Heritage Management practice; its professional and administrative structures; approaches that have developed in Europe since Valletta; and the role of research in that context. It aims to identify ways in which enquiry-based research have successfully informed Heritage Management practice and understand why, and in what circumstances, it may have become marginalised. The session seeks papers that differentiate between different types of scientific, technical and enquiry-based research in Heritage Management and will aim to identify and highlight issues that have been recognised by professionals in this context. The development of research agendas and research frameworks and their application internationally will be presented, together exemplary case studies that demonstrate how enquiry-based research can enliven interpretation and inform best practice management approaches. This session has several keynote speakers and will be presented for publication in the new EAA THEMES Monograph Series. Papers must be completed in full draft form prior to the session and ready for submission to the editors by late-October 2015, for publication in 2016.

CA27 WIKIPEDIA AND ARCHAEOLOGY

Dr. Leigh Stork, University of Edinburgh. Dr. Jeff Sanders, Society of Antiquaries. Mr. Alessandro Pintucci, University Sapienza Rome. Dr. Cara Jones, Archaeology Scotland

We would like to propose a workshop and combined fringe event for EAA 2015 centred on Wikipedia and Archaeology. Our goal with the workshop is to teach conference participants how to use and edit Wikipedia, and hopefully some of them will join us for our fringe event too. Workshop-Wikipedia articles usually show up as a top three result in Google and other search engines. Sometimes these articles are brilliant, but sometimes they leave a lot to be desired. Wish you could do something about this? This is your chance to learn how to improve Wikipedia. This workshop will take you through the basics of editing archaeology articles on Wikipedia with hands-on tutorials. You will even create your very own archaeology related article on Wikipedia. We will teach you everything you need to know. Fringe event- Already edit Wikipedia or just learned how to? Then join us as part of the EAA 2015 conference Wikipedia edit-a-thon and help improve the Wikipedia pages on archaeology. We will be specifically focusing on the culture and heritage of Glasgow. For the conference we hope to add photos taken by participants of cultural and heritage sites in Glasgow and around Scotland to Wikipedia. This event is for fun but a panel of judges will give out prizes to some of the best images and related content uploaded to Wikipedia by conference participants.

CA28 COMMUNICATING ARCHAEOLOGY: COMMUNICATING LANDSCAPES

Omer Can Aksoy, UCL

This session collects contributions inspired by the theme of Communicating Archaeology.

CA29 COMMUNICATING ARCHAEOLOGY: GLOBAL MANAGEMENT AND INNOVATIVE INTERPRETATIONS

Donald Henson, University of York

This session collects contributions inspired by the theme of Communicating Archaeology.

LEGACIES AND VISIONS

LV1 ANALOGUE/DIGITAL: PRODUCTIVE TENSIONS IN MATERIALITY AND ARCHAEOLOGY

Dr.Colleen Morgan, University of York. Ms.Kathryn Killackey, Stanford University (Catalhoyuk Research Project) Ms.Laia Pujol-Tost, Pompeu Fabra University of Barcelona. Ms.Sara Perry, University of York

As we integrate digital workflows into every aspect of archaeological methodology, it is increasingly apparent that we are all digital archaeologists (Morgan and Eve 2012). Yet archaeology has a long, productive and unfinished history with “analogue” media. Illustration, photography, dioramas, casts, paper-based maps, diagrams, charts and artistic renderings have all been – and continue to be – used to interpret and present archaeology to specialist and general audiences. Walter Benjamin argued that reproductive media destroys the “aura” of traditional artistic media (1968), and it has since been argued (Bolter et al. 2006) that digital media perpetuates a permanent crisis of this aura. As the premiere scholars of materiality, archaeologists can contribute to discussions of the context of, continuities between, and technological changes to these media artefacts. In this session we ask, in what ways are we using the digital in constructive interplay with the analogue? What can digital affordances reveal about analogue methodologies, and vice versa? And how are we pushing beyond skeuomorphic archaeological recording and rethinking the possibilities of media artefacts overall? We aim here to prompt reflective debate about, and speculative design of, the future of analogue/digital experimentation.

LV2 ARCHAEOLOGICAL SITES AS SPACE FOR MODERN SPIRITUAL PRACTICE

Dr.Jutta Leskovar, Oberösterreichisches Landesmuseum. Prof.Raimund Karl, Bangor University

Archaeological Sites as Space for Modern Spiritual Practice This session is a sequel to a session whose first part has taken place 2013 at the EAA congress in Pilsen, CZ. Archaeological sites, objects, and texts produced by professional archaeologists are used by a variety of modern spiritual phenomena, such as neopaganism, modern shamanism, goddess spirituality and others in the production of their own belief systems, frequently using archaeology as the 'real-world' basis of their arguments. This session aims on collecting scholarly views about those phenomena from as many different European regions/countries as possible, to get an overview of one of the most direct and influential appropriations of archaeology in the present. Direct in that groups holding such beliefs frequently lay claim to ownership or at least usage rights regarding archaeological sites and objects, which they claim as holy places or relics of their own religious (or other) beliefs; and thus (can) come into direct contact - and sometimes conflict - with professional archaeologists (and their plans for these sites and objects and their interpretation). And influential in that this segment of the public is receiving more and more attention by both journalism and the tourism industry, and thus is able to exert increasing influence on perceptions of the past held by the general public. European archaeology should be aware of the different kinds of those modern phenomena, and examine what is driving those who follow such belief systems to search for 'confirmation' of their beliefs in (most often) the long distant past, as well as appropriating that past, its places and its objects for their own goals and purposes. Differences and similarities among the various strands of the phenomenon shall be explored, and strategies to deal with such beliefs and believers as professional archaeologists be discussed.

LV3 ARCHAEOLOGY AT RURAL CROSSROADS; TOWARDS AN INTEGRATED APPROACH TO ARCHAEOLOGICAL HERITAGE MANAGEMENT

Mr.Jonathan Wordsworth, Archaeology Scotland. Dr.Karl Cordemans, Vlaamse Landmaatschappij

Archaeology at rural crossroads; towards an integrated approach to Archaeological Heritage Management. How can archaeological heritage benefit from other rural developments?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. Following the success of our 10th Anniversary meeting in Istanbul last year, we are proposing to run a round table session on integrating managing the historic environment with other rural agendas. Besides presentations on EU agri-environment programme, we will be presenting examples of integrated heritage and environmental management, food and heritage landscape protection and communities and heritage. The session will outline best practice and how heritage management can be better integrated with other rural agendas. ProgrammeRural Europe heritage trends – introduction to current social/economic directions Burren programme – integrating heritage & environment in Ireland’s special places[Christine Grant Environment Ireland] Nature conservation & heritage [Robin Standing/Jill Harden RSPB] Food & landscape – using heritage to sell food & food to sell heritage Communities & heritage – how ownership of heritage confers value Tourism & heritage – using heritage assets to gain tourism resources

LV4 CLIMATE CHANGE AND HERITAGE MANAGEMENT: MEASURING AND MONITORING THE IMPACTS OF FUTURE CLIMATE AND ENVIRONMENTAL CHANGE ON THE HISTORIC ENVIRONMENT AND CULTURAL RESOURCES

Dr.Andy Howard, Landscape Research & Management. Dr.David Knight, York Archaeological Trust. Prof.Thomas Raab, Brandenburgische Technische Universität Cottbus-Senftenberg. Dr.Sjoerd Kluiving, VU University of

Amsterdam. Dr. Ben Gearey, Department of Archaeology, UCC

it is widely acknowledged by the scientific community that greenhouse gas emissions are causing irrevocable changes to climate systems. The impact of changing geological processes (e.g. sea-level rise; the intensity and frequency of flooding) will create their own challenges, but these will undoubtedly be followed by significant societal, geopolitical/ economic changes and increasing pressures upon natural resources. Whether considered singularly or combined these factors are likely to impose exceptional strains on the historic environment, defined here as upstanding structures, subsurface cultural and environmental remains and artefacts. Heritage practitioners and managers are beginning to recognize the potential impact of climate change. However, by comparison with allied disciplines such as ecology, the published literature suggests that as a community our level of engagement with the subject matter is still relatively low. Furthermore, in addition to mitigating the impacts of future environmental change on the historic environment, our community is in a unique position to provide a context for studies of past environmental change and its impact upon societies and landscapes; this information has the potential to provide invaluable insights for scientists, policy-makers and politicians. This session will take a holistic approach to the theme of future climate change and the historic environment, with the aim of providing a context for future change and a forum for sharing best-practice. We would welcome papers from around the globe focused upon a number of key topics: The impact of natural processes and consequent societal pressures upon the historic environment. Monitoring, modelling and mitigating the impacts of environmental change. Positive benefits of environmental change for heritage. Contextualizing climate change and decision-making, including interfaces with broader international frameworks such as ecosystem services. This session has been placed within Legacies and Visions, BUT it is probably best considered under an additional theme such as Managing the Heritage Record

LV5 CONDITIONED PASTS: ON THE SOCIOPOLITICAL DIMENSIONS OF CURRENT ARCHAEOLOGIES

Ms. Elisabeth Niklasson, Stockholm university Department of Archaeology and Classical Studies. Ms. Tine Schenck, University of Exeter Department of Archaeology. Ms. Elin Engström, Stockholm University Department of Archaeology and Classical Studies

It is understood, for the most part, that knowledge production does not take place in a vacuum. Archaeology is influenced by both intradisciplinary and societal motions and, whether labelled bias or interaction, sociopolitical aspects of the discipline matter and affect the way we do things. Although the legacies of archaeological discovery serve as great inspiration, they also carry with them residues of hierarchies and prestige in academic communities as well as historical bonds to political institutions. These legacies influence present expectations on what archaeology "can do" for a society, and, interlock with the political economy and professional sphere of the discipline. Together with the scholar's quest for publication, funding and stature, the remnants of past knowledge production play into questions we ask, methods we use and narratives we write, as well as the ways in which archaeological knowledge is transferred into public forums. This session will revisit the transfer of sociopolitical legacies of archaeology and consequences of paradigmatic perpetuation from three directions: How, in practice, do we tackle the (inter)dependent relationship between institutional, financial and social frames of engagement in archaeological ventures? How do archaeologists adapt to these frames and how does it affect outcomes of archaeological activities? How do sociopolitical aspects of archaeology influence the development of theories, methods and research aims within Archaeology today? For example, how do legacies of historical ideals promote conservatism or development of new ideas? Are sociopolitical aspects of archaeological legacies visible in transfers of archaeological knowledge? What are the consequences of intentional or inadvertent manipulation of research results and narratives? For example, how do methodological, analytical and ideological origins of current archaeologies become visible in these transfers?

LV6 CREATIVE ARCHAEOLOGIES: EMERGING THEORY AND PRACTICE FROM ART / ARCHAEOLOGY INTERACTIONS

Ms. Antonia Thomas, Archaeology Institute, UHI. Mr. Daniel Lee, Archaeology Institute UHI. Dr. Carolyn White, University of Reno. Dr. Ursula Frederick, University of Sydney

As disciplines, art and archaeology share common legacies and visions and the last decade has seen a wealth of art/archaeology interactions and collaborations. This session explores the legacy of these projects and questions what the future vision of the dynamic between art and archaeology might be. Recent trends in art / archaeology interactions and collaborations have aimed to break down disciplinary boundaries and explore common themes and practice, but Art and Archaeology are still frequently placed in opposition to one another. Many interactions remain one-way and constrained by disciplinary constructs. Nevertheless, there are also many examples of transdisciplinary collaborations which are challenging these paradigms and exploring new and innovative practice. This session celebrates such approaches, and takes things a little further – focussing in particular on those projects for which collaboration and experimentation are the norm and which are exploring new forms of practice. Creative archaeologies, in this sense, are innovative and varied practices that may not have conventional outcomes. As such, this session asks whether it is still valid to talk of art/archaeology as an interdisciplinary area, or does this term itself merely perpetuate a false dichotomy? Is it instead more valid to think of new forms of creative practice, which we might term as neither art, nor archaeology, but something else? As appropriate to the subject, this session comprises

academic papers alongside less traditional presentations such as film, photography and performance. Together these will explore the possibility for creative archaeologies.

LV7 ENVIRONMENTAL HUMANISM, COMMUNITY LANDSCAPES AND HERITAGE STUDIES

Dr.Christina Fredengren, Department of Archaeology and Classical Studies. Prof.Tony Brown, School of Geography, University of Southampton. Dr.Sophie Bergerbrant, Department of Historical Studies

Can we go beyond human impact on landscapes to look at questions of scale, reciprocity and resilience? The term "the Anthropocene", has been suggested as the name of the period, as yet undemarcated, when human became the dominant geological mover affecting the Earth's ecosystems at a global scale, thereby giving a name to the putative period after the Holocene. Archaeology deals with communities from regional to local scales and provides critical perspectives on the history of human-environment interactions. It is unclear if such dominant global-scale human impact started during the industrial revolution or if it is based in practices that go as far back as the Neolithic period or even beyond. This may be a question that can be dealt with an understanding deep history i.e. to re-think materiality, cause and effect over longer periods of time. The field of Environmental Humanities is an academic field in expansion that brings in knowledge from the humanities such as environmental philosophy or history to deal with the sustainability challenges of today, looking back as well as forward into various futures. The major question in this session is: what can those of us that work with archaeology or heritage studies contribute with to environmental humanism, environmental sustainability and resilience issues? This is also a question of how environmental humanism can alter how we interpret human-environment interactions and archaeology/heritage studies work? This session will gather research in form of archaeological and heritage case studies that deals with the use of natural energy, human-animal relations, waste and recycling, water, lake settlements, wetlands and bogs and aims to revitalize the field of environmental archaeology and feed into the wider debate on environmental humanism.

LV8 EXPLORING NEW TRENDS AND LOST(?) TRACKS IN LANDSCAPE ARCHAEOLOGY

Prof.ThomasMeier, Institute for Pre- and Protohistory. Prof.Sjoerd Kluiwing, Geo- and Bioarchaeology. Prof.Jan C.A.Kolen, Faculty of Archaeology

This session explores actual and future alternatives in archaeological landscape research. It focuses on questions which call for interdisciplinary approaches, both exploring new trends and lost tracks. Although landscape archaeology has made significant progress over the past decades, many archaeologists share the feeling that we got stuck a bit in meanings and models. This calls for exploring the potentials of a return to the archaeological terrain itself, starting from the materiality, naturalness and 'archaeological substance' of landscapes as practicescapes and taskscape, multi-sensual landscape experiences, interstitial spaces between the well-researched settlement areas, established ritual sites etc. The dimensions, processes and agencies of landscape change over the years developed as an incubator of interdisciplinarity, not only in terms of research methodologies and field techniques, but also in terms of bridging the divide between the humanities and sciences. What is needed are conceptual bridges, where natural and cultural perspectives of landscapes interact and merge, e.g.: the architecture of landscapes (sediments, soils, buildings and archaeostratigraphy) landscape as humanized biotope human niche construction and the domestication of landscapes defining the Anthropocene from the perspective of landscape archaeology. Natural gradients within the landscape and their interactions with cultural processes the co-constitution of cultural and natural landscapes landscape as narrative and social discourse. The archaeological discourse has widely lost a re-examination of and critical reflection on the "landscape" concept itself. This includes the application of spatial theory (e.g. heterotopia, liminality, connectivity) and goes hand in hand with a reflection on widely applied methods of landscape research (e.g. GIS) and their naturalising, dissecting or including effects. Landscape archaeology strongly influences perceptions and decisions in heritage management, spatial planning and design. But how do the many variable perspectives stimulate or frustrate future developments? Which effects can reconstructions of landscape histories have on the future planning of landscapes?

LV9 GONE....BUT NOT FORGOTTEN. FORGOTTEN....BUT NOT LONG GONE. MUNDANE MEMORIES, ARTIFICIAL AMNESIA AND TRANSFORMED TRADITIONS.

Mr.Nicholas Wells, Independent Researcher. Dr.Joanna Pyzel, Institute of Archaeology. Dr.Catriona Gibson, University of Wales

The last decades have witnessed the augmentation of memory studies in archaeology, much of this work focussing upon monuments. However, due to the recent increase of well-contextualised and well-dated archaeological evidence, it has become more and more apparent that re-appropriation of the more mundane, less prominent features within the landscape – such as ditches, pits, flat graves and houses – was also practiced with remarkable regularity. Less studied, but equally crucial to the memory theme is the act of forgetting. New narratives, that may include deliberate amnesia and dislocation, should be considered for the long temporal breaks between phases on sites, as well as the intentional avoidance or formal closure of structures and features. This session aspires to offer new ways of conceptualising and interpreting the relationships between everyday features and objects by people in the past separated by surprisingly long periods of time. We invite papers which address the specific range of questions: what was remembered and what was forgotten and why? How can we distinguish

between the deliberate continuation and invented tradition? How can we identify individual and social memory in the archaeological evidence?

LV10 GRAFFITI ARCHAEOLOGISTS!

Dr.Alex Hale, RCAHMS/University of Glasgow. Dr.Jeff Sanders, Dig It 2015. Dr.Jeff Oliver, University of Aberdeen. Dr.Laura McAtackney, IRC Postdoctoral Research Fellow. Dr.Cameron McAuliffe, University of Western Sydney

Graffiti Archaeologists! Recent years have seen increased interest in the archaeological study of graffiti. From Roman Pompeii to 21st century London, Archaeologists, we argue, are bringing fresh historical and methodological insights to a topic once restricted to studies of criminality. This session will bring together work that explores the spaces and places of acts of inscription, whether ancient or modern, urban or rural, dissenting or conformist. What can an archaeological approach tell us about graffiti? Do archaeologists offer a unique perspective to its study, preservation, and appreciation? To what extent can graffiti reveal the social norms and or exceptionalism of the societies and cultures that created it? Do modern understandings of graffiti fit with earlier forms of inscriptive practice? Should graffiti be viewed as purely an urban phenomenon, as suggested by earlier studies of graffiti? Should graffiti be considered heritage? What are the dangers of opening up graffiti to broader definitions of inscriptive practice? We welcome papers that examine graffiti with an archaeological perspective in mind: how to research, how to record, how to understand, how to engage with these (at times) subversive, (at times) disruptive and (at times) mundane forms of human expression? This session will also take delegates out into the city of Glasgow and its environs, to explore graffiti from officially sanctioned street art and signage to more subversive and rawer expressions of the importance of place.

LV11 IN THE TRENCHES: ARCHAEOLOGY AND THE GREAT WAR

Dr.Miroslav Vujovic, Department of Archaeology, Faculty of Philosophy, University of Belgrade. Dr.Jasna Vukovic, Department of Archaeology, Faculty of Philosophy, University of Belgrade. Dr.Rajna Sosic Klindzic, Department of Archaeology, Faculty of Humanities and Social Sciences, University of Zagreb

The Great War's centenary brings to focus the overall influences of World War I on political and social changes across the world. Now, 100 years later with new data and theoretical perspectives, is the time to reexamine the Great War's influence on archaeology. The goal of the session is to explore what the role of archaeologists and archaeology was during the dramatic years of World War I and what impact this global conflict had on the development of our discipline. The main topics this session aims to address are:

- how military knowledge influenced archaeological methodology
- in what ways archaeological expertise was suitable for intelligence and combat operations
- the role of archaeological excavations in intelligence activities
- to what extent the archaeologists' profile was suitable for military service
- the devastation (and curation) of archaeological heritage during the Great War
- prominent scholars involved in the Great War
- post-war archaeology in the changed geopolitical settings that emerged from the collapse of old colonial empires and the foundation of new states
- How archaeological research reveals new insights on WWI military history
- Contributions
- Speakers in this session are invited to address any of the following issues
- Case studies in the history of archaeology (the personal biographies of archaeologists affected by the Great War, the impact of the crucial events of the war on archaeology)
- General theoretical considerations on the legacies of the Great War in archaeology
- Case studies of battlefield archaeology related to WWI.

LV12 INTEGRATING TEXTILE STUDIES INTO THE MAINSTREAM ARCHAEOLOGY/ANTHROPOLOGY CURRICULUM

Dr.Isabella von Holstein, Christian Albrechts University, Kiel. Ms.Barbara Klessig, Dept. of Anthropology, Humboldt State University

The study of textiles has a lower profile in archaeological research than many other artefact classes. Possible reasons proposed include the current and past devaluation of women's work or the relative rarity of this find-class. This session aims to explore how textiles could be better integrated into the teaching of archaeology at universities, as a step towards joining the mainstream. In this session we would like to hear from people who have experience of teaching archaeological textiles at university level, particularly in how you have answered the following questions:• What do you want the next generation to know about archaeological textiles (both general archaeologists, and people who want to specialise in textiles)?• What should be included in primarily textile-focused courses? Topics, good case studies, tips and tricks, practical ideas, theory...• How can

archaeological textiles be incorporated into other courses?• How does your textile teaching fit into the goals of your university/department/course structure/teaching style/research focus/curriculum/etc?

LV13 IS ARCHAEOLOGY STILL THE PROJECT OF NATION-STATES?

Dr.Joanna Bruck, University of Bristol. Dr.Liv Nilsson Stutz, Emory University

It has long been recognised that the nationalist rhetoric of nineteenth and twentieth century politics – both in Europe and further afield – had a profound impact on the development of archaeology in different nations, resulting in distinctive and often conflicting intellectual traditions, research agendas and legal frameworks. But to what extent is this still the situation in 2015? This roundtable seeks to explore how working within (or outside of) a nation-state influences professional practice, interpretative frameworks and research priorities. Questions to be considered include:- How does the institutional framework (e.g. the presence of national museums and research institutions) shape archaeological narratives?- How do national funding streams affect the framing of archaeological questions and the ways in which we answer them?- How is archaeology drawn into contemporary debates on national identity and the boundaries of the nation, for example in discussions on immigration and the rights of minorities?- What is the impact on our discipline when the political cohesion or economic well-being of existing nation-states is challenged?- How is archaeology being used to construct new forms of national identity for states established or re-shaped in the last thirty years, or that exist only in the imagination?- How does the use of particular geo-political terminology (e.g. Ireland, Denmark, Macedonia) in archaeological writing and research influence how we see the past?- How do archaeologists negotiate the challenges of belonging to both national and international archaeological communities?- What are the prospects for archaeology in so-called 'failed' states (e.g. Lybia, Syria, Afghanistan, among others)?There will be 6 invited speakers for this roundtable, and the session should not, therefore, be included in the general call for papers. The discussion will be published as a special section in the journal *Archaeological Dialogues* (published by Cambridge University Press).

LV14 LANDSCAPE LEGACIES IN WORLD HERITAGE SITES – RECORDING FOR MANAGEMENT AND CONSERVATION

Mrs.Angela Gannon, RCAHMS. Mr.Mark Bowden, English Heritage. Dr.Stephen Davis, UCD School of Archaeology. Dr.Kristín Huld Sigurðardóttir, The Cultural Heritage Agency of Iceland

Landscapes provide the dynamic backdrop to our lives, combining physical landforms with the imprint of human intervention. All landscapes and our perceptions of them are our legacy from the past; each generation becomes the custodian of this unique and inspirational resource. Since the adoption of the 1972 Convention concerning the Protection of the World Cultural and Natural Heritage, the World Heritage List has taken account of this legacy, so that today 810 exceptional landscapes are recognised globally, wholly or partly for their cultural value – a remarkable achievement. But alongside this inscription come the responsibilities of managing, protecting and conserving for the future. World Heritage Sites express long and intimate relationships between peoples and their natural environment but they too are increasingly threatened not simply by destruction and decay but also by changing social and economic conditions. Co-hosted by the Landscape Survey Group, this session will explore the changing role of archaeological survey and recording within World Heritage Sites through the application of methodologies both traditional and innovative, and how this underpins and informs understanding and appreciation of these exceptional inherited landscapes for their longer term preservation and protection.



LV15 MERC - LARGE-SCALE MAPS IN ARCHAEOLOGY: BEYOND THE SEARCH FOR ANCIENT MONUMENTS

Dr.Ådel Vestbø Franzén, Jönköping County Museum. Mrs.Moa Lorentzon, Jönköping County museum. Mark Bowden, English Heritage (Heritage Protection Department), Swindon

Maps depict landscapes in a variety of ways, and offer a representation of space. Depending on the surveyor's instructions of what information to include and what to neglect and the purpose of the specific mapping, the map can be seen as both true and false. Like other historical sources, the maps have to be interpreted. Since the 1970's large-scale historical maps have been systematically used as a source material for archaeologists. The maps have revealed the sites of burial monuments that have since been destroyed, the positions of runic stones that have disappeared or the pattern of historic roads and tracks. The maps also have been useful when analyzing the outlaying of medieval towns and villages or the organization of field systems. In different parts of Europe the maps have been studied in order to answer specific questions according to regional historic traditions and orientation of research programs. This session aims to view the use of historical maps in archaeology in a critical way. What have we learned, and how and where do we go further in to the landscape depicted in the map? How do we read the dynamics of landscape over time from a snapshot? The new questions to be raised deal with power over physical space, e.g. who had access to and who was expelled from different parts of the landscape, which parts of the mapped landscape have been neglected by researchers and archaeologists? How can archaeological methods and analysis of large-scale maps deal with these questions? By triangulating maps, archaeology and written sources we can give the maps a new role in archaeology and landscape history.

LV16 UNDERSTANDING AND MANAGING THE URBAN AND RURAL

Robyn Veal, McDonald Institute for Archaeological Research

This session collects contributions inspired by the theme of Legacies and visions.

LV17 MANAGING THE ARCHAEOLOGY OF DAMS

Dr.Erika Robrahn-Gonzalez, UNICAMP, UISPP, DOCUMENTO. Dr.Pascal Depaepe, INRAP – UISPP. Dr.Friedrich Lueth, Deutsches Archaeologisches Institut

Managing the Archaeology of Dams Constructing dams for different purposes such as a water-resource, electric energy and others leads to flooding of large areas. Being connected to rivers, such floodplains are premium settlement areas throughout millennia. Thousands of sites and monuments are under threat and as a final result, if not excavated, flooded and inaccessible, in most cases probably destroyed. In Europe and the Near East, there is a long tradition of heritage management in dam areas. This session is planned to exchange knowledge about the integration of heritage management into the planning phases as well as the exchange of different ways of managing the subject, reaching as far as from the original first planning stage (including the EIA – environmental impact assessment) throughout the entire process into the publication of results and managing the archives. Special attention is given to the integrated approach of heritage management and science in large-scale projects, achieved through good practices and local solutions. As large dam buildings occur all around the world, partly using European experience and knowledge and/or European co-funding, this session also invites speakers from other continents to share their knowledge and experience and to discuss threats and deficits. Regular Session: the session is open to the membership.

Category: "Managing the Heritage" Contacted and expected speakers from Turkey, Serbia, Romania, France, Germany, Russia, Brazil, USA, India, Ghana

LV18 MEDITERRANEAN MOUNTAINOUS LANDSCAPES: HISTORICAL AGROSYSTEMS, IDENTITY AND HERITAGE

Prof.José María Martín Civantos, University of Granada. Prof.Alexandra Chavarría Arnau, University of Padova

The aim of the session is to discuss and exchange experiences on this specific topic starting from Late Antiquity until the industrialization processes. Landscape has been a very important topic during the last years in Archaeology. We would like to focus the interest in agrarian areas and uses specifically in the Mediterranean mountainous areas as these activities are responsible for most part of the landscape formation. Current Mediterranean mountainous landscapes have a very strong character in terms of perception, identity and heritage. The archaeological perspective is fundamental as most of these ancient landscapes have survived through time. The coevolutionary process between nature and human being can be well studied in these environments. Elements like water management, creation and maintenance of soil fertility, terracing, pasture or forest management have modelled slopes and modified ecosystems creating new agrosystems. In the context of global change, historical agrarian systems have demonstrated a very high capacity of resilience. Processes of adaptation through the last centuries have demonstrated in most cases the human being capacity of adaptation. Mediterranean Mountainous Landscapes (MEMOLA) is the name of a European Project founded by the EC FP7. It's an interdisciplinary project based on agrosystems with four sample areas across the Mediterranean mountains. Comparison between different contexts with common elements has demonstrated to be a useful tool. In the same way, complementarity between Archaeology, History and environmental sciences has also demonstrated to be a powerful tool not only for the knowledge of the past, but to guarantee our future.

LV19 PHOTOGRAPHY AND ARCHAEOLOGY

Dr.Lesley McFadyen Birkbeck, University of London. Ms.Antonia Thomas, University of the Highlands and Islands. Ms.Joana Ferreira, University of Porto. Prof.Dan Hicks, Pitt Rivers Museum

Since its earliest beginnings, photography has been innately archaeological. Its ability to freeze a moment of time gives photographic images an uncanny quality, whilst also allowing them to be a useful recording tool. Photography has been a central element of archaeological method and practice since the late 19th century, yet the neutrality of photographic images in archaeological fieldwork is rarely interrogated. Meanwhile, digital technology has made photography both ubiquitous and ephemeral, questioning the status and authenticity of the image as material archive. Despite their commonalities, however, the relationship between archaeology and photography remains under-explored. This session brings together new studies of archaeological photography: both of historical photographs in archives, and of contemporary practice. It will discuss the legacy of historical photography on contemporary archaeological fieldwork and image-making, and explore what the vision for the future relationship between archaeology and photography might be in an increasingly digital world. Suggested themes: Temporality, materiality, fieldwork, representation, documentation and the profilmic

LV20 PROSPECTION MAPPING: FROM SITES TO LANDSCAPE INVESTIGATIONS IN EUROPE

Dr.Oscar Aldred, RCAHMS / Newcastle University. Mr.Dave Cowley, RCAHMS. Dr.Axel Posluschny, Roman-Germanic Commission of the German Archaeological Institute. Mr.Mike Middleton, RCAHMS. Dr.Piers Dixon, RCAHMS

Archaeology has a long tradition of examining sites and landscapes and making maps based on ground survey, from the air, from cartographic maps, and from information about the time-depth of landscape. For example, the first aerial photographs and maps from the 19th century are now assessed together with contemporary hyperspectral and terrain imagery from

satellites and Airborne Laser Scanning (ALS). Typically, the information is gathered together and is focused on 'imaging' single sites to help tell the story about their formation. Furthermore, the same data from ground surveys, aerial surveys and map-work is also routinely used to examine the landscape itself. The reorientation and broadening of the perspective from site to landscape is an important one but also presents conceptual and methodological challenges. For example, how does an examination of the human-environment relationship at a landscape scale lead to assessment of present-day forces involved in landscape change such as climatic and sea level variations? How effective are current spatial tools for the designation and management of landscape, land-use and the archaeological resource? In this session we will examine how 'big data' is overcoming conceptual and methodological challenges to the study of landscape; emerging from sources such as the historic aerial photographs, from new technologies, and from map-work such as characterisation surveys. And it will address how the data and interpretations are being used to inform site and landscape management, and address research questions on the character of human-environment relationships in the past and present.

LV21 SACRED PLACES, SACRED SPACES: LANDSCAPE TRANSFORMATION AND INHERITANCE

Dr. Caron Newman, Newcastle University. Ms. Vicky Manolopoulou, Newcastle University. Ms. Yasemin Özarslan, Koc University

Much recent archaeological research has been concerned with religious transformative processes and their legacy in the present-day landscape. The structure of the modern environment is often anchored in the networks and spaces that evolved in response to religious practices and economic and cultural support systems. Throughout Europe and beyond, the cultural inheritance of religious orders and groupings has structured and influenced much of the modern landscape. The artefacts of religion and beliefs are represented as still-functioning institutions, relict features and as more subtle influences on property boundaries and settlement formation, for example. Religious institutions, buildings and features have had a significant impact on the development of the wider landscape and have played a key role in the way people engage with their environment, creating a sense of place and helping to shape people's cultural identity. This session invites papers on all aspects of the landscape legacy of sacred places and spaces across periods and disciplines.

LV22 SCIENTIFIC TECHNIQUES TO EXAMINE HUMAN INTERACTION WITH WOODLANDS

Dr. Lorna O'Donnell, University College Dublin. Scott Timpany, University of the Highlands and Islands

Woodlands have been integral to everyday life for thousands of years, from providing an environment for hunting and foraging to becoming an important managed resource for timber and recreation. Yet, compared to many other disciplines such as bio-archaeology, the study of how people interacted with past woodlands has been relatively undervalued. To date scientific analyses, such as palynology have been largely applied to woodlands in understanding the chronology of their development and demise, together with disturbance events that may or may not be anthropogenically related. Currently techniques using charcoal remains and waterlogged wood from archaeological sites are being developed to further this knowledge. This information, together with that of pollen and plant macrofossil evidence, has led to new insights on how people used woodlands in the past. This includes attempts to manage resources, application of selection and cultural values to certain trees and the importance of non-native woodland resources such as driftwood. This session will examine how woodlands changed over millennia and how people's attitudes and utilisation of woodlands have also changed in this time. Various themes on the nature of past woodlands will be examined, including the character and physiognomy of past woodlands, provision of sustainable wood resources in the past, wood selection for industrial activities, trees in everyday life and ritual uses of wood.

LV23 SELLOUT OF OUR PAST: DIFFERENT STRATEGIES OF HOW TO DEAL WITH ILLICIT TRAFFICKING OF EUROPEAN CULTURAL HERITAGE

Dr. Marianne Mödinger, LMM - DCCI, Università degli Studi di Genova. Dr. Morten Hegewisch, Freie Universität Berlin, Institut für prähistorische Archäologie. Mrs. Heidrun Voigt, Freie Universität Berlin, Institut für prähistorische Archäologie

Antiquities as the 'hottest invest' (TIME-Magazine, 12/2007) is the biggest problem of archaeology. Finds deriving from unauthorised excavations, metal detecting, robberies of museums/public collections, appear on the market with faked provenience, and are legally sold. There is no systematic policy for control and recording of publically made finds. The majority of illegal/illicit finds that enter the market, seemingly entirely legally, go unacknowledged by archaeologists. Only rarely do such finds later surface, and then only in the case of spectacular finds as the Bronze Age Nebra-disc. In the case of more mundane finds this rarely ever occurs. This is extremely unfortunate as these finds are the very base of our understanding of past societies. Today, the internet offers an easy and growing platform for rapid exchange of archaeological artefacts, the sheer volume of sales making it hard to keep track of newly advertised finds and sales. Thousands of especially mundane archaeological artefacts are daily presented as fresh finds through mediums and platforms such as 'treasure hunter' internet platforms, advertised and sold online through outlets and sold legally through licensed auction houses. Despite the importance of these mundane finds to archaeological research, the reaction of archaeologists has been to largely ignore the extent of their existence on the selling market. But the volume of finds entering the market reached already the point where we must begin to address the lack of knowledge, and to what degree our legitimate archaeological find corpus is any longer truly representative, and whether it alone remains valid for future research. We aim to discuss legal actions and their actual effects; unified

European strategies; strategies for higher control of the artefact market; monitoring of 'treasure hunter' and other internet platforms; how these objects might be included in archaeological research. Normal 0 21 false false false DE X-NONE X-NONE

LV24 SHAPING THE MIND THROUGH MATTER - COGNITIVE ARCHAEOLOGY TODAY

Dr.Tomasz Gralak, Institute of Archaeology of Wroclaw University. Dr.Aleksander Dzbyński, University of Zurich, Abteilung Ur- und Frühgeschichte

The repeatability of forms of archaeological artefacts clearly indicates that their shapes are not random. The manufacturing of any item is preceded by even the simplest of designs and final appearance. That is why when describing archaeological artefacts one can ask not only how something looks, but also why it looks in a certain way. Perceiving material culture in this manner one can seek inspiration in Thomas Aquinas's views on art: 'art is the right reason of things to be made'. Thus, the manner of producing archaeological artefacts reflected the way their creators thought and perceived the world. Each item is therefore a carrier of meaning - it is an implementation of the idea of its production and use. We invite all researchers to attend the session who view archaeological artefacts in a similar manner. We would like to discuss questions concerning numbers, measures and weights' conceptualization as well as the formation of material culture on their substrate. This issue is directly linked with the organisation of space and with decoration at a micro level. Hence, we can consider whether a decorative motif says something about our ancestors' perception of the world.

LV25 THE LEGACIES OF NAZI ARCHAEOLOGY AND THEIR IMPACT ON CONTEMPORARY PREHISTORIC RESEARCH

Dr.Reena Perschke, Museum Lichtenberg. Dr.Martijn Eickhoff, Radboud Universiteit Nijmegen. Mr.Daniel Modl, Universalmuseum Joanneum

The Nazi rule in Germany and occupied Europe has had a significant impact on the development of continental prehistoric archaeology. One legacy is the creation of new departments, which specialized in Germanic or Celtic history. Another effect was the development of national socialist archaeological terminology which is sometimes in use until today. In many European countries the occupation and repression between 1939 and 1945 included also the development of new monument acts, changes in academic education or reorganization of museums. Another legacy is the looting of museum objects by the Nazi organizations and the illegal export of excavation artefacts from occupied countries. This session aims to discuss those aspects of Nazi archaeology that continue to have an impact on the prehistoric research in contemporary Europe. How we should deal with the fact that the foundations of many contemporary doctrines, single technical terms, institutional structures and popular representations are dating back to the national socialist reign and thus may constitute national socialist legacies? What are the current efforts in the field of provenance research concerning looted archaeological objects? Building on the research on this topic of the last four decennia we especially aim to question what these legacies look like today and how we should continue to deal with them.

LV26 THINKING OUTSIDE OF OUR BOXES - A ROUND TABLE FOR EAA WORKING GROUPS ON SHARED EXPERIENCE, COMMON THEMES AND COLLABORATIVE WORKING

Mr.Jon Humble, English Heritage. Mr.Karl Cordemans, Vlaamse Landmaatschappij

At EAA Istanbul 2014 the working group on Farming, Forestry and Rural Land Management held a very successful 'looking backwards - looking forwards' type session, thereby marking the 10th anniversary of its formation. A key conclusion was that the EAA working groups should seek to share their experiences, and explore the potential for creating a network of overlapping interests and synergies - for example, with common themes such as 'landscape'. Currently there are nine EAA working groups / committees covering public archaeology, archaeological legislation and organization, the teaching and training of archaeologists, professional associations in archaeology, archaeological archives and collections, archaeology and gender, new scenarios for a community-involved archaeology project, the Archaeolandscapes project - as well as our own. At EAA Glasgow 2015, a round table is therefore proposed with three main objectives: ' to review the practicalities of operating an EAA working group. What is the collective experience? ' to consider the overlaps in working group aims and endeavour, thereby identifying common themes ' to draft a statement of intent on future collaborative working, with recommendations to the EAA Executive Board The working group on Farming, Forestry and Rural Land Management therefore warmly invites representatives from the other working groups to participate in this experimental yet innovative round table. One or more co-organisers from the other working groups are also invited to participate in the design and organisation of the round table. (N.B We are uncertain as to which theme fits best with this proposal, and are happy to be advised by the EAA organising committee)

LV27 WAR, YOUR GRIM TUTOR: ENCOUNTERS WITH THE CULTURAL HERITAGE OF THE GREAT WAR 100 YEARS ON

Dr.Tony Pollard, University of Glasgow. Dr.Jennifer Novotny, University of Glasgow. Dr.Anthony Byledbal, University of Artois/Université d'Artois. Mr.André, State Office of Heritage Management Archaeology Saxony-Anhal Schürger

Given the widespread interest generated by the Great War's centenary it seems appropriate to reflect upon the current role of

archaeology and the wider cultural heritage sector in reinterpreting and remembering the events of 1914-18. It is fair to suggest that at no time since the war have so many people encountered and engaged with the physical remains of the war, its material culture and landscapes, or its legacy of remembrance, which has been extended in scope through the full mobilization of the creative arts. Playing a key role here are the archaeologists and cultural heritage professionals who contextualize the past and attempt to present coherent narratives to this wide audience, negotiating a path through the difficult terrain of conflict and violence on a scale that can be difficult to grasp. This session will interrogate our roles as arbiters of culture and memory-makers by thoughtfully considering the archaeology of the First World War and how we are uncovering, preserving, and presenting the past during this momentous anniversary. Suggested topics include the following:

- Critical assessment of the cultural work WWI research performs in modern society
- Centenary commemorations throughout the cultural heritage sector, including on-going archaeological excavations, community projects, and exhibitions in libraries, archives, and museums
- The impact of this important anniversary upon research agendas and funding
- The potential impact of centenary commemorations on the future understanding of the conflict
- The challenge of presenting the First World War: microhistories or overwhelming statistics?
- Investigating and preserving the cultural heritage of the First World War as acts of remembrance
- Working towards a consideration of all aspects of the First World War e.g. moving beyond the Western Front and beyond national boundaries

LV28 WHAT'S IN A STORY? IS ORAL HISTORY A VALUABLE TOOL FOR THE FUTURE ARCHAEOLOGIST'S TOOLKIT?

Dr.Monique van den Dries, Faculty of Archaeology, Leiden University. Dr.Margarita Díaz-Andreu, ICREA-Universitat de Barcelona

When considering legacies in archaeology that we believe to be worth passing on to succeeding generations of archaeologists, should we consider including the relatively new and not yet fully explored method of oral history? Does it have the potential to add value to future archaeological research and is it worth exploring and developing further, or is it mainly a trendy novelty? Oral history is gaining in popularity as a method of archaeological and heritage research. Case studies show its multiple uses; for instance as a means of gathering eyewitness accounts of historical events, locating sites, learning about old skills and crafts and places of importance in the landscape, contributing to landscape biographies, etc. It can be a means of capturing the world behind the archaeologically visible and may simultaneously add to the social value of a heritage preservation project, as it gives a voice to community members who usually go unheard. It is the aim of this session to explore the potential of oral history approaches that focus on the first-hand memories or knowledge of an interviewee, primarily in a European context. We will look at the experiences of archaeologists who have used oral history as a tool and consider what benefits and value they have identified, both for the archaeological research or heritage project and for the interviewee themselves. Session participants are also invited to reflect on the pitfalls and challenges researchers face by using oral history and the ethical and practical implications that need to be considered if it is to become a fully fledged archaeological tool.(at least 6 scholars have so far expressed an interest to participate and some provided paper abstracts already)

LV29 WHERE IS CULTURAL HERITAGE IN INSPIRE?

Mr.Peter McKeague, Royal Commission on the Ancient and Historical Monuments of Scotland. Dr.Stefano Campana, University of Siena

The INSPIRE (Infrastructure for Spatial Information in Europe) Directive (2007) mandates all European Union countries to share environmentally related datasets so that they can be easily accessed by other public organisations within their own and neighbouring countries. Key to delivering INSPIRE is the establishment of Spatial Data Infrastructures (SDIs) providing a framework for coordinating the policies, infrastructure and standards needed to acquire, process, distribute, use, maintain and preserve spatial data. Archaeological information is inherently spatial yet, despite the environmental focus of INSPIRE, there is limited guidance for archaeological datasets. INSPIRE only applies to data held by public authorities. Those creating data in academia or in the private sector are not required to contribute spatial data. They may also face restrictions in using data released through INSPIRE. Consequently engagement with INSPIRE by those working in cultural heritage is very limited and fractured. There is a case for developing a thematic SDI for cultural heritage data. However what are the benefits and drawbacks of developing such an SDI? How does spatial data relate to existing digital infrastructure initiatives – ARIADNE and Europeana? Where are the exemplar datasets highlighting best practice in gathering and sharing data?

LV30 ARTISTIC LEGACIES

Sally Foster, University of Stirling

This session collects contributions inspired by the theme of Legacies and visions.

CELTIC CONNECTIONS

CC1 CELTIC ARTS IN CONTEXT. CONNECTING OBJECTS, FUNCTIONS AND PEOPLE

Miss Gadea Cabanillas de la Torre, Universidad Autónoma de Madrid. Dr. Jennifer M. Bagley, Independent researcher. Dr. Petra Goláňová, Masaryk University Brno. Dr. Courtney Nimura, Institute of Archaeology, University of Oxford

The aim of this session is to discuss the very large body of items made of different materials considered as Iron Age art as a means of communicating identity in its broadest sense and therewith forming regional and social patterns. In contrast to traditional, strictly object-oriented approaches, we would like to analyse Celtic art from a contextual and functional point of view, focusing on the people who used ornamented objects and their purposes for doing so. During the Iron Age, decorated items produced across Europe were certainly not purely aesthetic objects, but a means to negotiate, maintain and reproduce social patterns, belonging to an active, variable and dynamic phenomenon more than a static, linear and homogeneous one. The most puzzling aspect of the process that we would like to explore is how interrelated objects and images helped connecting people with similar social needs across the Continent. From a chronological point of view, the main focus is on the evolution of Celtic art from the late sixth to the first centuries BC and the parallel changes observed in the societies that produced it – falling into three broad periods: the late sixth and fifth centuries, the fourth and third centuries and the second and early first century BC. This approach is mainly focussed on the La Tène world, but papers from neighbouring areas (Iberian Peninsula, Eastern Europe) and close chronologies (Hallstatt and Roman periods) are also welcome. Contributions dealing with the following issues are expected, but not limited to: art and society in the Iron Age (production, consumption and deposition contexts); objects and image networks and circulation; Celtic art, social agency and performance; perception, manipulation and 'technologies of enchantment'; styles and identities at regional and continental scales; Iron Age art in the La Tène world, its connections to 'marginal' and neighbouring regions.

CC2 CELTIC CONNECTIONS

Prof. Ian Ralston, University of Edinburgh

This session collects contributions inspired by the theme of Celtic Connections.

CC3 GOING UNDERGROUND: THE ARCHAEOLOGY OF SOUTERRAINS IN SCOTLAND, IRELAND, CORNWALL AND BRITTANY

Mr. Derek Alexander, The National Trust for Scotland. Mr. Richard Strachan, Historic Scotland. Niall Roycroft, NRA Ireland and County Meath

Council The session aims to synthesise the current research on souterrains across Atlantic Europe. Papers are invited to present research into souterrains of Scotland, Ireland, Cornwall and Brittany. Topics such as form, function and date are up for debate. What were the reasons behind their construction? Was it a response to similar social conditions? What are the similarities and differences between each of the geographical areas. Are there similar structures elsewhere in Europe and is this really an Atlantic phenomenon? It is over 50 years since the publication of FT Wainwright book on the Souterrains of Southern Pictland and appropriate that these old questions are revisited. It would also be useful to discuss how these sites can be recorded and excavated to modern standards and interpreted to a 21st century audience.

CC4 MAPPING THE ENCLOSED SITES OF LATER PREHISTORIC EUROPE

Prof. Gary Lock, University of Oxford. Prof. William O'Brien, University College Cork, Department of Archaeology Atlas of Hillforts of Britain and Ireland Project (University of Oxford, UK / University of Edinburgh, UK / University College Cork, Ireland) For many years, evidence provided by the hillforts and other enclosed sites of Late Bronze and Iron Age Europe has been central to archaeological understanding of social, political and economic change in these periods. Some subsets, notably the princely seats of the late Hallstatt world, or the oppida of the immediately pre-Roman period, have been mapped at the supra-national scale, as part of projects to compare and contrast them internationally. But the mapping of most such sites is contained within national, or regional, boundaries, as are archaeological efforts to comprehend them. Contributors to this session are asked to reflect on whether available data for the geographical entity – region, province, state - in which they are interested is sufficiently robust to be integrated into a Europe-wide cartography of such sites. Would such an exercise have merit and, if so, what are the key characteristics of these enclosed sites which might usefully be mapped at the (sub)-continental scale? The organisers will bring their experiences from an AHRC-funded project which foregrounds some relevant issues in melding data drawn from the different entities within Britain and Ireland. The session will include extended discussion of possible ways forward.

CC5 PREHISTORIC ARCHAEOLOGY AND LANDSCAPES OF THE CONTINENTAL SHELF

Dr. Richard Bates, University of St Andrews. Prof. Geoff Bailey, University of York. Ms. Caroline Wickham Jones, Aberdeen University. Prof. Vincent Gaffney, University of Bradford. Prof. Birgitte Skar, NTNU – Trondheim. Gary Momber, National Oceanography Centre

Environmental change since the last glacial maximum has had a profound impact on human populations around the globe.

Nowhere has this been more keenly felt than by people living at the edge of the land where society is intimately linked to marine resources. The land that these communities occupied is for a large part now lost beneath the sea however, ironically, this has often led to great potential for the remains of these societies to be preserved. The study of submerged landscapes is emerging as a new sub-discipline which adds considerably to archaeological understanding. Nevertheless, investigation here can be challenging, necessitating a multi-disciplinary approach that integrates specialists from across a wide range of disciplines and schools: archaeology; anthropology; climate; geomorphology; geophysics and geochemistry. The session will focus on research to uncover the prehistoric archaeology and landscapes of the continental shelf. It will include presentations on the latest technological advances for the study of submerged palaeo-landscapes, the latest techniques by which the marine and land components of the palaeo-landscape may be combined into a seamless model, the recovery of archaeological information, the modelling of populations, and the most recent theories. In addition there will be scope to discuss case studies of good practice or where particular problems have been addressed. The significance of submerged Prehistoric landscapes is now recognised at a European level where common approaches to the implementation of Marine Spatial Planning are being adopted. This session is intended for all, not just those with a background in underwater archaeology. The session will consist of invited papers and a general call for papers of national and international coverage. Submerged prehistory offers a significant addition to the understanding of past societies and as such it is important that we all engage with it.

CC6 RETHINKING THE CELTS

Prof. John Collis, University of Sheffield (retired). Prof. Timothy Taylor, University of Vienna. Dr. Oliver Nakoinz, Christian-Albrechts-Universität

Over the last thirty years there has been a major rethink among prehistoric archaeologists which has seen a fundamental change in how we study the Ancient Celts and the paradigms that lie behind our work (so-called Celtoscepticism). Much of the criticism has been based on an historiographical analysis of Celtic Studies – how the inhabitants of Britain came to be called Celts (starts in the Renaissance), and why Celtic languages and Art came to be labelled as 'Celtic', or why southern Germany was considered to be the origin of the Celts, and their spread through Europe dated to the late Iron Age and linked with a 'La Tène Culture', or more recently the theory that the origins of the Celts and the language lie on the Atlantic coast. Celtoscepticism has led to new methodologies and interpretations, for instance a rejection that we know, or can know, about the origin and spread of the ethnic Celts using evidence provided by archaeology, art, language, etc. on the grounds that ethnicity, language, genetics and material culture cannot be used as equivalents to one another. In this session we will give a brief overview of the problems with traditional approaches, but mainly we will look at the way in which the new approaches have impacted on various countries across Europe and Asia Minor, and how this might affect national origin myths (e.g. that the early inhabitants of Britain and Ireland were Celts). We also explore new ways in which we can study and interpret the archaeological record replacing the language-based 'culture-history' paradigm with paradigms based on other disciplines such as Geography and Anthropology. We will look at new methodologies, for instance replacing the concept of 'Culture Groups' with 'Networks', to explain cultural and social change, or at different ways of reconstructing social organisation.

CC7 WETLAND SETTLEMENT; UNDERSTANDING THE MOTIVATION BEHIND LIVING OUT ON THE WATER

Dr. Anne Crone, AOC Archaeology Group. Prof. Aidan O'Sullivan, University College Dublin School of Archaeology. Dr. Graeme Cavers, AOC Archaeology Group. Prof. Francesco Menotti, School of Archaeological Sciences, University of Bradford

In studying the crannogs of Scotland and Ireland and indeed lake and wetland settlements in general the first question that usually comes to mind is why people would choose to live in such challenging environments. The recent discovery of the first loch-village in Scotland has forced us to consider that Iron Age communities in particular either sought out or were forced to settle in a range of equally difficult environments, in the damp fenland margins of lochs as well as on man-made constructions in the loch shallows. Functional explanations are often proffered, such as defence, to free up land on the shore for cultivation, access to transport routes or to different biotopes for exploitation. Others have suggested more intangible reasons, that wetlands offer unowned space in which a community or group could construct and/or negotiate new social identities, or that they were liminal spaces where rituals of transition were enacted, the settlements possibly belonging to the mediators of these rituals. Whatever the reasons were the frequent evidence of extensive rebuilding and repair in the face of subsidence and flooding suggests this was not an inconsequential locational decision. In this session we want to explore the evidence from wetland settlements across Europe to come closer to understanding the motivation behind choosing to live in these particular environments. The wider social and physical landscape of the settlements must be considered, as well as the excavated assemblages. This may enable us to identify constraints on choice of living space, and whether it was only 'special' groups within the community who went to live out on the water.

INTERPRETING THE ARCHAEOLOGICAL RECORD



ARI MERC - 'THE FILTHY REALITY OF EVERYDAY LIFE'? REFLECTIONS ON DIRT FROM PREHISTORY TO THE PRESENT

Dr. Eileen Reilly, University College Dublin. Dr. Gary King, Durham University. Dr. Roos Van Oosten,

Leiden University

Since the BBC documentary *Filthy Towns* opened with a revolting picture of medieval London, the long held popular notion of medieval towns as unorganized, cluttered and filthy has seriously taken root in the collectively memory. The notion stems from a traditional focus on studying normative texts and scatological trope. Sifting through discarded debris and analyzing the remains of ancient settlements and populations, archaeologists are in a privileged position to provide insights into our complex relationship with dirt and filth from prehistory to the present. Mary Douglas defined dirt as 'matter out of place', and through this theoretical lens, cultural differences in the perception of and response to bacteria, dust, excrement, refuse, soil, and waste through the ages can be explored. The session organisers encourage papers from archaeologists, archaeological scientists, anthropologists and historians who will present fresh perspectives on this topic.

AR2 ADAPTIVE CYCLES IN ARCHAEOLOGY

Dr.Marcel Bradtmöller, University of Basque Country. Dr.Sonja Grimm, MONREPOS Archaeological Research Centre and Museum for Human Behavioural Evolution, RGZM. Dr.Julien Riel-Salvatore, Département d'anthropologie, Université de Montréal

Archaeology provides a wide spectrum of examples from which we can learn about sustainable and resilient behaviour of single groups as well as successful transformations of human systems that managed to maintain their integrity in the face of challenging ecological fluctuations and social thresholds. However, to reveal more general patterns from this breadth of specific examples, archaeology needs to conceptualise complexly interwoven behavioural adaptations such as mobility, economy, and social systems as fitting in external environments in response to which the adaptations were developed. In the last two decades, resilience theory and the concept of panarchy developed in ecology provide a powerful set of ideas to understand social-ecological systems and their cyclic developments at various scales. In particular, the concept of adaptive cycles has been embraced by some archaeologists studying the rise and fall of social entities, economic systems, settlement strategies, and the subsequent developments in the affected societies. We therefore consider adaptive cycles in particular and the panarchy framework in general as a powerful tool that can help understanding society and thereby the various definitions of human mobility within their social-ecological setting. Consequently, we would like to bring together various archaeological case studies using the concept of adaptive cycles in this session to explore how this concept can best be used to move archaeological research forward. Based on these case studies, we wish to discuss the benefit of the use of this concept for archaeology. Hence, we invite contributions showing the productive use of adaptive cycles in archaeology as well as participants interested in adaptive cycles and their use in particular and in the panarchy theory in general.

AR3 CROPLAND SHAPING: THE SPREAD, FUNCTION AND SOCIAL IMPLICATIONS OF FIELD SYSTEMS ACROSS EUROPE DURING PRE- AND PROTOHISTORY

Dr.Alessandro Vanzetti, University of Rome La Sapienza. Dr. Stijn Arnoldussen, University of Groningen - Gronigen Institute of Archaeology . Dr.Mette Løvschal, Aarhus University - Section of Prehistoric Archaeology. Mr. David McOmish, English Heritage

The existence of field systems in pre- and protohistoric Europe has been documented for over a century, but recent research is revealing fieldscapes on a scale and intensity which has hitherto been unsuspected. Advances have been made possible by improvements in field practice and analysis, and augmented by data-sets derived from developer-led studies as well as targeted research. The results are spectacular and provide invaluable insights into past land use and the fabric of past (agri)cultural landscapes, but they also raise fundamental questions about how to manage these fieldscapes for future research and how to produce strategic guidance to frame and support improved protection of such vulnerable resources. It is clear that fields, field systems and the agricultural regimes that underpin them, are at the roots of the landscapes of Europe as we see them today. This changing perspective requires a shared debate over the whole of Europe, and even beyond. The session has encompassing aims, with a particular focus on the development of field systems through time and space, including:- characterising the morphology of field systems across Europe (dating methods, geopropection);- assessing past land use and management regimes (water, land and crop management);- durability and relation to changing practices, technologies (e.g., slash-and-burn, ard, plough) and forms of social organisation;- possible social, climatic and biological causes and effects of field systems;- present-day relevance for community-based perceptions of fieldscapes; - disseminating and capitalising on the valuable knowledge now dispersed at a European level.

AR4 INTERPRETING THE ARCHAEOLOGICAL RECORD: MATERIAL STUDIES

Fernando Rodríguez del Cueto, University of Oviedo

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

AR5 LIFE ON THE EDGE? COMPARATIVE APPROACHES TO MARGINAL AND PERIPHERAL LANDSCAPES

Miss Hannah Brown, University of Bradford. Miss Mary Saunders, University of Bradford. Dr. Stephen Davis ,University College Dublin

Europe is studded with landscapes (e.g. uplands, heaths, bogs, dunes, wetlands and islands) that are today considered marginal in terms of resource availability, population density and economic potential. These landscapes have not, however, always been perceived or utilized as such, and their marginalisation in recent times (particularly in terms of development and

intensive agriculture) has frequently contributed to the preservation of rich archaeological evidence. With the development and growing availability of analytical scientific techniques (such as geophysics, remote sensing techniques, palynology and chemical analyses) as well as the means to integrate results with other approaches, an increasingly complex picture of past landscape inhabitation and exploitation can be constructed in areas which have often seen limited previous investigation. This session aims to bring together case studies from across Europe to provide a comparative overview of recent work and current research. It will look not only at individual case studies from across Europe which showcase innovative and integrated approaches to landscape study, but will also explore 'marginality' as a relative concept. Contributions are welcomed that address, for example, the use and reuse of marginal landscapes, evidence for past environmental change, seasonality, difficulties of and limitations posed by working in marginal environments, and issues concerning preservation and resource management.

AR6 LIMITS OF RAW MATERIALS: TECHNOLOGY AS TRADITION OR ADAPTATION?

Ms.Katarína Čuláková, Institute of Archaeology, Czech Academy of Sciences. Mr.William Mills, Institute of Archaeology, University of Oxford. Dr.Mara-Julia Weber, Centre for Baltic and Scandinavian Archaeology, Foundation Schleswig-Holsteinische, Landesmuseen Schloss Gottorf

Lithic raw materials used throughout prehistory vary in composition and structure. The spectrum of rocks used differ in both structure and hardness, such as siliceous rocks contrasting with quartzes, as well as variations in grain and structure within lithological groups, as with siliceous obsidian and chert. The aspects of the available size and quantity of these raw materials and the distance to their sources are also a consideration. All of these lithic materials have specific physical characteristics that may or may not facilitate their exploitation. To some extent the nature of the material can be a determining factor for the possibilities of extraction, whereas in other incidences they may have incited an adaptation of methods and techniques specific to the materials. However, the physical attributes of lithic raw materials are not the only factor determining the choice of a specific technology. There is also a conceptual element that contributed to the final picture of the selected „chaîne opératoire“. We would like to discuss the relationship between these two parameters and their influence on the final archaeological record of lithic production during prehistory. Our idea is to discuss both primary positions – on the one hand lithic technology as an adaptation to the physical characteristics of the raw materials and on the other hand lithic technology as the result of tradition (in terms of persisting concepts of a certain chaîne opératoire). This session is intended to focus on these aspects within the framework of the European Upper Palaeolithic and Mesolithic.

AR7 MOVING THE HOUSE POSTS: MOBILITY AND PERMANENCE IN (PRE-)HISTORIC DWELLING, FARMING AND RESOURCE MANAGEMENT

Dr.Tanja Romankiewicz, University of Edinburgh. Dr.Daniela Hofmann, University of Hamburg. Dr.Rosalind Gillis, Muséum national d'Histoire naturelle - CNRS (InEE)

The session wants to bring together experts in house studies and environmental analysis to understand houses in the physical, economic context of (pre-)historic life. How can house analysis be combined with archaeozoological, pedological, palynological, macroplant, stable isotopic and other approaches to integrate house construction and use within wider landscape management strategies? By this we aim to define (im)permanence in settlement systems more precisely – on wet or dry land – and investigate the full range of people's mobility practices. Mobility is indicated by short-lived wetland sites or medieval "Wandersiedlungen"; Sennerei or shielings document seasonality in upland areas. Thoroughly investigated case studies or time periods contrast with areas where only simplistic models of mobility or permanency are available. Particularly where artefactual and/or ecofactual survival is poor, dating can rarely be resolved below generational intervals, or relies on allegedly tell-tale artefacts, notably substantial ('permanent') architecture. Thus, we would like to ask: How transferable is wetland evidence to dryland sites in the plain or uplands? How can we understand issues of subsistence, surplus and sustainability beyond focusing on individual sites? How can we identify seasonally occupied sites – in the archaeological record, in palaeoenvironmental samples or by ethnographic analogies? How can we resolve cases where sources and methods lead to conflicting results on mobility and permanence? How are strategies of mobility and permanence changing over the longer term, considering mobility ranges of people, animals and plants and their relations, and the causes of such changes? How do various economic strategies relate to investment in permanent architecture? What other architectures are there? We are looking for papers from a broad chronological range and with focus on architectural analysis or reconstruction of landscape exploitation. Contributions which combine both aspects or build on ethnographic analogy are particularly welcome.

AR8 NETWORK SCIENCE IN ARCHAEOLOGY: CHALLENGES AND OPPORTUNITIES

Dr.Francesca Fulminante, University of Roma Tre. Dr.Sergi Lozano, IPHES, Institut Català de Paleoecologia Humana i Evolució Social. Dr.Tom Brughmans, Department of Computer and Information Science. Dr.Luce Prignano, IPHES, Institut Català de Paleoecologia Humana i Evolució Social

Despite pioneering applications in the 1960s and 70s, Network Science has only become more commonly applied within the Historical and Archaeological disciplines in the last decade. The success of initiatives such as The Connected Past or the Historical Network Research Conferences testify to this increasing popularity. However, many challenges remain, and many archaeologists and historians remain unconvinced by the formal application of network science for the study of past

societies. Undoubtedly, a number of issues and difficulties are particular to archaeology and history: the inability to directly observe/interview past societies, the need to use textual and material sources as proxies of past phenomena, and the challenge of dealing with particularly incomplete datasets. In this session we aim to discuss these and other specific issues and difficulties of applying network science in archaeology and history, and learn from successful as well as failed experiments in order to collaboratively work towards solutions to these issues. We welcome contributions from any geographical areas and historical periods, which discuss and illustrate the opportunities and challenges offered by Network Science in Archaeology. Papers can address but are not restricted to the following topics: Spatial Networks; Long-term perspectives and longitudinal networks; Diffusion Networks; Networks and technical innovation; Trade and Exchange Networks; Communication Networks; Socio-Political Networks and Networks of Power.



AR9 MERC - PLACE-NAMES AND ARCHAEOLOGY: INTER-DISCIPLINARY PERSPECTIVES IN A EUROPEAN CONTEXT

Dr. Stuart Brookes UCL. Margarita Fernández Mier, University of León. Dr. Julio Escalona, Científicas Centro de Ciencias Humanas y Sociales

This session will examine the uses of place-names in archaeology, focussing on the methods of inter-disciplinary enquiry, the possibilities of such research, and comparing the different historiographical traditions across Europe. Whilst place-names provide crucial insights into past uses of landscape and the processes of identity creation and definition, they remain an under-utilised resource in landscape archaeology. This session will emphasise how important they are in any modern attempt to understand the distant past, and examine their potential in this area. The session aims to: - bring together scholars working on onomastics and archaeology in different parts of Europe to provide a forum for the exchange of expertise and ideas - discuss differences and similarities in approach between archaeologists and place-name experts, defining areas of difficulty? including questions of terminology and chronology? and potential areas for future collaboration. - critically examine historiographical traditions of place-names and archaeology across Europe - assess the impact of digital cartography in bringing archaeology and place-name studies together - discuss the need for nuanced approaches to the study of macro- and micro- place-names - show case inter-disciplinary approaches to the study of landscapes, examining themes such as: memory, perception and experience, culture change and continuity, the landscape imprint (both linguistic and material) of socio-political innovation.

AR10 RAISING THE ROOF: RECONSTRUCTING TIMBER ARCHITECTURE FROM ARCHAEOLOGICAL EVIDENCE
Mr. Roderick McCullagh, Historic Scotland. Dr. Tanja Romankiewicz, University of Edinburgh. Dr. Katja Winger, Freie Universität Berlin. Mr. Daniël Postma, Groningen Institute of Archaeology, University of Groningen

Across Europe, archaeologists have long experience of excavating buildings represented by post-holes or post-pads. Showing how those buildings looked is important as a methodological tool, enabling a better practical understanding of ancient architecture. We feel that many of the images we create seldom draw on the knowledge of craft persons, experimental archaeologists, ethnographers, architects or engineers versed in building wooden structures and this hinders the development of understanding of the excavated remains and diffuses the need for better investigation, documentation and interpretation.

In Scotland, our colleague Bruce Walker has pushed for an awareness of the builder's craft on to an archaeology of timber buildings that is insensitive to the societal processes that shape the buildings and selects their components. Similar debates occur across Europe, so we want to draw on that international experience to foster a broader dialogue addressing key issues in understanding ancient timber architecture. How can we:

- be more imaginative about the technology of buildings (e.g. selection, preparation and use of the building materials; the use of 'crucks'; roofing in wooden shingles, fibrous plants or seaweed)
- find out who built these structures: specialists, the community, specialists within the community
- approach the layout of space under the roof
- disentangle the relationship between form and function in wooden buildings
- understand duration of use
- integrate a ritual dimension of building in wood?

We hope participants can collaborate to enrich our current understanding and develop energetic research agendas to inspire future generations of post-hole excavators and traditional buildings researchers. We therefore wish to foster a debate that goes beyond rehearsals of specific building shape, specific to time or place and to develop approaches that will stimulate a more rigorous theoretical debate.

AR11 STATIONARY FISHING STRUCTURES - USE OF JOINT FACILITIES BY FISHING COMMUNITIES

Dr. Harald Lübke, ZBSA - Centre for Baltic and Scandinavian Archaeology. Dr. Stefanie Klooss, Institute of Pre- and Protohistoric Archaeology, Christian-Albrechts-University Kiel. Dr. Satu Koivisto, Archaeological Field Services, National Board of Antiquities. Dr. Vladimir Lozovski, Institute for the History of Material Culture, Russian Academy of Sciences. Dr. Lisbeth Pedersen, Freelancer

New research on European wetland, bog or underwater sites with well-preserved organics expands our understanding of the importance of aquatic resources in the economy of prehistoric Hunter-Fisher-Gatherer groups in Europe. The excellent

preservation led not only to the discovery of active fishing gear like hooks, spears, leisters or tridents but also of larger equipment or structures like nets, traps or fishing fences. Better excavation methods led to the recovery of large quantities of small-sized faunal remains, which contradicts earlier investigations about the importance of fish as food. Finally, cutting-edge isotopic research on questions about human diet gives further evidence for the significance of this resource. Fishing could attain such importance for human consumption only because an appropriate technology was developed, with which substantial quantities of fish were captured. These were especially stationary fishing structures that are recorded in different coastal and inland regions since the Mesolithic. They were constructed from wood, stone and other materials, and in different ways, shapes and sizes. Predominantly the fishing structures are rather large, and it has to be supposed that prehistoric fishing communities organized the building and use, as well the processing of the catch, as a joint effort. Thus, traditional manners of building and use have certainly established a kind of collective identity of the communities. The organisers invite contributions that describe special archaeological features, review fishing technologies in a specific area or culture, give evidence of long term traditions or comparisons from historic, ethnographic and experimental sources, or discuss ways of extracting, restoration and conservation of such fragile objects and their further life in museums, labs etc. It is anticipated that through discussion of the various themes, the workshop will stimulate growing interest of the scientific community in new areas of research on stationary fishing structures and collaboration on a European-wide level.

AR12 SUBSTANTIAL BENEFIT OR NEUTRAL IMPACT: WHITHER EUROPEAN ENVIRONMENTAL IMPACT ASSESSMENTS?

Dr. Karen Waugh, Vestigia Archeologie & Cultuurhistorie. Dr. Gill Hey, Oxford Archaeology

The EAA has always championed a coordinated approach to cultural heritage in Environmental Impact Assessments and, in 2006, lent its support to the Guiding Principles for Cultural Heritage in Environmental Impact Assessment which emerged as one of the outcomes of the European-funded Interreg Planarch 2 project. These principles were intended to take forward best practice and provide a rigorous, robust and reasonable framework for ensuring that cultural heritage would be appropriately treated in the EIA process (see further: TEA, Issue no. 24, Winter 2005/2006). At the round table on major infrastructure projects held at the EAA Congress in Istanbul, the need to explore and identify common standards in approaches to legislation and the protection of the cultural heritage was identified, particularly where these are closely related to the planning process and its implementation. EIA standards, guidelines and Codes of Practice exist but these are not consistently applied, whether in countries with centralised planning systems or those newly emerging into the free market, and the perceived need for development exerts pressure on heritage legislation even in the wealthiest European countries. We invite contributions for this round table dealing with both good and bad examples of practice throughout Europe: how well are EIA guidelines translated into the law of each country and how well are these then implemented in practice? What should be part of the EIA and, as important, what not? The aim of this round table will be to explore the possibility of preparing European recommendations on best practice in EIA that can be passed on to the EAA-ABM for acknowledgement and adoption.

AR13 TERMINOLOGY IN FUNERARY ARCHAEOLOGY

Prof. Christopher Knüsel, Université de Bordeaux. Dr. Pascal Sellier, CNRS- équipe Ethnologie préhistorique de l'UMR 7041, ArScAn. Dr. Martin Smith, Bournemouth University

One of the most insidious problems to affect funerary archaeology is inconsistent use or lack of standard terminology, whether related to the skeleton or to the descriptive terms used to identify archaeological features and monuments. Funerary studies are especially dependent on the specific meaning of terms for both accurate description and interpretation. This is because they are so strongly contingent upon the identification of repeated patterns of ritual actions that reflect the maintenance of or alterations in social relations among the living. This emphasis is ever more important because researchers are increasingly aware that the patterning and disposition of human remains in burials is far more variable than the terms employed to describe grave structures. Since standard anatomical terms have long been in use for the body and its constituent parts, these form a good starting point, but there is no consensus on the use of terms to describe burials more generally, let alone discussion of the meaning and validity of the many terms currently in use. Although researchers such as Goldstein (1981: 59) early in the development of funerary archaeology championed 'multi-dimensional' funerary recording and analysis of the relationships between human remains and burial and site contexts, the elaboration of methods to do so are only now in the process of development and application through the broader use of archaeoethnology, advances in digital technology, and closer links between archaeology and biological anthropology that are encapsulated in the term bioarchaeology. With advances being made in method, practice, and theory, it seems an apt time to reflect upon and establish shared definitions upon which interpretation, understanding, and knowledge depend. Goldstein, L.G. (1981). One-dimensional archaeology and multidimensional people: spatial organization and mortuary analysis. In R. Chapman, I. Kinnes and K. Randsborg (eds.) *The Archaeology of Death*, pp. 53-69. CUP.

AR14 TRANSLATING VALUES OF THE PAST: HOW CAN WE COMPENSATE FOR IMPACTED HERITAGE?

Ms. Helen Green, University of Glasgow. Mr. Benjamin Grahn Danielson, Rio Kulturlandskapet. Ms. Aphrodite Sorotou, University of Glasgow. Dr. Chris Dalgligh, University of Glasgow. Dr. Kenneth Brophy, University of Glasgow. Dr. Alan Leslie, Northlight Heritage

A significant part of the work carried out by professional archaeologists across Europe today relates to proposed development, for example contributing to Environmental Impact Assessments (EIAs). While there may be a perception among some people that archaeologists tend to take preservationist positions and oppose change, in fact many are engaged with the planning processes that allow negotiated change to happen. Development inevitably generates consequences for cultural heritage, yet EIA and related processes provide opportunities to respond to this – potentially in creative ways.

In this session, our particular concern will be to discuss the issue of compensation for negative impacts upon cultural heritage; to generate debate around the role of archaeologists in the planning process. Beyond the recording of archaeological remains, or their enhancement with signposting and noticeboards, how else might we respond to interference with the heritage component of our landscapes? The appropriate form of compensation is surely dependent upon the particular value placed on the heritage, and by whom; yet this is not always financial. Can we therefore seek to bypass tokenistic or gestural outcomes, and secure positive gains by innovating social and cultural forms of compensation that meaningfully contribute to people's well-being?

This will be a roundtable session, but one which includes paper presentations to frame the discussion. We especially welcome papers which consider innovative approaches to the relationships between development, cultural heritage, and social benefit: for example, addressing challenges such as population depletion in rural areas; social exclusion in urban contexts; social cohesion and the interplay of identities; conflict over development itself; employment and economic growth. This session is organised by the European Network for Archaeology & Integrated Landscape Research.

AR15 INTERPRETING THE ARCHAEOLOGICAL RECORD: THEORY AND PRACTICE

Jennifer Miller, York Archaeological Trust

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

AR16 INTERPRETING THE ARCHAEOLOGICAL RECORD: GIS AND SPATIAL ANALYSIS

Tsoni Tsonev, National Institute of Archaeology and Museum, Bulgaria

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

AR17 INTERPRETING THE ARCHAEOLOGICAL RECORD: PROBLEMS IN LATER PREHISTORY

Warren Bailie, GUARD Archaeology Ltd

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

AR18 INTERPRETING THE ARCHAEOLOGICAL RECORD: CLASSICAL, ROMAN AND MIGRATION

Lauren McIntyre, Elmet Archaeological Services Ltd

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

AR19 INTERPRETING THE ARCHAEOLOGICAL RECORD: MEDIEVAL TO MODERN

Derek Hall, University of Stirling

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

AR20 INTERPRETING THE ARCHAEOLOGICAL RECORD: PROBLEMS IN EARLY PREHISTORY

Mick Morrison, Flinders University

This session collects contributions inspired by the theme of Interpreting the Archaeological Record.

ARCHAEOLOGY AND MOBILITY PAPERS AND POSTERS

AM8 BEYOND THE NORTHEASTERN FRONTIER OF CALIPHATE. REMAINS OF A BUSY TRADE ROUTE BETWEEN CHINA AND THE MUSLIM WORLD.

Michal Adamiak, Marta Zuchowska

INSTITUTE OF ARCHAEOLOGY, UNIVERSITY OF WARSAW

Battle of Talas (751 AD) was the most important moment in a long lasting war between Arab Caliphate and the Tang Dynasty. Despite of Muslims' victory, neither side could conquer the whole Central Asia. At the end of 9th century AD Samanids, vassals of the Abbasid Caliphate, captured the city of Taraz and thus established a new frontier of Dar al-Islam. Beyond this point, for ages has been a part of a busy trade route, which was a northern stretch of famous Silk Road. Contacts and relations maintained along this route led among others to the conversion of Turkic tribes to Islam. There are many sources from 9th to 13th century AD, mainly in Arabic and Persian, which show us geographic names of the today Semirechye area. Some of them remained unchanged in their Iranian form, but the rest have obtained new Turkic names. Today archeological remains of stations along this stretch of The Silk Road are clearly visible on the surface or have been excavated in recent half of the century. Therefore the main task of the research will be an identification of the sites with the medieval sources. Some of them like a site of Akyrtaş are very interesting mysteries, which is a challenge for archeologists and historians. Last year northern part of the Silk Road - the Routes Network of Chang'an-Tianshan Corridor was inscribed in the UNESCO World Heritage List and encourages to intensive research in this matter, especially in the Western part of this stretch.

AM22 SHIPWRECKS, SHIPWORMS AND GLOBAL 'WORMING'

Paola Palma

BOURNEMOUTH UNIVERSITY

Marine borers, particularly the shipworms, as destroyers of timber, *par excellence*, are well known from very ancient times. They attacked the wooden hulls of ships in such intensity that the weakened bottom planks broke up even due to a mild impact caused by hitting a rock or any floating objects inducing ship-wrecks. Even survival of sunken ships as wrecks depends on the mercy of wood-destroying organisms, which may turn these "port-holes" to history into meaningless junks. The silent saboteurs are the mollusc and crustacean borers (Palma & Santhakumaran 2014), but what does their present means in terms of the survival and preservation of shipwrecks?

In the recent years, research conducted along the English coast by the author has provided evidence of the presence of a shipworm which is typical of more temperate waters. This talk will explore who these organisms are, their damage on exposed archaeological and historical wooden structures on the seabed and if or how their threat could sometimes be mitigated.

In addition, this paper will look into the contribution of Citizen Science for the retrieval of data on this topic, and how this could be developed further.

AM8 COMMERCIALISATION, CHANGE AND CONTINUITY: AN ARCHAEOLOGICAL STUDY OF EXPORTING CATTLE FROM THE SCOTTISH HIGHLANDS BEFORE AND DURING IMPROVEMENT

Donald Adamson

UNIVERSITY OF GLASGOW

This is a study of the movement of cattle out of the Scottish Highlands in the period before and during Improvement. The growth of the cattle trade is evidenced in archaeological terms by drove roads and associated structures such as cattle stances, enclosures, bothies and inns. The paper studies two droving routes. One is through central Sutherland, and the other in Cowal and west Loch Lomondside. The case-studies trace the route of cattle towards distant markets outside of the Highlands, and record and analyse overnight stopping places along the way.

Practice is central to everyday life, and the practices associated with moving cattle have embedded themselves into the archaeology of the landscapes through which they passed. The seasonal routines by which drovers moved herds of black cattle were indicative of a mesh of social relationships. The material culture of the cattle trade structured and was structured by that routine practice. Thus the archaeology gives evidence of past social relationships and how they changed over time as the cattle trade grew and developed into the primary export trade of the Highlands of Scotland.

This paper considers gives a new understanding of the increasing impact of markets and market forces on social relations, as well as the tension between change and continuity in those relationships. It has something to say about the rise of the individual over community, and how individuals dealt with change in the light of asymmetrical power relationships.

AM2 USING ARCHITECTURAL EVIDENCE TO STUDY MIGRATIONS IN THE YORUBA HINTERLAND: A CASE STUDY OF BRAZILIAN AND AFRO-BRAZILIAN HOUSES IN NIGERIA.

Oluseyi Odunoyemi Agbelusi

UNIVERSITY COLLEGE LONDON, QATAR

Migration is a crucial factor in the history and cultural development of the Yoruba people of south-western, Nigeria. In ancient times, this people are believed to have voluntarily and forcefully moved from their home to a new environment due to civil war, ethnic rivalries, slavery, famine, and trade networks. Although most of the migrations that occurred in the past were only documented in oral traditions, some of the architectural legacies that dots the landscape today, attest to some occurrences of group movements and social relationships among various Yoruba metropolises, and the Atlantic World at large.

This paper therefore examines some aspects of human migrations in the Yoruba hinterland with greater emphasis placed on the architectural legacies and diaporic life of the people. It discusses how internal displacement and frontier migrations, that ensued from the beginnings of the Atlantic Slave Trade destroyed the socio-cultural landscape, and how the return of the ex-slaves to the coastal areas of Lagos and Badagry in the early 19th century transformed some aspects of the Yoruba's socio-cultural heritages. Prominent in this respect is the new architectural style (commonly known as the Brazilian style) that appeared in the coastal areas of Lagos.

This paper discusses the influences of the Brazilian style on the indigenous Yoruba built-form, and explains how Afro-Brazilian houses (a hybrid of two cultures) emerged over time. But the question remains: "Was the hybrid a result of migration of the ex-slaves to other parts of Nigeria or a product of self-realization of the local people"?

AM6 SEASONAL SHEPHERDS' SETTLEMENTS IN MOUNTAIN AREAS FROM NEOLITHIC TO THE PRESENT: ARALAR - GIPUZKOA (BASQUE COUNTRY, SPAIN)

Jaione Agirre García¹, J. A. Mujika Alustiza², J. M. Edeso-Fito², A. Lopetegi-Galarraga², A. Moraza Barea²

¹ARABAKO ARKEOLOGIA MUSEOA / ARCHAEOLOGICAL MUSEUM OF ÁLAVA, ²

Aralar (Basque Country, Spain) is a mountain area of the western Pyrenees with heights from 700 to 1400m high from sea level, between Burunda valley (Navarre) about 600m and Goierri (Gipuzkoa), at 150m; a karstic landscape, where apart from forests, mountain pastures are very important. There are sufficient evidences of seasonal shepherds' settlements from Neolithic to present days: megaliths (built with funerary purposes, but also to be seen from far away), caves (used as places of living and also as burial grounds) and dwelling hut foundations (from Bronze Age to present, like radiocarbon dating evidences). Pastoralism, apart from gathering and —marginally— hunting, permits the usage of the resources of mountain areas. The environment conditions, and also cultural and economy conditions, determine the characteristics of the animal herds in these areas. The livestock production depends on the availability of the trophic resources, which is related to seasonal change. The solution to these seasonal changes is seasonal migration to other places, to find the better food conditions for the animals. Mountain areas are used in summer, when grass and nutrition resources are in high conditions. When summer declines, this conditions decline too and lignification increases. It is the time to use the resources of low areas and valleys. For more than a decade prospecting and excavating these areas is helping to understand the shepherds' way of living during time.

AM13 FOLLOWING 'FOOTPRINTS' ACROSS AN ICELANDIC LANDSCAPE

Oscar Aldred

RCAHMS

Archaeology's study of past movement has been used to convey the generality of those moving along particular routes, but in doing so has treated past movement as a straight line, and people as universal bodies. However, this reduced understanding of past movement has advanced archaeology's knowledge about the origins and destinations of migrations and object exchanges, the types of cultural transmissions that existed between geographic regions, as well as the range and scope of possible experiences that may (or may not) have been encountered in the past. Less studied have been the material remains that guided and have actually resulted from these mobilities. Potentially these remains can be used to untangle the relations and flows between different kinds of entities, how people and animals moved across a landscape, and what the rhythms, tempos, spatial tactics and the iterative potential of continued mobilities were (including our own field survey paths). In this paper I will examine the material 'footprints' across an Icelandic landscape, exploring and mapping out past mobilities. Emphasising archaeology's active, mobile methods, I will also give commentary on how these residues were operationalised through mobile strategies and tactics. Furthermore, I will present what thinking through movement does for archaeology, especially in our attempts to understand the flows connecting spaces. Finally, I will set out how these on-the-move encounters might re-shape not only our understanding of past movement, but also our knowledge of past landscapes, where movement lies at the centre of our investigations into the archaeological record.

AM11 THE SALT OUTCROPS FROM THE ROMANIAN CARPATHIANS AND PASTORAL MOBILITY. AN ETHNOARCHAEOLOGICAL APPROACH

Marius Alexianu¹, Felix Tencariu², Andrei Asăndulesei¹, Olivier Weller³

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The approx. 300 salt outcrops and the existence of countless resilient areas where salt requirements for livestock (especially sheep) are still covered by basic forms of surface exploitation of rock salt, mean that certain areas Romania provide unique

settings—particularly surprising for an EU country—for researches on the role of salt in various forms of pastoralism (cf. ethnosalro.uaic.ro). Romanian ethnology has for long defined two morphological and functional structural types of pastoralism, by reference to mobility: pendulatory and, respectively, transhumant pastoralism. Starting from the abundant idiographic bibliography of historical and ethnographic nature, the paper presents the first results of the field research carried out in the Curvature Carpathians, concerning the simple- and double-pendulatory pastoralism, employing modern research methods incorporated into a multifaceted ethnoarchaeological discourse. A paramount find is that even today most of the animal husbanders involved in pastoral mobility are also specialised in surface exploitation of rock salt. A mandatory element of planned seasonal movements, salt emerges as a key element favouring the spatial extension of pastoral mobility. These researches are of major importance for the functional interpretation of certain types of occupation structures (stable or seasonal) traceable through archaeological means, which on account of their unremarkableness have only rarely captured the interest of archaeologists. The holistic reconstitution of pastoral mobility in the archaeological time also demands the study of the invisible archaeological elements, and of salt in particular.

AM11 THE VISIBILITY OF ALPINE SUMMER FARMING ACTIVITIES IN THE ARCHAEOLOGICAL RECORD IN THE BERNESE ALPS (SWITZERLAND)

Brigitte Andres

ARCHAEOLOGICAL SERVICE OF THE CANTON OF BERNE

Systematic archaeological surveys above the forest line in the Oberhasli region resulted in the recording of almost 400 hitherto unknown structures. According to historical sources alpine summer farming (*Alpwirtschaft*) has been an important part of the local economy at least since the Middle Ages, so that we can assume, that the structures are for the most part related to *Alpwirtschaft* in the Middle Ages and modern period. Most of the features are traces of ground-plans, rock-shelter constructions, animal pens, pasture walls and sections of mountain paths.

As the structures were not excavated, the statements which can be made regarding dating and interpretation are limited. An approach to the structures functions was effected both by comparisons with existing alpine buildings and the results of archaeological excavations from other alpine regions in Switzerland, and by the traditionally known infrastructure of alpine summer farms. Ethnographic accounts as well as written and pictorial sources related to the Oberhasli region from 1300 to 1900 have therefore been used to assist the study.

As specific descriptions of alpine buildings in medieval and early modern writings are rare, the main focus was put on mentions of economic traditions. The activities of *Alpwirtschaft* were categorised in dairy production, animal husbandry and use of wild hay with the aim, to assign the different structure types to a function or an activity field: Which activity leaves which traces? What kind of infrastructure is visible in pictorial sources or described in ethnographic accounts, and what is reflected in the archaeological record?

AM20 ROADWAYS AND EPIGRAPHY: THE EXAMPLE OF VIA PAPALIS IN ROME IN THE 12TH CENTURY

Giorgia Maria Annoscia

SAPIENZA UNIVERSITÀ DI ROMA

The *via Papalis* was one of the most important roads walked by pilgrims and papal processions that came from St. John Lateran to Saint Peter, animating the city of Rome (in particular the area of Central West Campo Marzio) in medieval times. This route, which will become one of the hubs of the pilgrimage roads in Rome multiethnic, is remembered by several written sources, many of which (*Itineraria*) were designed to attract pilgrims visiting the *Urbs* with a multiplicity of 'wonderful' visions: on one hand, the great wealth of archaeological remains from the Roman period, signs of the *memoria Urbis*, on the other the places of the relics of Saints, i.e. the churches located near the *via Papalis*. The 'sponsorship' of this priceless treasure of relics was entrusted to inscriptions commissioned by the Pope to be displayed in those churches: these inscriptions can be inserted into a larger "graphic program" which connotes the Rome of the 12th century, a program that does not end in those inscriptions, but is related to the relationship between the power of the Pope, the displayed inscriptions, the urban space and, therefore, its roadways.

AM6 HERDERS IN THE MOUNTAINS AND FARMERS IN THE PLAINS? A COMPARATIVE EVALUATION OF THE ARCHAEOBIOLOGICAL RECORD FROM NEOLITHIC SITES IN THE IBERIAN PYRENEES AND THE SOUTHERN LOWER LANDS

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There are many assumptions on the nature of human settlement in the Pyrenees during the Neolithic. These have mainly been linked to herding activities. Nevertheless, archaeological investigations in this area have been limited until recent times. At present we dispose of several archaeobotanical and archaeozoological assemblages belonging to sites located between 900 and 1800 m asl and dated to c. 5400-2500 cal BC. The presence of domestic plants and animals in these contexts opens some questions: are these groups of farmers with permanent settlements in the highlands or herders who carry grain from

settlements located at lower altitudes for their own survival during the spring/summer seasons? If they are farming in high mountain environments, how integrated are they with respect to the strategies known in other regions? If they are herders, why is there a need to take animals to high altitudes in the Neolithic? What kind of mountain herding is practiced? A combined approach to the archaeobotanical and archaeozoological record, together with available archaeological information, will be used to: first, attempt to characterize the economic activities carried out in these sites; second, compare them with the record from other settlements located at lower altitudes for which a more permanent farming economy is accepted.

AM2 POLITICAL, ECONOMIC AND SOCIAL MOBILITY AT THE MARGINS OF URBAN LANDSCAPES IN 13TH CENTURY SOUTH AFRICA

Alexander Antonites, Ceri Ashlea

UNIVERSITY OF PRETORIA

Southern Africa's earliest complex societies of the tenth to thirteenth century AD, are closely linked to its riverine landscape and the mobility it offers. At the confluence of the Limpopo and Shashe Rivers, communities at sites such as Mapungubwe, K2 and Schroda, practiced agriculture on the seasonally flooded river banks. At the same time, exotic trade items from Asia moved up the Limpopo, drawing southern Africa into global networks of interaction. New forms of wealth and prestige, stimulated by this expanding trade, led to an increase in social, political and economic mobility over a large area. Our research shows a fluid political landscape in which communities within and beyond the heartland interacted as part of a broader social and environmental mosaic. Focussing on hinterland communities of this emerging political network, this work challenges the simplified dualities of centre and periphery, internal and external, complex and simple. This paper will present results of new excavations at a series of hinterland sites which act as nodal points on this much larger mobile and political landscape.

AM2 MOBILITY AND MARKET ECONOMY OF SMALL-SCALE SHEEP FARMING IN THE 19TH AND 20TH CENTURY CAPE COLONY, SOUTH AFRICA

Annie Antonites

UNIVERSITY OF SOUTH AFRICA

By the mid-nineteenth century, sheep farming – for both mutton and wool – had successfully spread across the Cape Colony and beyond. Indigenous hairy sheep were cross bred with European breeds for meat, while Spanish merino flocks produced wool of excellent quality. Following the massive decline of animal numbers during the South African War (1899-1902), the industry experienced unprecedented growth, and eventually became a leading international wool exporter. While documentary records address the larger economic processes driving the sheep farming industry, archaeology enables a glimpse into the daily life of a farmer. Excavations at an Eastern Cape farm recovered a faunal assemblage dating from the 1880s to 1920s. Sheep remains dominate the assemblage, linking the property to the regional sheep farming economy. Combining archaeozoological methods with historical documentary sources, this paper examines the market economy of mutton and wool during the turn of the century and the role that small-scale migrant and semi-migrant farmers (*trekboers*) played in sustaining the sheep industry. This research is done in collaboration with Gerda Coetzee (Archaeology Department, National Museum Bloemfontein).

AM1 BRONZE AGE GOLD WORK IN ATLANTIC AND NORDIC EUROPE

Barbara Armbruster

CNRS

Gold work was an important means of cultural and social expression and exchange during the Bronze Age, a period particularly rich in both gold jewelry and vessels. This paper deals with esthetic appearance and social function of luxury items, such as gold ornaments and containers, and with their particular fine metal working technology. Along Atlantic and Nordic Europe, ideas and peoples moved exchanging information, goods and technological knowhow. The presentation aims in scrutinizing the development and interdependence of form, function and technology of gold work. One topic will be the goldsmith's workshop, its tool kit and materials used, as well as his social role in Bronze Age society. The presentation also intends to highlight the particular decoration techniques and tools applied to these ornaments and luxury table ware bearing special symbolic meanings.

AM15 THE MARITIME TRANSPORT AMPHORAE FROM TELL ABU HAWAM

Michal Artzy

UNIVERSITY OF HAIFA

Recent salvage excavations at Tell Abu Hawam (TAH) revealed an anchorage serving the site in the LB IIB period. Among the many imports, especially from Cyprus and to a far lesser degree, the Syro-Lebanese coast, Anatolia (Troy), Mycenae and Crete, there was a large amount of Maritime Transport Amphorae (MTA). Numerous distinctive sherds of MTAs — a large proportion of amount of pottery found there — were found in the anchorage. The majority of the MTAs consist of various types of Canaanite Jar, although some are attributable to Aegean Transport Storage Jars. Thin section petrography indicates that some of these vessels originated in immediate hinterland, namely the Carmel ridge, and are similar to about 80 analyzed MTAs found on the Uluburun shipwreck; others arrived from afar, mainly from sites along the Syro-Lebanese coast and Cyprus. The geographical position of TAH on the Qishon River as well as its small and limited size calls into question its role merely as a

part of a local exchange network. The extensive number of imported goods from both site and anchorage indicates involvement in a more complex network of exchange. It has been suggested that TAH had a symbiotic relationship, as an anchorage, with the major site of Hazor. Yet another possible role for this small but extraordinarily rich site was for the export of agricultural goods from the Jezreel Valley to the Hittite world, via Ugarit or Cyprus.

AM12 THE ISLANDS OF BRITTANY (FRANCE) FROM THE EARLY NEOLITHIC TO THE LATE BRONZE AGE : INSULAR COMMUNITIES IN STRONG INTERACTION WITH THE MAINLAND

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This communication addresses the theme of insularity in the specific context of the islands of Brittany during prehistory / protohistory. This presentation is based on recent work (Audouard, 2014; Gehres, ongoing), whose respective contributions (lithic industry and archaeometric analyses of ceramic) renew the archaeological approach of the islands of Brittany. The chronological framework extends from the early Neolithic period (4700 BC) to the Late Bronze Age (850 BC), the diachronic perspective allows us to not only capture the changing dynamics of island in the long term, but also put into perspective situations that have evolved between the phases of cultural openness and economic withdrawal.

From the lithic point of view, some disparities between the islands will be highlighted : for example the islands of southern Brittany (such as Belle-Île) appear more integrated within the exchange networks than the islands of the Iroise Sea. There appears to be a significant increase in trade at the end of the Neolithic and the exploitation of coastal resources become almost industrial (multiplication of knapping workshop, development of sites with abundant borers).

Finally, based on petrographic and chemical investigations on pottery, we have highlighted local operation clays, but also continental imports, and exchanges between islands. These analyzes also revealed the perdurance in insular context during Late Neolithic of a particular practice, unknown so far at the same period on the mainland. These recent studies emphasize the integration of the island communities within large networks of exchange and strongly relativize the isolationist vision of these populations.

AM8 BYZANTINE COINS IN THE WEST – THEIR ENGAGEMENT IN EARLY-MEDIEVAL ECONOMICS

Dita Auzina, Femke Lippok

FACULTY OF ARCHAEOLOGY - LEIDEN UNIVERSITY

It has been acknowledged that the north western part of Europe did not exist in a state of isolation of the Roman empire, even after the collapse of its Western part. These connections are represented by numerous byzantine objects found in archaeological contexts dating to the early middle ages. But what is the nature of these connections, how did they change over time and which actors were involved? Acknowledging the complicated nature of these questions, we strive to reconstruct the development of the inhabitants' accessibility to imported goods in the early middle ages. Answering these questions can help us understand the actors engagement in long distance exchange networks in the region under investigation.

During the research, the territory of modern Benelux and the German Rhineland was covered. Through mapping coins with an oriental origin, in the context of other byzantine finds, connections that have resulted in material traces and archaeological contexts were analysed by applying social network theory. In the light of the acquired data, several exchange models are put up for discussion as well as the involvement of non-elite actors in this exchange. Traditional assumptions of exclusive access of elites to exotic goods are challenged and an alternative interpretation is offered.

AM12 THE ROLE OF COASTAL ANATOLIA WITHIN MEDITERRANEAN NETWORK IN PREHISTORY

Ozlem Aytek, Umay Oguzhanoglu-Akay

UNIVERSITY OF PAMUKKALE

One of the northern boundaries of the Mediterranean is Anatolia which is related to the core regions like Africa, Levant and also to secondary cores or peripheries within Anatolia; during the earlier prehistory. Therefore, Anatolia is one of the significant regions to understand the cultural processes, interrelations and expansions of way of life which could be defined earliest from Lower Paleolithic, then especially for Neolithization process. Maritime and coastal roads which served during this Neolithization process must have establish a base for different type of interactions during later prehistory/protohistory.

However that region could be distinguished geographically and also culturally for all the chronological sequence, this study attempts to focus on southern seashore, islands nearby and related inland areas to figure out the chronological development and interrelations through the Eastern Mediterranean Basin until the end of 3rd millennium BC. By this point of view, this study aims to review and interpret the latest prehistorical data which belongs to southern seashore and related inland areas of Anatolia as well as islands in relation. Our purpose is to generalize the situation of Southern coastal Anatolia until the end of 3rd millennium BC to contribute the discussions of Mediterranean maritime activity and also the relations with cores, peripheries and secondary cores, the formation of first "cultural regions", different ways of interactions and the use of maritime roads.

AM17 HAVSMARKEN ON ÆRØ: THE MILLENNIAL HAVEN

Poul Baltzer Heide

THE ARCHIPELAGO MUEUM OF SOUTHERN DENMARK

Since its discovery in 2008, the Havsmarken complex on the island Ærø in the southernmost part of Denmark has been renowned as a site of interest primarily due to its extraordinarily rich and abundant Viking Age material, almost entirely retrieved by amateur metal detectorists. The site seems to be located here to utilize the unique topographical layout of this part of the island and the western Baltic. It does in many ways resemble well-known trading sites elsewhere in the world of the Vikings in terms of layout and artefacts. However, subsequent research and new finds seem to justify a broadening of this narrow chronological perspective.

If we change the scope of our research in this location from trading site to landing place we see a story with more diversity. Today, the Havsmarken area is seen to be represented consecutive finds and/or monuments from the period between the Early Roman Iron Age and up until the 14th Century. Even if the now known Viking Age trading site by far presents the most abundant material, the character of the settlements seem to change considerably between aristocratic, commercial, religious and military purposes.

There are yet major gaps in our knowledge to be filled, but over all we seem to be looking at settlements rooted in power and enabled by the easy access to two very good landing places as well as the major sea routes in the Western Baltic.

AM9 A DIFFERENT MAP: A DANISH RECORD OF ANCIENT ROADS AND WHAT THE MAPPING REVEALED

Jette Bang

DANISH AGENCY FOR CULTURE

During the 20th century several studies of ancient infrastructure revealed that remains of main road structures from historic as well as prehistoric times still exists throughout Denmark. However, during the generating of a national database based on inquiries throughout the country, this became even more evident with the accumulation of additional traces to these long-term structures of traffic.

In the course of the exploration of some of the parts of the main routes several amazing particulars were exposed: Such as the immense extent of roads preserved in the Danish periphery, the long duration of use of these structures, in some places a huge impact on the landscape, the range from wide bands of simple wheel tracks to deep run up canyons and the vast area that has been used for travelling. The understanding of these routes leads further to questions about to what extent some of the structures are purely made by man or merely it is the features of nature that has been used.

The ancient road network of Denmark and some of the features will be presented in the paper.

AM21 GREEK IMPORTS IN THE TERRITORY OF KOSOVO DURING THE IRON PERIOD

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The study paper "Greek Imports in the territory of Kosovo during the Iron Period" studies all archaeological findings discovered in the territory of Kosovo, which are brought from Greece.

Based on the archaeological findings imported from Greece known till now, it will be provided an insight regarding trade exchanges between the current territory of Kosovo and Greece, while will be also discussed the routs used for the import of such goods between these countries. The social differentiation that happened to Dardans during the beginning of the Iron period have created the possibility for aristocrats to be interested for luxury objects produced in Greece. Therefore, in this territory, are found a considerable number of objects brought from Greece, which also implies the good trade relations between both countries. Considering that the nowadays territory of Kosovo was the main part of Dardania and Dardania had a good strategic location in the crossroad of trade routs, these contacts were established since the Bronze age.

In our paper will be initially presented a periodic timeline of contacts between Greek and Dardan population, beginning with the import of the earliest objects till the Roman invasion of Dardania.

Furthermore, it will be specially treated the Greek influence in the traditional Dardan products, where the imitation of Greek shapes and motives was very present in the Dardan artisan. A specific focus will be dedicated to the contacts of Greek colonies in Adriatic with Dardans, which is already proven with archeological findings in some Kosovo locations.

AM16 TO THROW OR NOT TO THROW: THE UTILISATION OF THE POTTER'S WHEEL IN PREHISTORIC GREECE

Ina Berg

UNIVERSITY OF MANCHESTER

The availability of a new technology does not imply that it is adopted, nor that the technology is used for its originally intended use. For example, potters at Coyotepec in Mexico produced handmade vessels by working with a slowly rotating support. However, the most experienced potters in the village learnt to spin the support at speeds of up to 90 rpm and thus create pots

with wheel-thrown necks. In Ticul, Mexico, on the other hand, a layperson gained access to an unused potter's wheel. She taught herself how to make vessels using the technique of modified coiling, but despite access to a 'fast' wheel never actually learned how to throw a complete vessel.

A similar sentiment applies to the emergence of the potter's wheel in Bronze Age Greece where several wheel-using techniques existed side-by-side and demonstrate variable use of the potter's wheel. The best known are wheel-throwing and various techniques subsumed under the label of wheel-coiling. Of these, only wheel-throwing used the wheel according to our modern pre-conceptions. Wheel-coiling was an adaptation to the physical limitations of the potter's wheel and allowed the potter to build pots in stages. Recent research has focused on the macroscopic traces of wheel-coiling without sufficient support from scientific investigations to confirm such identification. Drawing on X-radiography and experimental archaeology, this paper thus sets out to demonstrate the radiographic fingerprints of the four different techniques subsumed under the term 'wheel-coiling' and in how far they are similar or distinct to the fingerprint of wheel-thrown pots.

AM1 CENTRES FOR TEXTILE PRODUCTION IN THE EUROPEAN BRONZE AGE?

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Textiles have been produced in Europe for a long time; however, woollen textiles first appear on the continent before the Chalcolithic or Early Bronze Age. Despite their manifold uses in both everyday life and as status symbols neither textiles nor wool have been considered an important part of Bronze Age economy and trade patterns. The economic, social and cultural importance of wool and textiles emerge clearly in many Sumerian, Assyrian and Mycenaean texts. These also shed light on the complex level of labour organisation necessary for the production of textiles. Moreover, recently prehistoric single pieces of textile from Northern Europe have shown to be made of wool from different regions, i.e. suggesting the existence of complex trade and exchange patterns involving Scandinavia and Northern Europe. Based on textile tools, as well as other remains indicating textile production, this paper will discuss evidence of large-scale textile production as one of the key factors resulting in the prosperity experienced by two specific regions, the area around Szazhalombatta-Földovar, Hungary and the Terramare area, Italy.

Wool seems to make its appearance in Europe hand in hand with the spread of bronze technology, and may even have been comparable in terms of the networks, resources and knowledge involved in metal production. This paper aims to reinstate the significance of textile and wool production in Bronze Age studies.

AM10 GIVING SHEEP SHELTER FROM THE STORM: A CONSIDERATION OF FOURTEENTH-CENTURY SHEEP HOUSING

Duncan Berryman

QUEEN'S UNIVERSITY BELFAST

Wool production was an important industry in the fourteenth century. The English landscape created some high quality wool and its productivity made it highly profitable. Edward III's taxation of wool to finance the war with France highlights the political importance of sheep farming and wool production. Many manors kept large sheep flocks during the fourteenth century, with some manors specializing in sheep rearing. But there was significant risk involved in sheep farming. Sheep murrain took its toll on the flocks over the century; war and politics affected the price of wool.

These animals needed housing, shelter from the weather, and protection from predators and thieves. This paper will look at how sheep were housed in the fourteenth century, and how those buildings were constructed and maintained. Manorial buildings were important to the lord, as they were symbols of authority and wealth; even agricultural buildings had a role to play. But to what extent did sheephouses fit into this social world? Did they too form part of the lord's display of power, or were they merely functional buildings? This paper will combine archaeological evidence with documentary and economic evidence to create a holistic picture of sheep rearing and the importance of their housing.

AM13 ON A WING: EXPLORING THE MICRO AND MACRO MOBILITY OF DOMESTIC FOWL

Julia Best

BOURNEMOUTH UNIVERSITY

The chicken is a familiar domesticated in Europe and the wider world. However, whilst the chicken's domestication from the wild junglefowls of South-east Asia and India, and its primary exodus from this area is of great interest, its subsequent movements in time and space map its expansion across the world and into a wide range of economic and cultural niches. Using case studies from Britain and the broader European context this paper demonstrates that by combining zooarchaeology, anthropology, and scientific analysis, exploration of the chicken's temporal and geographic movements has the potential to identify changing meanings and roles within avian-human relationships. The chicken has been an exotic luxury, a companion of gods, a ritual sacrifice, a fighting animal, and an important food source. The Roman period sees a wider spread and intensification of chicken husbandry, and a greater emphasis placed on its food role. Areas of delayed uptake (such as the Medieval North Atlantic Islands) reflect practical considerations, differing attitudes, and patterns of human movement. This

paper also explores the multiple scales of movement visible in the archaeological record. These include: the introduction of domestic fowl to new areas, small scale movements of fowl around the landscape in trade and food provisioning (e.g. supplying towns), and the formation of special roles through the incorporation of chickens in ritual and mortuary settings. By examining micro and macro movements of fauna it is possible to develop a much deeper understanding of animal-human relationships in the past and mobility's role in their formation.

AM16 TRICK OR TREAT? PERSISTENCE AND OBLIVION OF THE POTTER'S WHEEL IN THE ITALIAN PROTOHISTORY.

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Wheel-made pottery in Italy is attested since Middle Bronze Age 1-2, concentrated in southern Italy and coastal or insular areas. Mycenaean, Matt Painted, Burnished and Minyan wares were imported mainly from Peloponnese. Mycenaean pots continue to be imported from various Aegean areas until the Final Bronze Age, all over Italy. But from Middle Bronze Age 3 locally produced Italo-Mycenaean ware, clearly demonstrated by chemical analyses, is wheel-made in Italy by specialized Aegean potters. This phenomenon flourished and expanded, reaching also central and northern Italy, in the Late Bronze Age. In the south-east a related phenomenon is attested in the same period: the production of several specialized 'Mixed Italian products' (Dolia, Grey ware) displaying a package of technical traits with an high quality standard. Wheel-thrown (and/or wheel-formed) pottery continues with no discernible gap up to the Early Iron Age, with South Italian Protogeometric and Geometric wares.

In central and northern Italy the wheel is used mainly in Recent Bronze age for Italo-Mycenaean pottery only and then is reintroduced again in the frame of the relations between Etruscan and Latin communities and the first Greek colonists in the Central Mediterranean.

We propose some explanation of these two trajectories, affecting different geographical areas, discussing the socio-economic organization; the specialization and scale of pottery production; the supposed identity of the potters; the contexts of use of prestigious and utilitarian pots; the other specialized productions.

AM3 ESTABLISHING MIGRATION LINK BETWEEN EUROPE AND INDIA IN CONTEXT OF ARYAN CULTURE

Ketan Bhansali

SHRIMAD RAJCHANDRA PRAKRUT NIDHI

The original habitats of Indian peninsula are divided in to two categories namely Aryans and Non Aryans. The major paradox is question of Aryans being migrated from Europe through Mediterranean and going further was accepted by many scholars including father Heras and Whitman.

The excavation of various Harappa sites has thrown more light on the living standards and culture of the ancient people. It has also shown the link and trade with various part of the world by local people. There was clear picture of various phases of development of the culture on the basis of available materials. But how it was destructed, was the question that remained unanswered. Unfortunately, the theory of Aryan invasion was put forward and it was opposed to such extent by some scholar that they have even denied the migration of Aryans too.

We have worked on this problem based on the new material available and analysing the problem from different aspects. It was true that Aryan invasion was not the reason for decline of the harappa Cities. But on the other hand it was equally true that Aryans had migrated from Europe and settled in this land. A co-existence of two different cultures with quite different look, life style, social system, religios beliefs, cultural values and rituals was studied with reference to various material sources and ethnic aspects. The visual comparision of present day practices with ancient images in support of the cultural diversity was also made in support of the migration of Aryans.

AM12 UNDERSTANDING SOCIETY, CHANGES AND IDENTITIES IN THE NECROPOLIS OF SARDINIA DURING THE PUNIC COLONIZATION PERIOD.

Leonardo Bison

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Between the 6th and the 4th century B.C., the island of Sardinia became a site of a significant migration from Western North Africa, due to the conquest of the island by the growing Carthaginians. This event brought a profound and significant change to the material culture of the island.

In this paper, through an extensive study and reinterpretation off all available data surrounding the mortuary rites and the funerary world in the first century of the Punic presence in Sardinia, we attempted to explain how is possible to recognize in the necropolis, elements concerning cultures that were not Punic, such as the North-African and Berber cultures, and the significant differences and gaps between the necropolis and the communities of the island.

This study shows a complex and varied cultural reality in Sardinia, revealing indigenous and foreign identities, covered by apparently a homogeneous Punic material and funerary culture.

AM11 HISTORICAL ECOLOGY OF FIRE REGIMES AND LANDSCAPE CHANGE IN A HIGH-MOUNTAIN AREA OF CENTRAL SPAIN DURING THE LAST SEVEN CENTURIES

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The human use of fire is a major disturbing factor shaping the long-term composition and patterning of high mountain ecosystems in Mediterranean countries. Historical and palaeoecological implications of fire use patterns are especially notable in pine forests of the Spanish Central System. This piece of work draws on a high-resolution palinological core obtained from Puerto del Pico, located at 1,350 m above sea level. This is a historical mountain pass of traditional livestock flocks moving through the Gredos range since prehistoric times. The palinological sequence provides fresh insights into the late Holocene vegetation history in this region. It also allows addressing issues related to overgrazing, transhumance practices and human management of the timberline covering seven centuries, from the later medieval times to the present.

AM13 INTERPRETATIONS OF STRONTIUM ISOTOPE RATIOS OF THE MEGALITHIC POPULATION IN FALBYGDEN, SWEDEN.

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This paper presents new isotope data from the megalithic population in Falbygden, southwestern Sweden. In order to discuss variability of mobility over time, the strontium isotope results from the Middle Neolithic (3350-2350 BC) are going to be compared with those of the Late Neolithic (2350-1700 BC). By showing different possible interpretations, this paper aims at displaying the strength and weakness of strontium isotope analysis for understanding prehistoric mobility.

Falbygden, in the inland of Southwestern Sweden, is an important area for the research on Neolithic megalithic graves in Scandinavia. The area has one of Northern Europe's largest concentrations of megalithic tombs. The calcareous soils of Falbygden have resulted in a large amount of preserved bone material, which enables new radiocarbon dating and stable isotope analyses on skeletal remains. These include strontium isotope determinations focusing on megalithic burials and comparative samples to identify the isotope ratios of the bioavailable strontium. The geology of Falbygden differs from the surrounding areas in terms of both age and mode of formation, which implies good prospects for identifying mobility.

This paper is based on new radiometric dates and strontium isotope analyses on individuals from both the Middle Neolithic and the Late Neolithic. Patterns of movement are going to be discussed on a temporal scale. Even though the area is suitable for strontium isotope studies the results open up several potential interpretations of movement.

AM8 LARGE FELINES REPRESENTATIONS ON CUCUTENI – TRYPILLIA POTTERY. THE LONG JOURNEY OF AN IMAGE

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The Cucuteni – Trypillia cultural complex develops on the territories of Romania, Republic of Moldova and Ukraine. The regional chronology situates its' early phases during the Middle Neolithic (approx. 5.000 Cal. BC) while its' ending is positioned in the Final Chalcolithic (approx. 3.500 Cal. BC). Our paper will focus on the final phase of existence of the Cucuteni – Trypillia cultural complex when, in addition to the traditional geometric motifs, representations of large felines are also depicted on the pots. Studies on the historical geographical distribution of large felines during Early and Middle Holocene indicate the foreign origin of the image in the territory of reference. Given the well documented connections of the Neolithic in our area of interest with the Greek and Anatolian Neolithic, a general existing consensus regards the latter as the source of this exotic image. We will put the current theory to the test and search not only for the origin area of the image, but also the path it followed, through an analysis on the shifting dynamics of the trade routes from a geographical space starting west of the Carpathian Mountains and including all the territories surrounding the Black Sea, with a focus on the Middle and Late Chalcolithic. In order to achieve our goal, we will follow the movement of exotic raw materials, diagnostic artefacts and new technologies.

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AM21 HELLENISTIC AND ROMAN ELEMENTS IN THE AREA OF THE DACIAN KINGDOM'S CAPITAL

Cristina Bodó

ACADEMIA ROMÂNĂ, FILIALA CLUJ-NAPOCA

Starting with the first half of the 1st century BC, the Şureanu Mountains' zone (south-western Transylvania, Romania) has become the centre of the Dacian Kingdom, with the religious and the political capital lying at the ancient Sarmizegetusa Regia.

On the course of two centuries (until the beginning of the 2nd century AD), a remarkable civilization developed in this space, individualized by certain aspects from other areas inhabited by the Dacians, also due to the influences coming from the Hellenistic and Roman world. The material resources of the potentates from this region allowed the import of luxury items, but also the hiring of craftsmen from the Hellenistic and Roman space, the adoption of such elements from the Mediterranean world etc. – all of these having a decisive influence on the aspect of the local civilization.

For example, we can find elements from the Hellenistic milieu in the monumental architecture from this area (construction technique, materials, architectural features), the presence of Greek craftsmen being attested as well (e. g., by the Greek letters on the stone blocks). In the 1st century AD we already encounter aspects that indicate the Roman influence. Numerous elements of this influence are mostly visible in the monumental religious edifices from this region, of an impressive aspect even today.

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AM1 MARITIME HAVENS IN NEOLITHIC TO BRONZE AGE SCOTLAND

Richard Bradley

UNIVERSITY OF READING

There is considerable evidence for long distance contacts along the North Sea and Irish Sea coasts extending from Southern England to the Northern Isles. It has been identified on the basis of portable artefacts and styles of material culture, but less attention has been paid to the mechanisms by which interaction took place. A new study of sites and museum collections suggests the existence of a series of maritime havens, most of them protected by gravel or sand bars at river mouths and associated with sheltered bays. They contain exceptional quantities of finds, evidence for non-local objects, and indications that specialised artefacts were being made there, including fine flint work and metalwork. Sites of this nature are well-known in later prehistory but have not been discussed in the archaeology of pre-Iron Age communities. This paper will review the results of current research.

AM10 THE LARGEST ASSEMBLAGE OF MEDIEVAL WOOL TEXTILES FROM ARCHAEOLOGICAL EXCAVATIONS IN THE CZECH REPUBLIC

Helena Brezinova, David Kohout

INSTITUTE OF ARCHAEOLOGY CAS

A presentation of 800 types of wool textiles from urban waste layers in the centre of Prague. The assemblage contains linen of various quality (68%), twill (30%) and band (2%); more than three-quarters of the textiles have traces of fulling on their surface, while various forms of selvedges remain on 10% of the textiles. The textile assemblage also contains felt, sewing thread and cord. (Supported by Czech Science Foundation project 14-06451S).

AM19 CULTURAL PROPERTY PROTECTION POLICY FAILURE IN SYRIA

Neil Brodie

UNIVERSITY OF GLASGOW

Since the onset of the Syrian civil war in 2011, the looting of archaeological sites there has escalated alarmingly. Numerous satellite and ground images have demonstrated the scale of the damage, and there have been media reports of looted archaeological objects being traded out of Syria through Turkey and Lebanon for ultimate destinations in Europe, North America and the Gulf States. The international policy regime intended to control such looting dates back to the 1970 UNESCO Convention on the Means of Prohibiting and Preventing the Illicit Import, Export and Transfer of Ownership of Cultural Property. The fact that there is widespread looting of archaeological sites in Syria, nearly 50 years into this policy regime, suggests that it has failed. This paper will discuss reasons for its failure and possible ways forward.

AM9 TRAVEL AND COMMUNICATION IN ANGLO-SAXON ENGLAND

Stuart Brookes

UCL

'Travel and Communication in Anglo-Saxon England' is a three-year research project funded by the Leverhulme Trust (2014–17). It teams archaeologists, historians, and place-name scholars in investigating travel and communications in Anglo-Saxon England. It will reconstruct the overland and riverine route-system, using textual, landscape-archaeological, and onomastic evidence, and tackle, through a series of case studies, issues of change and social complexity (e.g. what recoverable infrastructural changes tell us about the immediate post-Roman period and the re-emergence of commerce c. 800) and economic reach (e.g. through correlations between surviving material culture and the route-system). In this paper, I will summarise some of the main methodologies and objectives of the project.

AM1 THE SOCIAL ROLE OF NON-METAL 'VALUABLES' IN LATE BRONZE AGE BRITAIN

Joanna Bruck¹, Alex Davis²

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Bronze Age metal objects are widely viewed as markers of wealth and status. Items of other materials, such as jet, amber and glass, tend either to be framed in similar terms as 'prestige goods', or to be viewed as decorative trifles of limited research value. In this paper, we argue that such simplistic models dramatically underplay the social role and 'agentive' capacities of objects. The occurrence of non-metal 'valuables' in British Early Bronze Age graves is well-documented, but their use during the later part of the period remains poorly understood. We will examine objects of amber, jet, shale and glass in Late Bronze Age Britain, employing contextual and use-wear analysis to consider the cultural meanings and values ascribed to such items and to explore how human and object biographies were intertwined. These materials are rarely found in burials during this period but occur instead on settlements, in hoards and caves. In many cases, these finds appear to have been deliberately deposited in the context of ritual acts relating to rites of passage. In this way, the role of Bronze Age valuables as social agents will be explored, illuminating their changing significance in the creation of social identities and systems of value.

AM7 GENDER, NATIONALISM AND MEMORY IN IRISH INTERNMENT CAMP CRAFTWORK, 1916-1923

Joanna Bruck

UNIVERSITY OF BRISTOL

This paper will explore how the craftwork created in Irish prisons and internment camps in the aftermath of the 1916 Rising through to the end of the Civil War allowed prisoners to negotiate changing concepts of political and social identity in the context of internment. Objects such as bone crosses and harps, alongside rings and brooches made from spoons and coins and mimicking Early Medieval artwork, constitute an obvious engagement with religious identity and traditions of cultural nationalism, and raise questions regarding the use, perception and 'ownership' of what were regarded by some as sentimental and indeed contentious symbols of nationhood. The reworking of prison-issue blankets into decorative mats and slippers, or the use of coins to make rings allowed prisoners to subvert the norms of prison behaviour and to negotiate a continued sense of personal agency in a profoundly disempowering context. Many of these objects were made for friends and family outside of the camp (particularly women): objects such as macramé handbags or children's reins gave men a continued sense of involvement in and control over their homes and relationships, while mantle borders, tea cosies and table centres conjured idealised notions of domesticity. Fundamentally, the creation of such objects allowed prisoners to engage with the troubling and often contradictory experiences of masculinity that lay at the heart of camp life.

AM10 TEXTILE ARCHAEOLOGY IN ROMAN VENETIA

Maria Stella Busana, Anna Rosa Tricomi, Cecilia Rossi

UNIVERSITY OF PADUA

As confirmed by literary and epigraphic sources, the production and trade of wool and woollen fabrics played a primary role in the economic system of Roman *Venetia* (which corresponds to the North-eastern Italy). The topography and natural resources (plains, alpine pastures, coastal salt works) must have contributed positively to the emphasis on sheep breeding. After identifying the routes of transhumance and some settlements specialized in sheep breeding (*Altinum* area, near Venice), it is likely that both transhumant and sedentary breeding were carried out in *Venetia*, according to the sheep races. Recently, new attention has been paid to textile processing, investigating *literary* and *epigraphic* evidence and archaeological textile tools, which are essentially the archaeological traces left by textile processing in our region. In 2009 the *TRAMA Project - Textiles in Roman Archaeology: Methods and Analysis* began, which consisted of a survey of Roman textile tools in the ancient *Venetia*, in order to collect data for further investigations on the technological, economic, social and ideological aspects of textile craft. About 2800 finds have been recorded so far, that include shears, spindle whorls, spindle shafts, distaffs, spindle hooks, loom weights and spools from the 2nd century B.C. to the 5th century A.D. A systematic approach focused on the functional and morphometric parameters of the tools, site contexts and spatial distribution, using a comprehensive database open source software based, allow to get a better understanding of the ancient textile production and symbolic values, in comparison with earlier cultural tradition.

AM12 SAILING BETWEEN ISLANDS: COASTAL NAVIGATION IN THE BALEARIC ISLANDS DURING THE LATE BRONZE AGE AND THE EARLY IRON AGE.

Manuel Calvo Trias¹, Stefano Medas², Alejandra Galmés Alba³, Jaume Garcia Rosselló¹

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This paper aims to seek the navigation strategies developed within the Balearic Islands during the Late Bronze Age and the Iron Age. Focusing on the concept of islandscapes this paper seeks a deeper understand into the landscape features and settlement patterns which vertebrate the routes that connected the archipelago.

From a landscape and maritime archaeology perspective and with the use of GIS techniques, this paper aims to study navigation routes from a double perspective; both from the land and from the sea. Through visibility patterns we seek to

understand the topographical components of the navigation routes and how they create cognitive maps connecting the land and the sea. We also aim to understand the settlement patterns which tag these routes from the coastline and how they are related with inland sites. All in all, we query on how these navigation routes connected the archipelago and how these routes were created, signified and perceived.

AM2 SHIFTING TOWNS OF KAABU: SEDENTISM, MOBILITY, AND STATEHOOD IN 13TH-19TH C AD SOUTHERN SENEGAL

Sirio Canós Donnay

UCL

The Upper Casamance (southern Senegal), is a region that has witnessed dramatic sociopolitical changes in the last millennium, including its conquest by the Mali Empire and a prominent role in the Atlantic trade, yet until now had never been the object of an archaeological study. Recent fieldwork by the author revealed a landscape of shallow transient sites at odds with the large permanent towns described by historical accounts and oral traditions. I argue in this paper that the key to reconciling these two sets of evidence lies in a very particular settlement pattern, by which villages and towns regularly shifted a few hundred meters, while keeping the name, identity, and institutions of the community.

Using archaeological data derived from survey and excavation, combined with oral traditions, both collected during fieldwork and available from publications, as well as historical documents and ethnographic and archaeological examples, I explore this pattern of 'shifting sedentism' over the last millennium and the implications it has for our understanding of the history of the Upper Casamance.

AM7 'HAVE YOU BEEN OFFENDED?' THE ROLE OF TABOO IN THE MEMORY OF THE HOLOCAUST IN THE CHANNEL ISLAND OF GUERNSEY.

Gilly Carr

UNIVERSITY OF CAMBRIDGE

'Have YOU been offended?' The role of taboo in the memory of the Holocaust in the Channel Island of Guernsey.

During the German occupation of the Channel Islands, over 250 people were deported to Nazi prisons and concentration camps, including three Jewish women who had escaped Nazi persecution elsewhere in Europe and sought refuge in the Channel Islands only to be deported and eventually to die in Auschwitz.

All over Europe, formerly-occupied countries have asked difficult questions about and confronted their role in the Holocaust. Holocaust Memorial Day has often been the prompt for such discussions – but not yet in the island of Guernsey, where such questions are highly taboo. Taking the case study of the explosion in the island's social media in the run up to Holocaust Memorial Day in 2015, set in the context of 20 years of increasing openness in the sister island of Jersey, this paper explores the taboo, and asks how important it is that such confrontational discussions take place. It goes on to explore alternative strategies, and questions whether 'outsiders' have any right to puncture these taboos, even if this means intervening on behalf of marginalised memory groups.

AM11 LATE-MEDIEVAL AND POST-MEDIEVAL PASTORALISM IN THE ITALIAN ALPS: PRELIMINARY INSIGHTS FROM UPLAND PASTORAL LANDSCAPES OF VAL DI SOLE (TRENTINO, ITALY).

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¹UNIVERSITY OF YORK, ²UNIVERSITÀ DEGLI STUDI DI TRENTO

In two upland valleys (between 2000-2700 m asl) of the Val di Sole (Trentino, Italian Alps), survey has documented three main categories of pastoral structures: simple or compound dry-stone enclosures (for corralling animals), dry-stone huts and rock-shelters.

Excavation at the compound enclosure MZ005S suggested that its main phase of occupation dated to the 15th-16th century AD. Other enclosures in the same area exhibited similar characteristics, including shape and degree of preservation, and for this reason were hypothetically attributed to the same period.

It is worth asking whether the occurrence of these structures in the 16th century can be explained by a change in pastoral strategy. In order to tackle this issue, historical archive documents were examined, providing crucial information to understand the management of high pastures and the shaping of upland landscapes during the late-medieval and post-medieval periods.

The compound enclosures appeared to be located along the access paths to the valleys. This observation was assessed using GIS analysis, which confirmed the existence of a locational pattern for these structures, possibly related to a specific strategy of exploitation of the pastures.

The data provided by this research sheds new light on pastoral strategies and vertical mobility in the Alpine uplands during the late-medieval and post-medieval periods. This data demonstrates potential as an aid to understanding the transformation of the relationships between herders and mountain environments from the Middle Ages to the present day.

AM4 ALTERNATIVE TOURISM GUIDE IN CULTURAL HERITAGE: PROPOSALS TO EUROPEAN GUIDELINES FOR ARCHAEOLOGICAL TOURISM THROUGH THE CASE OF THREE WORLD HERITAGE SITES IN MADRID, SPAIN.

Alicia Castillo

UNIVERSIDAD COMPLUTENSE DE MADRID

This paper tries to show a methodological experience that we are developing to Madrid Regional Government: A new guide for the WH sites in the region (Alcalá de Henares, Aranjuez y El Escorial).

We propose an alternative way to focus this guide, previous to write and design it. Our experimental methodology for this work includes:

1. Analysis of impact in the main social networks and review of classical guides about the sites
2. Mapping stakeholders concerning tourism and cultural heritage. Main channels of communication among them and main discourses to the public (visitors and inhabitants)
3. Participative process to help us to define better the new guide according with the interest of stakeholders and the new way to understand the Cultural Heritage experience.
4. Alternative proposal to elaborate the guide in several ways:
 - a. Style: further traditional media as paper/digital, with a specific proposal for social networks and encourage the social participation.
 - b. Topic: flexibility in the contents, new narratives, spaces to visit and conceptual vision, even concerning heritage management topic.

The methodology could be applied to the archaeological heritage cases (besides, the three WH sites have archaeological dimensions), consequently the experience could be treated in the roundtable and facilitate points or ideas to consider in the European guidelines for archaeological tourism.

AM15 TRADE AND CAPACITY STUDY IN EASTERN MEDITERRANEAN: THE FIRST AMPHORAE FROM COASTAL LEVANT

Cydrisse Cateloy

PARIS 1 - PANTHÉON SORBONNE

'Amphorology' is a branch of archaeology that allows us to understand better the use of such pottery vessels during the past. Closely related to long distance trade, amphorae have enabled many commodities to play a major part in Mediterranean economies since the Bronze Age. Focusing on the carrying capacity of maritime transport containers is a further way of studying this material, seeing it with a new approach and from a different angle which is a whole investigative field in itself. Indeed, classical archaeology has already taken great advantage of such research and has fully demonstrated its benefits, whereas Near Eastern archaeology has rather neglected the topic for earlier periods. Nonetheless, the beginnings of Mediterranean trade using amphorae, which means a well-made transport vessel morphologically suitable for navigation, took place along the Levantine coast by the beginning of the second millennium BC. Indeed, the so-called 'Canaanite jar', which appeared during the Middle Bronze Age, might be considered as being the very first, purpose-made trade amphora. Through the Late Bronze Age, amphorae became more common and were largely distributed all around the eastern Mediterranean (in the Levant, Cyprus, Egypt and the Aegean), transported by boats such as the Uluburun shipwreck. Afterwards, some areas began to copy the shape and progressively produced their own types. In that regard, these first containers might be seen as ancestral to later Phoenician, Greek and Roman amphorae, and their significance as such should be reconsidered.

AM13 FROM SELF-SUFFICIENCY TO INTERDEPENDENCE: CHANGES IN THE CYPRIOTE SOCIO-ECONOMIC STRUCTURE IN THE LIGHT OF MOBILITY DURING THE II MILLENNIUM B.C.

Francesca Chelazzi

UNIVERSITY OF GLASGOW

The investigation of mobility patterns within ancient social landscapes is a very fertile ground, particularly in Near Eastern and Mediterranean Archaeology. Surprisingly, studies have been focusing mostly on long-trade exchange networks, with very few attempts to investigate movement as an 'everyday practice', undertaken to carry out daily and regular tasks.

This paper aims to investigate, with a GIS approach, the development of mobility patterns in II millennium B.C. Cyprus, in conjunction with the passage from a mixed-farming economy to a specialized productive system. The passage from self-sufficient villages to interdependent communities not only has implied a change in the pattern of movement, but also has presumably modified the perception of 'the other' within systems of regional and inter-regional connectivity.

AM16 ASSESSING THE USE OF THE POTTER'S WHEEL IN THE EBA AEGEAN: THE TECHNO-MORPHOLOGICAL POTTERY TYPES AS INDICATORS OF THE CRAFT KNOWLEDGE

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The appearance of wheel-made pottery within a ceramic assemblage is usually considered as the marker of the invention of the fast wheel and the *classic* manufacturing technique of wheel-throwing. However, a series of studies upon the first use of

the wheel in different archaeological contexts have put into question this theory by proving that the Rotative Kinetic Energy (RKE) – the mechanical principle behind the function of the rotative devices – was equally produced by turntables or *tournettes* and was initially used within hybrid manufacturing techniques. The potential of these devices had been exploited by potters who had developed specialized motor skills which enabled the transformation of rough-outs into geometrical pottery shapes. An extended technological study, based on the macro-trace analysis of the first wheel made pots coming from different Aegean sites in Mainland Greece and Eastern and Northern Aegean and dating to the late 3rd millennium BC, showed that the introduction of the RKE into local ceramic productions implies the use of the potter's wheel within the manufacturing processes of the coiling technique for producing a narrow range of shapes. This paper aims to assess the degree to which the acquired know-how was embedded in the craft production, by highlighting the various aspects of the use of the RKE: different ways of making pottery on the wheel, morphological shapes produced, motor skills developed. These aspects could be indicators of how the potters adopted or adapted the new technology and shed light on the technological systems formed in the EBA Aegean.

AM20 A STRATIFIED ROUTES' NETWORK IN A STRATIFIED LANDSCAPE. THE REGION OF ENNA (CENTRAL SICILY) FROM THE BRONZE AGE TO THE 19TH C. AD.

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¹UNIVERSITY OF SIENA, ²ROCCA DI CERERE EUROPEAN AND GLOBAL GEOPARK

This paper focuses on the region of Enna in central Sicily. Its peculiar environmental settings with a huge mountain surrounded by gentle, fertile hills, is a key feature in the landscape. In addition, Enna is right in the middle of the island. Thus, our key questions are to understand the network of paths in its dynamic process of "transformission" as French archaeogeographers used to say. It is a rather new concept that considers the traces on the landscape at different scale factors, as ever changing features due to, both, natural, and human inputs. The results of this new method in France are encouraging, because one can apply them to routes, settlements, and field systems. In addition, we wish to profit of the spatial analysis tools to make evaluations about density, proximity, and orientation.

First, we chose the sample area of 660 square km in the very centre of the island. After, we uploaded into a GIS platform any information we could get from printed literary sources, historical maps and cadastres, archaeological and environmental data within the selected area. The wide time-span from the Bronze Age to the 19th c. AD allows to scrutinise the rhythm of routes' "transformission". Then, we evaluated the geographical constrains to mobility, the dynamic of changing settlement patterns and hierarchy.

At the end we raised new questions about the relationship among routes, settlements, and environment. Thus, we can go back to the fieldwork with a new strategy.

AM5 ONE OBJECT – MULTIPLE DEBATES

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In this paper we present evidence for casting moulds from the Lower Danube. We will underline the importance of this material for understanding different aspects of everyday life, artefact styles and manufacturing techniques, social, gender and political identities in the Avar khaganate of the 6th and 7th centuries. In particular, we will focus on how different approaches towards this evidence can be used to enhance our understanding of long-distance relations in this region, and aspects of political and economic power.

In the early middle ages moulds in this region were not mass-produced. Instead, decorative metalwork was cast as unique objects. Thus, in addition to casting techniques and crafting skills, they allow insights into the creative ideas of individual metalworkers and into ruling fashions. As objects used in the production of male and female adornment they can add significant data to studies of gender identity within a specific region.

More questions arise: How was metalworking organised? Who had a demand for the objects that were produced? Which functional, social or political purpose did these objects have? How did fashions in decorative metalwork develop, who had an influence on these, and where did these influences come from? In terms of long-distance relations, particularly between those of power, who was in the position to commission metalwork and to employ metalworkers?

By addressing these questions we will demonstrate that evidence for metalworking can be an ideal entry-point into the complex social, political and economical structures in the Lower Danube region in the 6th and 7th centuries.

AM9 DIFFERENT EPOCHS, DIFFERENT STRONGHOLDS, SAME ROUTE

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In this paper we will try to see connections between military strongholds and roads in the Middle Age, by reconsidering the role of Slon's and Tabla Buții fortifications in the context of the Bulgarian domination on the Lower Danube and inside the Carpathian Arch (Slon) or of Hungarian expansionism (Tabla Buții).

Placed in the shadow of Carpathian Mountains, Slon's fortifications are located on a plateau north-west of the actual village bearing the same name. The earliest one is a stockade, built at the end of the 8th century to the beginning of the 9th century. The second fortification was built to middle of 9th century. The third one was used from the second half of the 9th century into the first decades of the following century.

Tabla Buții is a stone fortification placed at 1340m altitude at the end of the mountain pass that link Transylvania with Wallachia, built in the time of Louis I (1342 – 1382).

Those fortifications are situated on an old road, with both strategic and commercial implications, connecting Transylvania with the Danube used until 19th century.

Starting from those two strongholds we want, mapping different discoveries, to prove and sustain the idea of this road across the Carpathian Mountains and of its importance in space and time, connecting Lower Danube to Middle Danube regions.

AM13 A WALK ON THE WILD SIDE: OFF-SITE OCCUPATION DURING THE IRISH BRONZE AGE

Kerri Cleary

CENTRE FOR ADVANCED WELSH & CELTIC STUDIES

This paper will explore the middle-spectrum of mobility by examining the archaeological evidence for both the presence or absence of definable settlements and the occupation of inbetween areas during the Irish Bronze Age. In the centuries before c. 1600 BC houses are represented by informal arrangements of post-holes, slot trenches, hearths and pits, but by the Middle Bronze Age archaeologically identifiable roundhouses with a suite of 'domestic' features dominate. These contrasting impressions have often been interpreted as dualistic, representing more mobile and sedentary lifestyles respectively. By looking beyond these sites however, to the 'spaces and connectivities between' them, it is possible to better understand the construction of place.

Across these landscapes, between these known habitation points, there is considerable evidence for the movement of people outside their perceived bounded settlements, as evidenced through trackways, burnt mounds, 'isolated' pits, burial and commemorative activities. These movements into the landscape must have taken place on a variety of scales, from individuals to groups, single events to persistent places and along the spatial spectrum. By plotting these nodes of occupation can archaeologists realistically explore some of the more everyday journeys that people undertook? If so, what can these movements tell us about the processes of place-forming and identity-creation that we more commonly attribute to settlement and funerary practices? Through a series of case-studies this paper will aim to explore the enmeshed human-environment relations of the Irish Bronze Age and how acts of movement were intrinsic to the creation of a fluid social landscape.

AM10 DO MANUSCRIPTS PROVIDE CLUES TO THE WOOL TRADE?

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The Cistercian monasteries of the 12th and 13th centuries were the wool magnates of their day. It is estimated that a site like Fountains Abbey owned as many as 18,000 sheep at one time, and the price of the wool and skins is still known to us thanks to careful records giving us some insight into the types of sheep the bred. But these records conceal a further level of knowledge in the material they are written on, sheepskin parchment. These records hold the direct physical evidence of these flocks including the fibres still locked in the skin providing information on the colour of the animals and the quality of the wool. Is it possible by examining the follicle patterns and fibres to garner further knowledge about these primitive breeds.

However there is an even more important step that can be taken to understand more about these animals and that is the biomolecular analysis of the skin itself. Parchment is an incredible biomolecular reservoir preserving both proteins and DNA in great quantities. Protein analysis of parchment has revealed different geographic distributions of animals used to make parchment, as well as varying quality, which can be linked to local livestock preferences. In depth DNA analysis of British sheep parchment has revealed changes in local breeds over a short period of time related to improvement. By interrogating the parchment record with these new techniques we will be able to address many of these issues and uncover new information about livestock economies.

AM4 MANAGING TOURISM AT ARCHAEOLOGICAL SITES

Douglas Comer

ICOMOS INTERNATIONAL COMMITTEE ON ARCHAEOLOGICAL HERITAGE MANAGEMENT

The industry of tourism values remarkable experiences, especially spectacular views and immediate experience. I will discuss how visitor responsibilities and scientific and historic values must be emphasized at archaeological and historic sites in order to preserve them and to ensure a sustainable tourism.

AM14 THE CLASSIFICATION OF ANIMALS IN VIKING AGE SCOTLAND

Siobhan Cooke

UNIVERSITY OF THE HIGHLANDS AND ISLANDS

Human animal relations are culturally constructed and have significant implications for human identity; one of the key aspects of human-animal relations is the classification of animals by past societies. Drawing on the author's current doctoral research, this paper will present archaeological evidence from Scotland and will highlight the ways in which the immigrant Viking population in the Scottish Islands classified animals and examine the ways in which the categorisation of animals facilitated their understanding and navigating of new environments and natural and cultural landscapes. The paper supports the argument that such cultural constructs vary over time and place, but furthermore, argues that the same variation can occur within similar ethnic groups when encountering new landscapes and new populations (both animal and human) creating new categories, boundaries and relationships. The diverse factors that affect alternative immigrant cultural constructs, and the ways in which these are visible in the archaeological record of the Scottish Islands will be discussed, with comparison to the homeland populations in Scandinavia, those in the diaspora and with reference to the written sources.

AM11 SEASONAL SETTLEMENTS AND POST-MEDIEVAL TRANSHUMANCE IN THE CARNA PENINSULA, IRELAND

Eugene Costello

NATIONAL UNIVERSITY OF IRELAND, GALWAY

This paper explores the archaeology of transhumance in post-medieval Ireland. It is based on on-going doctoral research at the School of Geography and Archaeology, NUI Galway. Using the Carna peninsula in South Connemara, Co. Galway, as a case-study, it examines archaeological evidence for seasonal transhumant settlement in the context of local farming practices and wider settlement patterns. The author does so in conjunction with research undertaken from an ethnographic and historical point of view. As such, it is an exercise in multi-disciplinarity – a key strength of historical archaeology.

Up to the early 20th century, it was common practice for small tenant farmers on the coast and islands of the Carna peninsula to bring their cattle inland for the summer. Herders stayed at the summer pastures in small dwellings known as brácaí, or booley houses. These transhumant movements enabled farmers to exploit seasonally-available grass in rough terrain, while at the same time freeing up much-needed land for potato and oat cultivation at home.

This paper discusses the results of archaeological survey carried out in former transhumant landscapes of Carna. It acknowledges difficulties in the dating (and identification) of transhumant structures, while arguing that trends can be found when a variety of sources is considered. The author proposes that seasonal settlement in our study-area was a complex social practice as well as an obvious economic necessity. What is more, it evolved from the 17th century according to a number of demographic and environmental factors.

AM6 THE MOBILITY OF THE BRONZE AGE POPULATIONS THROUGH THE STUDY OF SEASONAL GRAVES IN THE WESTERN PYRENEES (F)

Patrice Courtaud¹, Dumontier Patrice², Fabien Convertini³

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The discoveries of funeral cavities of the Bronze Age located in the West Pyrenees allowed to study the human mobility in these mountain spaces, in connection with some agro-pastoral activities. The caves of Droundak, Homme de Pouey and Amelestoy, all situated in the district of Pyrénées-Atlantiques were recently excavated. Their study provide informations concerning the composition of the burials, the nature of the grave goods and their relation to those discovered in archeological sites of the valleys. The addition of some data from ancient excavations authorize a synthesis on the colonization of these territories in connection with seasonal activities.

AM14 'RING-MONEY' AND THE HOMELAND: RECONSIDERING THE MATERIAL CULTURE OF 'DIASPORA' IN THE VIKING AGE

Aaron Critch

UNIVERSITY OF CAMBRIDGE

The term 'diaspora' has frequently been used to characterise Viking Age migration. By AD 950, Scandinavians had been raiding, then living, in Britain and Ireland for more than 150 years. However, the fact that the Scandinavian tradition of 'ring-giving', as a way of cementing an alliance, continued to exist at this time, and that some settlers chose to store their silver in the form of a ring, suggests a continued affection for the old ways of the homeland, particularly around the islands of Atlantic Scotland. Why did the descendants of a migrant population choose to cling to an archaic tradition, rather than convert to coin, as many of their Insular Viking neighbours did? This presentation considers the plain penannular arm-rings known as 'ring-

money' in comparison with other types of arm-rings from the Insular zone, and also gives particular attention to similar Norwegian hoard material, exploring the notion of 'homeland' so essential to theoretical considerations of diaspora. What can these finds tell us about the movement of objects and ideas between the two regions, and the continued idealisation of the past? In what ways is 'ring-giving' reminiscent of other historical diasporas and their use of material culture?

AM11 ARCHAEOLOGY OF MOBILITY IN THE MOUNTAINS OF NORTHERN TUSCANY, BETWEEN APENNINES AND APUAN ALPS

Massimo Dadà

PARCO NAZIONALE DELL'APPENNINO TOSCO EMILIANO

From 2009 to today our study on mountains of northern Tuscany in the Middle Ages has really changed. Initially, when our attention was directed towards movement of men and women, goods, ideas and knowledge, our efforts have been drawn to the network of roads. But we realized that we ignored many places of "mobility", understood as ability to move in the space. After six years of survey, two archaeological seasons in the site of Centocroci hospital and a GIS-based regressive analysis, now we can present the first results.

Apuan Alps and Apennines, so close geographically, are very different in mobility, economic activities and system of settlements. The former, due to the steep rocky slopes, represent a true obstacle for the transit routes and are interested from famous marble quarries of Carrara only in lower altitude: higher we found pastures and huts, scattered or gathered in small villages. There, since 12th century, we reconstructed a "versant" (from one to the other part of the slope), a "short-range" (from nearby coastal plain) and a "long-range" transhumance. Moreover, the presence of terraced areas and huts demonstrates a promiscuous use, with seasonal agriculture that seems to perfectly coexist with pastoralism: we call it the "Vinca model", referring to the name of a common pasture known since 12th century and abolished in 19th century.

Apennines, less steep, crossed by major roads with hospitals and monasteries on passes, see a unique pastoral use of extensive grasslands, with a very sporadic presence of shelters at high altitude.

AM23 THE PREHISTORY OF FORCED DISPLACEMENT: JUDEAN DESERT (SOUTHERN LEVANT) REFUGE CAVES OF THE LATE CHALCOLITHIC PERIOD

Uri Davidovich

UNIVERSITY OF CAMBRIDGE

The social significance of violent conflicts within early segmented societies is a frequent theme in the archaeological discourse, pertaining to fundamental subjects such as evolution of social stratification, accumulation of power and mechanisms of cultural interactions. A common feature of intercommunal conflicts whose archaeological identification poses great methodological challenges is forced displacement, which involves an uprooted social group and the place which provides temporary shelter for that group (refuge). Archaeological studies of forced displacement are uncommon, and usually associated with historical archaeology of well-documented events.

The Ghassulian culture of the Late Chalcolithic Southern Levant (ca. 4500-3800 BC) saw a dramatic increase in sedentary populations, subsisting on intensified agricultural production and animal husbandry, as well as increased specialization of production attested in numerous material realms, most notably metallurgy. These suggest a developed, segmented society, whose different components were competing over material and territorial resources. One of the most intriguing phenomena of this period is the use of hard-to-access cliff caves located in the Judean Desert, an unsettled arid region located between two large settled provinces. These caves were alternatively interpreted as herders' shelters, cult or mortuary sites, or temporary refuge places. A recent analysis of the spatial and material traits of the cliff caves, based on comparative investigation of ca. 100 caves, supports the latter interpretation. The study paves the way for a re-evaluation of the significance of violent conflicts within the Ghassulian society, and that of forced displacement as a social mechanism in prehistory.

AM19 LESSONS IN CULTURAL HERITAGE PRESERVATION: LEARNING ABOUT THE ILLICIT ANTIQUITIES TRADE FROM THE CAMBODIAN CIVIL WAR

Terressa Davis

ANTIQUITIES COALITION

In the Southeast Asian nation of Cambodia, internationally acclaimed for its 12th century temple of Angkor Wat, fighting erupted between government forces and the Khmer Rouge in 1970. Decades of civil war, genocide, foreign occupation, and plunder followed, as army after army — including the Khmer Rouge, but also the Cambodian military, paramilitary groups, and the Vietnamese — sought to fund their operations through an illicit trade in antiquities. With the 1998 Khmer Rouge surrender, a fragile peace was finally achieved. But it came too late for the Cambodian population or their rich heritage: As many as one in four people had perished in the "Killing Fields," and countless sacred artworks had been smuggled out of the country, through an organized trafficking network that survives to this day.

This paper presents a historical case study of the Cambodian Civil War and the illicit antiquities trade. The identified patterns of heritage destruction may have broader implications for other armed conflicts, as well as post-conflict countries, where lingering political instability, abject poverty, and rampant crime often threaten culture more than outright war. It is hoped that the study of such crimes in the past will provide valuable lessons for preventing them in the future, particularly as the world faces renewed conflict in Iraq and Syria that jeopardizes the very "Cradle of Civilization."

AM15 DAWN OF THE AMPHORA: THE EMERGENCE OF MARITIME TRANSPORT CONTAINERS IN THE EARLY BRONZE AGE AEGEAN

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In early EB II, the Aegean World sees the appearance of the collared jar, effectively the first ceramic Maritime Transport Container of the region. The sheer variety and quantity of these vessels in their first phase of use is striking, indicating a scale and sophistication in the movement of commodities unexpected for such an early period. Based on a large number of analyses of these and other vessels in the Cretan and Cycladic worlds, and emphasising Poros-Katsambas on Crete, Akrotiri on Thera and Ayia Irini on Kea, we examine the emergence of the first transport amphora, including two types highlighted here: Melian broad-streak painted and white painted/slipped jars from southern Attica; both types are found widely distributed in the Minoan and Cycladic world. While we might associate this bulk commodity exchange simply with the movement of metals, the mobility of technologies and identities in the metal-driven interconnections of the EB I Aegean is not accompanied by such transport vessels. It is only in early EB II, and perhaps even more intensively during developed to late EB II, that we see their emergence. We discuss the patterns and mechanisms of their exchange and their potential for illuminating the role of key harbour sites in the EB II western Aegean.

AM17 BALLAST STONES AND THE HANZE IN FLANDERS. SCANDO-BALTIC ERRATIC BOULDERS IN LATE-MEDIEVAL FLEMISH LANDING SITES.

Wim De Clercq, Roland Dreesen

GHENT UNIVERSITY

From the 12th cent onwards, Flanders grew into a prime commercial region, establishing trade connections with both southern and northern Europe. The city of Bruges developed into a large extended linear economic network with small towns and landing sites situated along the tidal channel leading from the sea to the town. Foreign merchants such as Catalans and Germans (Hanze) established permanent settlements of 'resident aliens' in this portuary network.

The study of re-used natural rock fragments in 13th century churches and monuments in the Bruges area, has eventually lead to the discovery of exotic stones interpreted as ballast stones, testifying of the intensive trade activities of the Hanze in Flanders. The site of the Kontor of the Hanze for instance, which had a landing site and Hanze ship yard, has produced hundreds of ballast stones whose study proves to be valuable instrument for revealing trade connections at landing sites.

The lithological suite of the Scandinavian glacial erratics is essentially composed of igneous rocks (granite and porphyry), metamorphic rocks (quartzite, augengneiss, amphibolite, phyllite) and sedimentary rocks (flint, sandstone, limestone, conglomerate). Some characteristic erratics point to specific locations: Larvikite (Oslo area), red and brown Ostsee quartz porphyries (Aland), Kalmarsund sandstone (Sweden) and bryozoan-bearing flints (Danish chalk cliffs).

The study of the erratic boulders ballast stones provides ample evidence of connections to coastal areas in the Baltic sea including, the northern coasts of Germany, the eastern coast of Denmark and the southern coastline of Sweden, linking up with historically attested trade (herring, wood,..).

AM6 PALAEOENVIRONMENT AND SUBSISTENCE STRATEGIES OF A HILLTOP SETTLEMENT IN THE SOUTHERN SWISS ALPS DURING THE BRONZE AND IRON AGES

Philippe Della Casa, Christiane Jacquat

UNIVERSITY OF ZURICH

The study of the Leventina site of Airolo-Madrano "In Grop" (Ticino, Switzerland; alt. 1156m asl), inhabited during the Bronze and Iron Ages, is important in the current debate about mountain societies and economies in pre- and protohistoric times. The compilation of botanical data (seeds, pollen, charcoal) gathered during the excavations helps to define the type of occupation, the subsistence activities and the human impact on the Upper Leventina between c. 1650 and 200 BC.

Subsistence and husbanding activities, including cultivation, gathering, collecting of bedding and forage, even grazing in the forests, seems to have evolved in the local landscape. Under growing pressure from the Late/Final Bronze Age onwards, the opening of the landscape was not associated with expanding settlements, but more probably with a shift in agroforestry activities.

Like at other mid-altitude mountain sites in Switzerland and in bordering countries (Austria, Italy), six-row barley was the most common crop, followed by other cereals, legumes and oil-producing plants.

Clear indicators of contact with the sub-alpine range that dominates the region of Madrano have not been found. However, the results of landscape surveys in that area show a human presence earlier, contemporary and later than that of the mountain dwelling in the valley. The presence of pollen and cereal fruit from the Late Bronze Age (*Hordeum vulgare*) and Middle Ages (remains of threshing of *Triticum cf. dicoccum*) implies altitude cultivation, the upper elevation of which remains undetermined, in spite of the coincidence between palaeoclimatic proxies and ethnographic data.

AM16 THE ADOPTION OF THE POTTER'S WHEEL IN THRACE: MODELS AND EVIDENCE

Bela Dimova

CAMBRIDGE UNIVERSITY

Communities in Thrace adopted the potter's wheel around the 6th century BC: a time of dynamic transformations and intensifying contacts with the Greek world. This paper situates the adoption of the potter's wheel in Thrace within wider debates about social change and cultural interaction in the ancient Mediterranean.

Existing models for the spread of wheel-made vessels include the migration of Greek potters, acculturation / Hellenisation, and elite-driven adoption of a new technology. These models will be reviewed and evaluated in the light of new evidence. Recent excavations and ceramic studies identify multiple sources of technological influence and multiple sites of adoption of the potter's wheel in Thrace. The wheel-made pottery at Koprivlen in the Rhodope Mountains followed the shapes and techniques of the north-west Aegean littoral, while communities in eastern Thrace adopted the grey monochrome pottery of the Black Sea colonies, which in turn came from west Anatolia.

These case-studies open several paths for fruitful research. First, we can trace how the adoption of wheel-made pottery fits within a local history of cultural interaction in each micro-region. Second, we can examine how the adoption of the wheel as a technology relates to the changing social organisation, settlement structure, and production practices over the Early to the Late Iron Age transition within Thrace. Finally, the extant data allow us to compare how one wheel-made pottery tradition was received in different cultural milieux, taking as a case study the spread of grey monochrome wares from west Anatolia to Thrace and Gaul.

AM11 WHAT DO WE REALLY KNOW ABOUT TRANSHUMANCE IN MEDIEVAL SCOTLAND?

Piers Dixon

RCAHMS

Uniquely in Britain, transhumance, or summer shieling, the practice of taking cattle and sheep to summer grazings for the production of butter and cheese, was still practiced in Lewis in the early 20th century. Elsewhere in Scotland, shieling practice had long since ceased, dying out in the Lowlands in the 17th century, if not before, but carrying on in the Highlands until the clearances of the early 19th century replaced transhumance by sheep runs. The shelters or huts that were built to house the people, who conducted the animals to the summer grazing, are the most visible sign of this practice and the subject of this paper. It will attempt to assess the current state of knowledge; the varying forms of evidence relating to this practice will be examined, asking questions about the vernacular of shieling huts, how they may be identified and their distribution, the origins of the practice and its organisation, and the dating of the huts. It is in comparing the dating of recent excavations that a dichotomy arises between the documented, medieval activity, and the excavated data. To do this, various strands of evidence will be reviewed, including the documentary record, the physical remains of the huts as recorded by field survey on the one hand, and excavation on the other, and finally the wider landscape question of the floral environment in which this practice took place based upon paleo-environmental analysis.

AM16 THE ADOPTION AND ADAPTATION OF THE POTTER'S WHEEL IN EGYPT

Sarah Doherty

GEBEL EL SILSILA PROJECT

The invention of the wheel is often highlighted as one of humankind's most significant inventions. Wheels do not exist in nature, and so can be viewed entirely as a human-inspired invention. Machinery too, was relatively rare in the ancient world. The potter's wheel is arguably the most significant machine introduced into Egypt from the Near East, second only perhaps to the drill, the loom and the bellows for smelting metal. In Predynastic Egypt (c3500 B.C.), the traditional methods of hand-building pottery vessels were already successful in producing pottery vessels of high quality on a large scale for the domestic market, so it would seem that the potter's wheel was a rather superfluous invention. It is often cited that when the potter's wheel was employed that a form of "standardisation" of production took place e.g. Wood (1990, p. 16). However, the use of the wheel may not necessarily lend itself to standardisation, particularly if the potter is still learning their craft.

This paper will consider the reasons why the Egyptians would use and develop the potter's wheel through the application of technological theory, ethnographic comparisons and macroscopic ceramic analysis. After which, the paper will postulate why other nations of the Mediterranean basin would later adopt the potter's wheel.

AM6 ISOTOPE ANALYSIS OF CATTLE REMAINS FROM SWISS NEOLITHIC LAKESHORE SETTLEMENTS AS INDICATOR FOR VERTICAL MOBILITY AND SEASONALITY IN HERDING STRATEGIES

Thomas Doppler¹, Claudia Gerling¹, Jörg Schibler¹, Volker Heyd², Corina Knipper², Moritz F. Lehmann², Alistair W. G. Pike²

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Lakeshore settlements are among some of the best investigated archaeological sites worldwide owing to an exceptional preservation of finds and features. Due to burial in waterlogged, and essentially anoxic, lake sediments, preserved organic remains enable dendrochronological investigation on almost pristine timber and allow precise tree-ring dating of residential structures. Based on this, we investigated Neolithic lakeshore settlements in the eastern area of Switzerland, focusing on five sites in the lower Lake Zurich region and one site at Lake Constance. All of these sites have provided vast and well documented cattle bone collections which can be used for isotopic analyses. Analysing material from the Zurich sites enabled us to sample a chronological sequence of more than 2000 years in a small region, whereas the single-phased site of Arbon Bleiche 3 at Lake Constance, occupied for only 15 years from 3384 BC, with 27 house plans excavated provided the opportunity to study herd management within individual houses on an annual basis. Strontium, oxygen, carbon and nitrogen isotope analyses of bone collagen, tooth dentine collagen and tooth enamel were applied to gain insight into strategies of cattle management. Combining our results with data from extensive environmental strontium sampling in the surrounding areas will help trace cattle mobility patterns and the seasonal use of pastures in potentially mountainous environments.

Additional co-authors: Volker Heyd, Bristol (UK), Corina Knipper, Mannheim (D), Moritz F. Lehmann, Basel (CH) and Alistair W. G. Pike, Southampton (UK).

AM6 VERTICAL MOBILITY OR HIDDEN MOUNTAIN FARMING? ARCHAEOLOGICAL AND POLLEN EVIDENCE FROM LOWER MOUNTAIN RANGES

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Due to an increasing survey of high mountain regions in France, Switzerland and Austria in the past years, archaeological evidence of their exploitation, especially in the areas above the tree limit, becomes relatively common. On the contrary, it is extremely hard to find traces of past human activities in the forested mountain terrains of lower mountain ranges and therefore our knowledge of their use is poor. According to written sources, their regular exploitation came about with Medieval colonisation. However, a comparatively large number of pollen spectra from the Czech and Moravian frontier mountain ridges (Sudeten, West Carpathians) indicate that some activities must have happened in the mountains long before the Middle Ages, at least since Sub-Boreal (LBA). This evidence is not without problems: it is virtually impossible to standardise certain combinations of taxa in the pollen spectrum which would decidedly document human activity. Moreover, pollen indicators, which may document seasonal pasturing (e.g. *Plantago lanceolata*) usually appear in the pollen spectra together with the pollen grains of *Secale cereale* or *Cerealia* sp. The assumption that cereal pollen grains are transported by wind from the mountain foreland has not been sufficiently verified yet. Alternatively, a special form of montane farming management might have existed, based both on animal husbandry and cereal production. Such a hypothesis needs to be proven and we look for the possibilities, methods and tools (both archaeological and environmental) for means of getting sufficient results. However, the largely forested terrain of the Bohemian mountains makes this task extremely difficult.

AM4 ARCHAEO TOURISM ON THE MOVE: DEVELOPING GUIDELINES FOR EUROPE

Rob Early

OXFORD ARCHAEOLOGY

I wish to participate in this workshop session as I am an advocate for the development of best practice for archaeology and tourism develop. During my 25 year professional career, I have conducted a range of consultancy projects in France, the UK, China and Turkey that have linked archaeological research with tourism development. I am current on the Executive Committee for ICOMOS UK and I am an expert member of the International Committee for Cultural Tourism. I believe that an active forum to discuss the relationship of these two disciplines is overdue and would very much like to contribute to this session.

AM7 BEYOND OBJECTIVITY? THE ROLE OF OBJECTS IN EXHIBITIONS OF THE POST-WWII EXPULSIONS OF GERMANS

Susannah Eckersley

NEWCASTLE UNIVERSITY

The post-World War II expulsions (*Vertreibungen*) of the German populations from East of the Oder-Neisse line is a difficult and at times controversial topic, marred by both political and emotional issues. Through an examination of exhibited objects, this paper analyses the differing ways in which museums in Germany present the history and memory of the expulsions, looking at the reasons for their curatorial choices and the impact of them.

The objects which expellees selected to bring as mementoes of people or places left behind may appear entirely 'ordinary', but they are imbued with significance beyond material values by means of their 'biographies' (Kopytoff 1986) and their symbolic and historical meanings (Hodder 1987). Often the most 'ordinary' objects are the most powerful for the evocation of memory, empathy and understanding. With careful interpretation, these objects can act as sparks for reminiscence or as material connections to the memories of others, relating to Hirsch and Spitzer's (2006) notion that 'testimonial objects', can facilitate the 'transmission' of memories to subsequent generations. In this way, objects are involved in the process of 'postmemory' or 'multidirectional memory' (Rothberg 2009), which can be carried by individuals who did not experience the remembered past themselves, but for whom it has great resonance. At the same time, the use of emotive objects in exhibitions of controversial histories may raise questions of objectivity and authenticity, a critical factor within the German context.

AM9 RIVER CROSSINGS IN PREHISTORIC TIME: THE SKJERN RIVER EXAMPLE. FORDS AND MOUNDS AS INDICATOR OF COMMUNICATION

Torben Egeberg

ARKÆOLOGI VESTJYLLAND

The presentation is based on archaeological excavations carried out in connection with the reorganization of the Skjern River in the years around 2000. The main outcome was the identification of crossing points along the lower River Skjern. The datings of these indicate examples of long-term use since the Iron Age. The investigations led to the establishment of the project "Høj and Vad ved Skjern Å" (Barrow and Ford along Skjern River). This project investigated the landscape around the river Skjern and carried out a systematic survey of burial mounds from the period 2800-500 BC. The result was a large collection of data showing a clear number of aligned burial mound distribution, pointing towards the previously identified crossings. The project provided a platform for on-going survey of the landscape in a wider area north and south of the river. Mapping utilizes a range of data-sets from the 1600s written sources, the 1800s mapping, the aerial series from the 1950s and recently, LiDAR. The most important factor is that the tombs from the period before 2800 BC have been included, especially the long barrows from the Neolithic. These are particularly interesting for structural analysis, as having a specific orientation. The current, ongoing survey therefore focuses on tracking down as many long barrows as possible. It is expected that long barrows and rows of younger, round mounds will have both overlapping and non-overlapping orientations. An expected dynamic in orientations could contribute to a synthesis of the early exploitation of the West Jutland landscape.

AM23 CARVED STONE BALLS IN THE VOLGA-URAL REGION (RUSSIA)

Andrey Epimakhov

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Numerous carved stone balls are the "visiting card" of the Scotland Neolith and Bronze Age, but only some of them have reliable context. In contrast to this few in number Volga-Ural artifacts were discovered by professional archeologists in the process of excavation. Three finds applied to the type 4a with six projecting bosses (Marshall 1976-77). The cultural attribution of the items is different (Vol'sk-Lbische, Abashevo and Sintashta cultures) but their chronology is very close to by the last centuries of the 3rd - the first centuries of the 2nd millennium cal BC. One of the artifacts was covered by thin layer of white kaolinite clay. It was discovered in the collective Sintashta grave where four people were interred at the same time (man of 22-26 years old and three children of 8±2, 5±2 and 6±3). The burial was manifestly particular thanks to the imitation of chariot, two pair of cheek-pieces, animal sacrifices, numerous metal and stone goods, including mace-head. For a long time Russian specialists has being attributed these kinds of artifacts as half-finished maces but the Sintashta find contradicts this thesis. From the point of view of the sensor identification the Volga-Ural artifacts are clearly focused on visual perception and tactile sensations. The context of discovering does not allow a choice between individual and group nature of functioning.

AM20 PARIS – ROUEN – THE SEA : AN OLD STORY OF OVER 2000 YEARS

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MINISTÈRE DE LA CULTURE - DIRECTION RÉGIONALE DES AFFAIRES CULTURELLES DE HAUTE-NORMANDIE

In 1998 and 2008, we have made a compilation of many informations about the « Chaussée Jules César » (Île-de-France and Normandy), the name given to the main road joining Paris to Rouen during the Antiquity. Since this time, new datas and new methods ask us to revisit the concept of this physical link on the north side of the Seine valley. Preventive archaeology brings us the proves that the problem of understanding a main road like this one is not so simple. So, we decided to go back in this study with new tools : satellite photos, remote sensing, GIS, LIDAR, archeogeography, long time range and multi-scaled viewing. Various excavations show us the possibility to connect short segments of the « chaussée Jules César » with oppida. They also bring us a better understanding of the different ways to cross through deep valleys, and knowledge of land survey. Finally, they give us temporal limits for the use of the track, path or road, sometimes still in use today like a motorway. These collected facts could indicate that the long way along the Seine valley was built by sections on the bases of pre-existent elements, and its evolution depended of economical context and large strategies. This essay aim to recognize the kind of relation existing between human settlements, the landscapes and the "Chaussée Jules César", which still holds a major axis role in structuring the landscape from Paris to the Seine estuary.

AM5 MOVING ON WITH STYLE

Kathrin Felder

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European archaeology of the 5th to 7th centuries AD is traditionally strong in the stylistic-typological and chronological analysis of decorative metalwork. This was long linked to a culture-historical framework that saw specific artefact types and styles as ethnic markers and used their characteristic distribution patterns to trace the movements of people. Recent decades have seen important paradigmatic shifts in approaches to the socio-political transformations of this period. Studies now focus more on how ideas about group identity emerge, are socio-materially constructed and negotiated throughout the life trajectory of individuals and societies.

As a consequence, archaeological research has become more cautious in engaging with the study of larger-scale narratives through the study of distributed artefacts. Many archaeological case studies now focus more on investigating shifting identities on the, regional or local, meso-scale by illuminating the material strategies employed, for instance, in local burial grounds.

Still, single objects remained powerful means of social communication in this period. The formal-stylistic language of a class of personal adornment encapsulated ruling social norms and offered ways to affiliate oneself with emerging cultural or political groups. Early medieval metalworkers played a significant role in maintaining the 'readability' of artefacts, reinforcing these norms and facilitating their geographical spread, while inadvertently transforming this language based on their skill, artistic vision and social embedding. This paper studies such artefact-stylistic changes in a multi-scaled spatio-chronological perspective, showing that early medieval archaeology's longstanding expertise in artefact analyses can be harnessed to contribute to contemporary studies of 5th- to 7th-century socio-cultural transformations.

AM8 ART AND CRAFTSMANSHIP IN ROME BETWEEN THE MIDDLE AND THE LATE REPUBLICAN TIME. OBJECTS, MEN AND IDEAS IN THE AGE OF THE CONQUEST.

Antonio F. Ferrandes

SAPIENZA - UNIVERSITA' DI ROMA

The expansion of Rome in Italy and in the Mediterranean, between the 4th and the 2nd c. BCE, determined a deep cultural osmosis between the city and the sites that faced the Roman economic, political and military growth. The centrality of this period is already prominent within the studies on ancient economy, whereas there is still a lot that should be investigated when it comes to social and cultural history.

The aim of this paper is to analyze these specific aspects of ancient history, focusing on the data sets from Rome that lately increased exponentially thanks to the works carried out in the city. The study of the products of the public art on the one hand and the craftsmanship on the other, provides an articulated picture of the cultural interaction characterizing this period. Furthermore it allows to understand how the cultural drives from outside had an impact on the different levels of society, and interacted with the Roman background to be eventually incorporated in it.

The framework emerging from this study is complex and shows a stratified context continuously and quickly evolving. Interestingly enough not just the products that the city exported to the major centers of the Mediterranean, or those that were imported, changed; what appears to be thoroughly transformed are in fact those who play the leading role in this research (artisans, traders and buyers). This paper will show how their social role and cultural choices were radically reshaped as the outcome of the Roman expansion.

AM13 TRAVELLING LINES: LINEAR EARTHWORKS AND MOVEMENT ON THE PREHISTORIC YORKSHIRE WOLDS

Emily Fiocoprile

UNIVERSITY OF BRADFORD

During the first millennium BC, the people of the Yorkshire Wolds (East Yorkshire, UK) began dividing up their world with linear earthworks. Constructed using monumental banks and ditches, the earthworks would have formalised not only communities' ties to particular tracts of land, but also acceptable routeways within and amongst these places. This paper explores how linear earthworks facilitated the movement of people and animals through both space and time. It takes a biographical approach to landscape by examining the life histories of the earthworks at Huggate Dykes and Wetwang-Garton Slack—charting their births, lives and deaths—and attempts to show how movement occurred around, along and across these earthworks throughout the Iron Age.

By their very nature, linear earthworks are not sites. Many run for several kilometres and link up settlements, cemeteries and natural features, such as valleys; indeed, alternative terms for these features are 'running' or 'travelling' earthworks (Fox 1929: 135). Thus, any attempt to understand them must take movement into account. Networks and meshworks provide useful ways to integrate and make sense of biographies at different scales, as they allow us to trace connections amongst places, people, animals and things. This paper considers how the stories of Huggate Dykes and Wetwang-Garton Slack would have

been intertwined with those of humans, animals, things and other places on the Yorkshire Wolds. In order to do this, it draws upon a variety of data sources, including antiquarian maps, aerial photographic transcriptions, an excavation archive and targeted geophysical fieldwork.

AM9 EARLY ROUTEWAYS ('ROADS'): A NEGLECTED RESEARCH FRONTIER

Andrew Fleming

INDEPENDENT RESEARCHER

Few British archaeologists concern themselves with the study of early, potentially prehistoric routeways. Their attitude stems partly from a deliberate rejection of 'fanciful' early 20th century ideas, and partly from the perceived difficulty of dating 'old roads' in an absolute sense. It is assumed that in any case the life histories of old routeways must have varied unpredictably and unsystematically, so that the topic, despite its difficulty, is best left to the local amateur. Yet the proper reconstruction and understanding of early landscapes demands that we develop working hypotheses about overland communication routes. As 'artefacts', long-distance routeways are 'strange'; our approach to them needs to be re-thought. We need to create a methodology, in which we formulate hypotheses about the likely nature of overland routeways, and the factors governing their life histories, archaeological characteristics, and longevity. In studying regional landscapes, we need to propose courses for early routeways, on a provisional basis, and keep them under permanent appraisal.

AM11 EARLY TRANSHUMANCE ON DARTMOOR

Andrew Fleming

INDEPENDENT RESEARCHER

In his book, *Dartmoor's Alluring Uplands* (Exeter University Press 2012) the late Harold Fox demonstrated that livestock were being brought to the hills of Dartmoor (Devon, south-west England) for summer grazing from a large surrounding area, as far back as written documents, place-names and the boundaries of property and administrative units can be effectively utilised - that is, the 10th century. This was 'impersonal' transhumance, livestock being looked after by people from moorside communities. There is no reason to suppose that the custom commended as late as the C10. This paper explores the *archaeology* of Dartmoor transhumance, especially the network of roads leading to Dartmoor, the location of livestock assembly-places and their role in the evolution of moor-edge settlements and temporary markets ('fairs').

AM1 WHERE MANY PATHS AND ERRANDS MEET: CULTURAL AND RELIGIOUS PERSPECTIVES ON BRONZE AGE LONG-DISTANCE INTERACTION AND TRADE NETWORKS

Magdalena Forsgren

INDEPENDENT SCHOLAR, MASTER OF ARTS

Since further evidence that metal was imported to Scandinavia in the Bronze Age has been presented, thoughts about what other source materials can be used as basis for discussions on long-range contacts arises. In the project *Towards a New Cosmology of Multiple Realities* I discuss, among other things, long-distance contacts by studying different types of source material. A fundamental idea is that long-distance trading contacts were not only a matter of objects' movements that affected economic systems, but furthermore a complex process in which cultural and religious ideas as also esoteric knowledge were conveyed. What interest me is how and why it is possible to stress similarities in cultural and religious ideas between geographically distinct regions, while there are obvious differences in social practice and cultural identities.

What has drawn attention so far in research are separate categories of material culture such as rock-art pictures, glass beads, house-urns or exotic prestige objects made of bronze. However, they are seldom discussed as part of the same exchange system. It seems difficult also to identify the transmission of cultural and religious ideas because several different categories of thing need to be addressed simultaneously.

This contribution focuses on the transmission of objects and knowledge of luxury craftsmanship that followed the transformation of ideas about a goddess of metal crafts and horses, as was previously suggested, through trade networks that stretched from the East to Scandinavia. The use of amber in various Mediterranean areas testifies, nonetheless, that not all phenomena originated in the East.

AM17 A MATERIAL APPROACH TO INTERPRETING LANDING PLACES IN THE BRISTOL CHANNEL

Alice Forward

ENGLISH HERITAGE

This paper will look at trade in the Bristol Channel with a focus on the material evidence from landing places. The Bristol Channel is a significant waterway in south West Britain. It acts as the major boundary between South Wales and South West England.

To date, research has typically been focused on the historical evidence for the level and extent of early post-medieval trade in the Bristol Channel. Meanwhile archaeological interpretations have predominantly been concerned with wider European networks through studies of imported pottery.

Unofficial markets and hidden trade – terms used by Chris Dyer (1994) in his study of networks associated with manorial centres – will be used here to understand the role landing places had within regional economic networks in South Wales. It will seek to expand our interpretation beyond urban centres and official markets and argue that smaller and more rural landing places were intrinsic to enabling the success of local, regional and European trade in the Bristol Channel area.

AM23 SOURCES AND DESTINATIONS: LOCATING ORES AND METALSMITHING TOOL HOARDS IN LATE BRONZE AGE BRITAIN

Elpidia Giovanna Fregni

INDEPENDENT RESEARCHER

All non-ferrous metal ores in Britain are found in the northern and western upland regions of Britain. However with the exception of a few individual hammers found in Cheshire and Lancashire, all the tools used for metalworking (e.g. hammers, moulds, and ingots) are found in Late Bronze Age hoards in the eastern and southern lowland regions of England. The tools that were deposited in these hoards are far from the sources of metal ores, indicating complex patterns of movement and an extensive exchange system to facilitate the transport of ore or refined metal from upland regions to the lowland regions of Britain. It could be the case that smiths in the lowlands would have been less familiar with processes of extracting and processing ore and developed different cultural views reflecting the exotic origins of the materials they used.

It would seem logical that the tools used in metalworking would be distributed evenly across the country, in the same way in which axes are found; instead they are limited to a defined region and only found in hoards. In addition, unlike axes and weapons, tools such as hammers tend to be found intact but with evidence of use such as burring. This treatment indicates that metalsmithing tools held a role in hoards that differed from other objects.

This paper explores how the distant location of raw materials and knowledge of metals could have influenced the structure of depositions containing metalsmithing tools in the lowland regions of Late Bronze Age Britain.

AM1 BETWEEN A ROCK AND A HARD PLACE: BRONZE AGE TECHNOLOGICAL SPECIALISATION THROUGH A DIFFERENT LENS

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Bronze production overshadows all of our discussions of technology and technological knowledge in the late third to first millennia BC. Lithic tools, in particular, were traditionally thought to have been rapidly replaced by this superior raw material. It was thought that the once sophisticated techniques of master flint knappers were first directed at the production of elaborate imitations of metal before being abandoned so that within a few centuries only ad hoc lithic technologies remained. Yet, copious research carried out over the last decade has made two points clear. First, metal was not rapidly adopted in Europe, but was experimented with for centuries, sporadically abandoned and only widely adopted within specific cultural and economic frameworks. Second, specialised production of lithic tools took a long time to disappear. This paper will look at specialised lithic production at the beginning and end of the Scandinavian Bronze Age in order to develop a more comprehensive understanding of craft specialisation and the transmission of technological knowledge. We will argue that the tight archaeological focus on bronze has led to a deeply myopic picture of Bronze Age technologies and value systems. Much archaeological research into craft specialisation emphasises the importance of exotic or valued products and powerful chiefs who control access to them, but specialisation is as much a social choice as an economic outcome and occurred on many levels and within many different socio-political contexts.

AM13 MAKING JOURNEYS: BRONZE AGE WAYFARING AND THE MONUMENTALISED LANDSCAPE

Catherine Frieman

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The idea of the journey is central to many narratives of European Bronze Age social structure, economy and cosmology, but the mechanics of journeying in the Bronze Age are rarely discussed. We know that objects and raw materials travelled great distances, we think that exotic things and ideas were sought after, and it appears that Bronze Age people maintained ties with kin and trading partners over very great distances. Much of this distance was inevitably traversed on water; and riverine distribution maps and scarce finds of boats and maritime assemblages have been scrutinised for details about the intensity and directionality of Bronze Age trade and transport. Overland routes are much less frequently encountered or discussed. Bronze Age monuments are often seen as existing outside settled landscapes, but hypothesised 'barrow roads' in some areas, imply that monuments were not so much placed outside settled places as they were located between them and along the way. This paper will use the idea of barrow roads to consider overland wayfaring in the Bronze Age, a period when some people may have traversed continents while others inevitably walked the same paths season after season, watching out for landmarks and following their sheep.

AM18 ROMAN ROADS IN HELVETIAN LANDSCAPES

Michel E. Fuchs

UNIVERSITÉ DE LAUSANNE

The recent excavations brought to light several sections of Roman roads between pass of the Grand Saint-Bernard and the Swiss Plateau. The confrontation with the already known ways and the old maps as with the later roads allows to wonder about the densification of the traffic in the Roman time, about the choice of route and ways, about the inscription long-lasting or renewed by a road plan in the antique landscape. The indications are lacking to speak about Celtic roads, in the notorious exception of bridges and obliged passages. The transshipment by water must be also taken into account and involves port facilities and arrangements of banks which are going to continue or not a long tradition. It is a question from then on of wondering about the novelty of the façade effect so expensive to Roman and of its impact on the landscaped frame of the communication routes between the Alps and Jura.

AM2 SAHARAN MOBILITY AND ITS CHANGING ROLE IN THE ARCHAEOLOGICAL RESEARCH

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Mobility is a key theme in Saharan archaeology. Ranging from early human dispersal, to the spread of 'Neolithic', up to the historical age trade, Saharan regions have been crossed throughout the ages by people, artifacts, and ideas at a uniquely large scale. In this area, the archaeological research has evolved through time, but the climatic and environmental variability has played a major role in approaching past Saharan mobility. Yet, human responses to climatic change might have not been linear, and the adoption of more nuanced approaches to the study of past mobility may pave the way to 'alternative'- or simply more refined - reconstructions of cultural trajectories. The use of the concept of resilience in archaeological interpretation has been, for instance, rarely used in Saharan archaeology. Similarly, a body of still underexploited practices such as community archaeology and 'post-colonial archaeology', points to different narratives of mobility yet to be explored.

Nowadays, the Sahara is still the scenario of mobility made of migrants, refugees, traders, and nomads. On the other hand, Saharan archaeology risks to be immobilised, due to the current political conditions. In this paper, we wish to draw attention on old and new perspectives on the study of Saharan mobility, from the colonial age to the 'post-s' era. We seek to highlight correspondences and inconsistencies in the past and present conceptualizations of mobility, with the aim of discussing feasible developments of Saharan archaeology in this turbulent age.

AM9 ROADS, NARRATIVE MOVEMENTS, AND COMMUNITIES: LINKING SETTLEMENTS DURING THE ROMAN PERIOD IN SOUTHWEST ENGLAND

Lara Ghisleni

UNIVERSITY OF WISCONSIN-MILWAUKEE

The configuration of the landscape entangles the movements and ideologies that generate and transform the social world. Places are more than what their boundaries enclose—places and their salience are constituted through the journeys that connect them in larger networks of relations. This paper explores the construction of narrative movements along roads during the Roman period in southwest England (43–410 CE). Research on the transition to the Roman period in Britain has moved beyond identifying static categories of architectural forms to interrogating the dynamics of practices continually negotiated at multiple scales. Rather than reducing material infrastructure—such as forts, towns, and roads—to symptoms of uniform imperial imposition, a focus on practice entails exploring the patterns of movements that linked people and material culture across a multiscalar landscape. This paper will present a least cost path analysis to evaluate the roads linking the town of *Durnovaria* (Dorchester) in Dorset to surrounding towns and cultural features in southwest England. By using GIS modeling techniques to explore potential narratives, the aim is to understand how patterns of inter-site connectivity during the Roman period implicated the formation and transformation of communities, local and regional.

AM13 BLURRING BOUNDARIES AND CELEBRATING TRANSIENCE: A MOVEMENT TOWARDS ARCHAEOLOGIES OF IN-BETWEENNESS

Catriona Gibson¹, Adrian Chadwick²

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Archaeology still has considerable problems defining the dynamic entities usually referred to as 'sites' or 'objects' (material culture, monuments or settlements). Developments in fields as diverse as quantum physics, chaos theory, landscape studies and assemblage theory all suggest that our notions of stability and boundedness may be misleading. Archaeologies of place often continue to portray settlements as a series of nodal linked points, with typological approaches classifying features or objects into discrete bounded entities, ignoring areas and connectivities in between. This is exacerbated when we take distribution maps and GIS data sets at face value – as static plots of dots – rather than exploring the complex, dynamic and fluid entities that they underpin. Fine-tuning the scales of analysis employed when tracing past movement is also necessary, as

research tends to focus on the distinctively local or the distinctively foreign, or the beginnings and ends of journeys. Further challenges arise when considering the intermittent, seasonal or cyclical movements of people, animals, things and ideas, and their imbricated temporalities, tempos and rhythms. These were moving across hitherto archaeologically invisible contextual and cultural boundaries, and it was here that some of the most dynamic, progenerative encounters and interactions would have taken place.

In this paper, we seek to highlight continuing problems with investigating scales of movement within archaeology, and through selected case-studies, we will show the potential of exploring some of these ambiguous spaces, transient traces and heterogeneous places – the in-between, the fuzzy, and the unbounded.

AM6 HISTORY OF MOUNTAIN PASTURES IN THE FRENCH ALPS: A NEW INSIGHT PROVIDED BY LAKE SEDIMENT DNA

Charline Giguet-Covex¹, Laurent Fouinat², Ludovic Gielly³, Isabelle Jouffroi-Bapicot⁴, Kevin Walsh⁵, Florence Mocchi⁶

¹YORK UNIVERSITY, ²EDYTEM, ³LECA, ⁴CHRONOENVIRONNEMENT, ⁵UNIVERSITY OF YORK, ⁶CENTRE CAMILLE JULIAN

In Alps, mountain peoples showed vertical mobility to develop subalpine pasturing activities since the Bronze Age and maybe earlier (Neolithic). The history of these activities is still not known in details. To address this issue we mainly use a booming tool, the DNA *metabarcoding* applied to lake sediments. Three lakes distributed across the French Alps were selected in order to compare livestock practices and histories in territories with different climate/environmental conditions and socio-economic contexts: Anterne (North), La Muzelle (Central) and Lauzanier (South).

During the last 1500 years, results suggest pastoral activities appear around 850, 1000 and 1350 AD at Lauzanier, Anterne and La Muzelle, respectively. At Anterne, the herd was then composed of sheep and cows. From 1000 to 1200 AD, a decrease/abandonment of the activity is recorded. Activity set off later again, but only with cow, which might suggest a development of the milk/cheese trade. At La Muzelle and Anterne, a concomitant abandonment is recorded between about 1550 and 1750 AD, maybe due to the degradation of climatic conditions. There is a renewed increase in activity between 1750 AD and today at La Muzelle and until 1800 AD at Anterne. At Lauzanier, activity remained important until 1400 AD and then decreased. A stronger decrease occurred around 1970 AD.

The different histories recorded are probably firstly explained by the different socio-economic contexts. However, harsher climatic conditions, especially in the northern part of the French Alps, could have also affected the livestock farming practices (abandonment of mountain pastures).

AM15 ON THE ORIGIN OF PHOENICIAN TRANSPORT JARS AT IRON AGE KOMMOS, CRETE: A DIACHRONIC VIEW

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Excavations at Kommos in Crete by Joseph W. Shaw have uncovered a very large assemblage of Iron Age Levantine transport jars, commonly assumed to be Phoenician, to date as early as the 10th century BC and therefore to exemplify commercial ventures by 'early' Phoenicians. The origin of the jars, however, has never been demonstrated by fabric analysis. New chemical and mineralogical analyses show that most of these containers were indeed produced in Phoenicia, specifically in southern Lebanon. Analysis of their find-contexts, however, indicates that they should mostly be dated to the late 9th and 8th centuries BC. Comparing the Kommos results to other cases in which specific production centers of Levantine jars overseas were defined by fabric analysis enables us to chart fluctuations in the involvement of specific Levantine coastal polities in maritime exchange across the Late Bronze/Iron Age transition and into the Iron Age.

AM13 MARKETS, FAIRS AND KHANS: MESH-WORKING IN OTTOMAN CYPRUS

Michael Given

UNIVERSITY OF GLASGOW

Routine activities provide an excellent way of transcending the dots on maps that constitute so much landscape archaeology: cultivating, gathering and hunting; commuting to the fields or the water source. Similarly, the pilgrim's heightened awareness highlights the experience of being in the landscape, rather than just arriving at the destination.

Yet routine, daily activities so easily reinforce the notion of the isolated, tradition-bound peasant, trapped by these duties into a unchanging and circumscribed daily round. Similarly, focusing on the once-in-a-lifetime pilgrimage emphasises ritual and extraordinary experiences which take place outside time and society. Inbetween these two extremes, and inbetween the dots of the archaeological distribution map, lies a whole range of periodic movements and temporary communities that make up the meshwork of the lived-in landscape.

Thanks to the richness of archaeological, documentary and oral historical sources, this is particularly clear in the case of Ottoman Cyprus (1571–1878). A mobile and informed free peasantry engaged actively in a range of local and regional markets, both in towns and at the religious fairs that extended across both the island and the agricultural and sacred calendar.

Monumental khans or caravanserais on the main routes and in the main market towns housed constantly changing communities, deeply engaged in the exchange of produce, things and information. Travelling craft workers and pedlars added material connections across this landscape of mobility and interaction.

The landscape of Ottoman Cyprus was continually being created by people, plants, animals, environment, foodstuffs and materials, all mesh-working together.

AM1 THE LIFE AND DEATH OF SOAPSTONE IN THE NORTH EUROPEAN BRONZE AGE

Joakim Goldhahn

SCHOOL OF CULTURAL SCIENCES

Bronze metalwork is a complicated handicraft that involves mastering several distinct materialities, technologies and natural forces, such as fire, mining, the production of pottery and clay, beekeeping and beeswax, and so on. Moreover, it is difficult to escape the additional requirement of certain aesthetic talent to create luring bronze objects that still capture our wonder and awe. My presentation will focus on one of the materialities that were an explicit prerequisite for bronze metalwork in the Northern Europe during the Bronze Age – soapstone. The soapstone will be viewed from a cultural biographical perspective, from the “cradle”, where it was mined or “born”, to the “grave”, e.g. places where it “died” and was deposited, or “buried”. I will also present some thoughts on how soapstone was traded as well as how it was in use at places where soapstone moulds transformed different materials into new entities, and identities.

Keywords: Soapstone, metalwork, trade, rock art, burial, network, death and burial, animated object, memory practice

AM16 FROM THE HUB TO THE WHEEL’S RIM. THE ADOPTION OF POTTER’S WHEEL IN THE SOUTH-WESTERN BALKANS

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Wheelmade pottery appears together with gray burnished ware in the Peloponnese at the end of Early Helladic II and spreads during Early Helladic III. These phenomena, although limited to the Peloponnese, central Greece and the Cyclades, as a consequence of East Aegean influence, are closely intertwined to the diffusion in continental Balkans of the s.c. Belotić–Bela Crkva tankard and cup types and the distribution of proto-Cetina and, later, of Cetina elements along the Adriatic and western Aegean coasts. The availability of a new technology does not imply that it is adopted. On the contrary, the adoption of a new technology implies its “translation” and integration into the cultural system of the recipient community. In the south-western Balkans the introduction of the potter’s wheel, indeed, occurred only several centuries later, in the Iron Age, although there is some local wheelmade production of specific imitated pottery types in Central Macedonia already in the Late Bronze Age.

Starting from selected archaeological contexts this paper will explore the introduction of the potter’s wheel in the south-western Balkans and the reasons for its late appearance. In particular, the question of the conceptualisation of the diffusion mechanisms of technological innovations and the explanation of the transmission of knowledge, the learning networks and the identity of people performing technology will be dealt with, in order to understand the mechanisms of cultural change in prehistoric societies.

AM4 MEDIATING WITH THE CRUISE LINER INDUSTRY

Margaret Gowen

EAA BOARD MEMBER (TREASURER)

Many national and regional heritage and tourism agencies face issues with the management of increasing cruise liner mass tourism, especially at World Heritage sites and cities.

The question that requires exploration is why national and regional agencies have either failed, or have a fear of engaging with the industry and making some very necessary practical demands on the industry generally and on individual operators.

The dilemma articulated at a national level (founded on a failure to encourage operators into much needed dialogue) is a fear that if demands are made of industry operators, it could result in loss much needed tourism revenue. However, with increasing attrition on sites visited, it is surely time to mediate for some direct return to the sites themselves and their management.

Insufficient analysis has been applied to cruise liner industry’s consumption, its profitability, its impacts on sites visited (especially if the visit are not timed) and the often negligible, direct financial return a site’s conservation and management. In addition, visits can be so short that there is no tangible or direct contribution to the local economy in which sites are located, apart from the hurried purchase of crafts and souvenirs.

It is a highly profitable business that is in buoyant growth. In an increasingly global business environment, the discussion might explore how mediation for heritage sites and their day-to-day management be best achieved at a tourism policy level and with the cruise line industry and by what agencies.

AM10 INTRODUCTION TO THE SESSION: GLOBAL MARKETS AND LOCAL MANUFACTURING: WOOL PRODUCTION AND TRADE

Idoia Grau Sologestoa¹, Chiara Corbino², Alessandro Quercia³

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The production and trade of wool and the commercialization of manufactured textiles constituted key economic aspects for many areas of Europe in different historical periods. However, while economic history studies show how important this topic has been in Europe, the potential contribution of archaeology has not been yet fully used. Interdisciplinary archaeological research looking at the technology and trading networks of wool craft in their social, economic and political contexts is still overdue.

The aim of this presentation is to establish some common ground for the topics that will be discussed during the session, as well as to mention the reasons why we thought that dedicating one session to this topic is of key importance. In this talk, the organisers of the session will provide a brief introduction in order to contextualize the presentations that will follow.

AM11 LARGE-SCALE OVINE HORIZONTAL TRANSHUMANCE IN SPAIN: ITS MODERN SOCIAL SIGNIFICANCE AND ITS ROLE IN THE ARCHAEOLOGICAL RESEARCH AGENDA

Idoia Grau Sologestoa

UNIVERSITY OF SHEFFIELD - UNIVERSITY OF THE BASQUE COUNTRY

Horizontal transhumance, as opposed to the vertical transhumance, is the seasonal movement of livestock to different latitudes, often implying travelling for very long distances. Such practice had a central role in the late medieval and early modern economy in Spain. In 1273, Alfonso the 10th, king of Castile, created the *Mesta*, an association that gathered together sheep owners, mainly secular and ecclesiastic aristocracies. Once per year, shepherds used to move thousands of sheep from the south of the Iberian Peninsula to the north, where they sold the wool that was exported to northern Europe. The association officially ended in 1836, but a number of horizontal transhumant shepherds still remain active nowadays in Spain.

The social, economic and political meaning of the *Mesta* has traditionally been one of the main research topics discussed by historians and geographers in Spain, but archaeological research about it is almost non-existent. In this paper, the reasons for this lack of archaeological approaches to large-scale transhumance will be discussed. The absence of archaeological research on this topic is particularly striking considering the important place of transhumance in the Spanish legislation, as well as in the policies for heritage protection and community engagement.

AM9 ROADS AND TRACKS IN ARCHAEOLOGICAL RESEARCH: AN OVERVIEW AND SOME CRITICAL COMMENTS

Torgim S Guttormsen

NORWEGIAN INSTITUTE FOR CULTURAL HERITAGE RESEARCH

This paper examines aspects of what characterises Scandinavian archaeological research on roads and tracks. The emphasis will be to draw the main lines of what characterises the research field by examining what is the subject of research, who is involved, and how the archaeological / historical knowledge is interpreted and used. The material culture of overland travel has, from a disciplinary perspective, been a marginal topic for archaeologists compared with how interpretations of for instance ships, graves, and settlement patterns are examined. I argue that this is the case because the study of roads and tracks constitute research that has its center of gravity on the edge of disciplines. The study appears thereof in a dynamic contact zone where several subjects meet for dialogue and understanding. In the literature, the research field is characterized as a multidisciplinary, interdisciplinary, or post-disciplinary field of study. This provides some interesting perspectives and challenges when it comes to defining archaeological knowledge, and not least to understand how archaeological knowledge is part of a larger world where it may be more correct to speak of knowledge genres rather than disciplinary frameworks.

AM6 VERTICAL MOBILITY IN THE SWISS ALPS. THE ALPINE PASS SCHNIDEJOCH AND INDICATIONS OF EARLY PASTORALISM.

Albert Hafner, Christoph Schörer

UNIVERSITY OF BERN

Since 2003 a melting ice field on the Schnidejoch pass (2756 a.s.l.) delivered several hundred objects from the Neolithic, the Bronze and Iron Age as well as from Roman and Early Medieval times. The oldest finds date to the beginning 5th millennium BC, the youngest ones date around 1000 AD. Most of the objects stem from the Neolithic and the Bronze Age and are of organic origin. A series of more than 70 radiocarbon dates confirms that the Schnidejoch pass, linking the Bernese Highlands with the River Rhone valley, was in use at least from 4800–4500 BC on. The accessibility of the pass was easy when the glaciers descending from the nearby Wildhorn mountain range (peak on 3248 a.s.l.) were in a retreating phase. In contrary glacier advances closed the way to the pass. In 2010 a palaeoecological study of sediment cores researched nearby Lake Iffig (2065 m a.s.l.). The results show clear indications of early human impact in this alpine area. Linking archaeological finds from Schnidejoch pass and River Rhone valley with the palaeoecological data can be interpreted as early indications of alpine

pastoralism and transhumance. The combined archaeological and paleoecological research allows to explain vertical mobility in the Swiss Alps.

AM5 CHOICE AND CONSTRAINT: SMITHS AND THE TRANSMISSION OF IDEAS IN THE FIRST MILLENNIUM AD

Susanne Hakenbeck

SUSANNE HAKENBECK

Early medieval brooches have historically been analysed with the aim to determine the ethnicity of the person buried with them. They were perceived as 'identity cards' that enable us to distinguish members of different ethnic groups. The assumption was that brooches were chosen according to rigid notions of ethnic costume, worn throughout a woman's life and then placed in the grave as they were worn in life. This focus on the 'end-user' presents a static picture of brooch use, where choices of manufacture and use were policed by the wider ethnic group. It has also resulted in a view of early medieval societies as divided by metalwork typologies.

Yet, metalwork also helped to unite societies shaped by the common experience of the end of Roman authority and the emergence of new polities. The variability of brooch types and their distributions suggest complex networks across which manufacturing techniques and styles were transmitted and choices about their use were made. In this paper, I examine the varied evidence for choice and constraint within these networks of people and things, focusing in particular on the role of the non-ferrous metal smiths. Recent work on early medieval craft-production has attempted to clarify the relationship between craft-workers and the emerging nobility. I argue that elite workshops and itinerant smiths both played a distinct but complementary role in communicating ideas about identity, status and authority. Shared metal-work was an expression of a shared world view, and smiths played a central role in its transmission.

AM23 DIFFERENTIAL DEPOSITION PATTERNS AND RAW MATERIAL VARIATION AS EVIDENCE FOR MOBILITY PATTERNS ACROSS SPACE AND THROUGH TIME IN NORTH WEST SCOTLAND

Karen Hardy

ICREA AT UNIVERSITAT AUTÒNOMA DE BARCELONA

Many of the abundant rockshelters on Scotland's west coast contain evidence of past human presence, often in the form of shell midden deposits mixed with artefactual remains. Taken together these cover the period of time from the Mesolithic to the 19th century. Using a combination of radiocarbon-dated evidence and physical remains, we explore how the nature of the shell deposits, the material contained within them and their patterns of accumulation can contribute to an understanding of variability in mobility patterns and use of coastal resources, at different times in the past. Additionally, the movement of raw materials can demonstrate connections between places. We have used this raw material variability to investigate small scale mobility, as well as broader regional mobility, across our study region for earlier periods.

AM14 LONG-TERM COMPARATIVE ISLAND ECODYNAMICS IN THE NORTH ATLANTIC: SIMILAR BEGINNINGS – DIFFERENT OUTCOMES?

Ramona Harrison¹, Thomas H. McGovern², George Hambrecht², Andrew J. Dugmore², Orri Vesteinsson², Konrad Smiarowski², Aaron Kendall², Seth Brewington², Megan Hicks², Frank Feeley², Ian Simpson², Richard Streeter²
¹CITY UNIVERSITY OF NEW YORK - HUNTER COLLEGE, ²

This paper discusses results of a long-term multi-national, and multi-disciplinary investigation carried out by the North Atlantic Biocultural Organization (NABO) collaborative. Funded by a three-year US NSF Comparative Island Ecodynamics (CIE) grant, our research program improves scientific understanding of the complex interactions of human governance, climate change, human environmental impact, and world system effects on the diverging fates of two closely related Scandinavian communities in Greenland and Iceland.

Icelanders survived centuries of adverse climate, volcanic eruptions, large scale soil erosion, epidemic disease, and harsh world-system economic impacts to develop a modern society now ranking high in international assessments of quality of life. On the other hand, their relatives in Norse Greenland suffered complete extinction by the mid-15th century CE. Why did one northern community achieve sustainability on the millennial scale, while its near neighbor underwent genuine social-environmental system (SES) collapse despite centuries of successful adaptation and what we now recognize as comparatively resilient economic management. Archaeological case studies initiated and funded through this research program serve to demonstrate the application of our joint research approach and to address some of the main questions emerging from more than 20 years of Atlantic Isles research conducted by NABO. This presentation summarizes some of the major findings of this international project and outlines ongoing research progress.

AM15 SEABORNE MARITIME TRANSPORT CONTAINERS FROM THE BEGINNING: TRANSPORT STIRRUP JARS

Halford Haskell

SOUTHWESTERN UNIVERSITY

Transport stirrup jars are markers of specialized, long range, systematic seaborne bulk commodity movement. Recently completed and ongoing analytical studies of transport stirrup jars and of analogous Cretan, Egyptian, and Canaanite amphorae enable fresh assessments of their use and movement by sea. Destined from the beginning for overseas shipment, transport stirrup jars were exported from Crete immediately upon their invention in Middle Minoan III. More difficult to construct than the ubiquitous oval-mouthed amphora, the form itself evidently indicates value-added status, intriguing early recipients at sites such as Akrotiri to imitate the Minoan original (with various degrees of success). It's popularity and distribution were greatest in Aegean Late Bronze IIIA-B, and comprised part of the cargoes of the Gelidonya, Uluburun, and Iria shipwrecks. A specialty of LB III west and central Crete, pieces were shipped from Crete not only to sites in the Aegean but also Sardinia and Sicily in the west and Cyprus and the Levant in the east.

AM8 METAL, SALT, AND HORSE SKULLS: ELITE-LEVEL EXCHANGE AND HUMAN MOVEMENT IN PREHISTORIC SOUTHWEST CHINA

Anke Hein

LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

Being a high-altitude plateau surrounded by towering mountains of the Henglangshan, the Yanyuan Depression in Southwest Sichuan is rather remote and not easily accessible even with modern-day transportation. Nevertheless, since the 1980s peasant finds, followed up by excavations have revealed astonishing numbers of highly decorated bronze weapons, as well as personal ornaments, drums, bells, and intricate objects of unclear function depicting birds and wild beasts as well as humans, all executed in high-quality craftsmanship. Many of these objects exhibit strong resemblances not only with neighboring regions of Yunnan, and areas further north such as northern Sichuan, but also places as far away as the Ordos Region, Central Asia, and possibly even the Near East. This paper aims at exploring the multiple avenues of possible influences and contacts reflected in the material record of Yanyuan, highlighting not only directions and routes of cultural exchange but also local idiosyncrasies and geographic preconditions that shaped the unique archaeological assemblage of the area.

AM13 ITINERARIES OF POTTERY: A MIXED METHODS APPROACH TO MOBILITY

Caroline Heitz, Regine Stapfer

UNIVERSITY OF BERN, INSTITUTE OF ARCHAEOLOGY

Neolithic wetland sites in the Swiss Plateau provide an extraordinary database for the study of mobilities, entanglements and transformations in material culture. Based on dendrochronologically dated settlements between 3900 and 3500 BC, two regional pottery styles and their local variations are well known, *Pfyn* and *Cortailod*. The vessels share the same habitus and were made of local raw materials. However, some vessels specific to other pottery styles are also present in the sites. By focusing on itineraries of vessels and shifts in pottery knowledge, their appropriation in different contexts and the resulting material entanglements, we want to approach the multiple regimes of mobility: At Lake Constance - known for *Pfyn* pottery - specific *Michelsberg* vessels like tulip beakers and lugged jars occur in small numbers. These travelling objects were produced with exogenous raw materials and transported to the sites from Southern Germany. At Concise (Lake Neuchâtel) besides the local *Cortailod* pottery the whole repertoire of *NMB* pottery, characteristic for Eastern France, was also produced. Further cases from the same space-time frame point to other regimes of mobility. In our two PhD-projects we compare pottery practices - styles, techniques, raw materials - from over 20 key sites in the region. Based on Bourdieu's reflexive anthropology, we apply different qualitative and quantitative archaeological and archaeometrical methods, thus striving for a deeper understanding of habitus and the transformative potential of moving people, objects and ideas on local and regional scales and related social contexts.

AM7 WAR, COLD WAR, FORCED DISPLACEMENT AND THE AMBIGUITY OF LANDSCAPE: A CASE FROM THE COUNTY OF TROMS, NORWAY.

Anders Hesjedal

TROMS COUNTY COUNCIL

The county of Troms were central to the Germans withdrawing from Finland and the northwestern part of USSR into the northern part of Norway in 1944. 220 000 German soldiers and an unknown number of Soviet POWs withdrew and established a land defense line against the Soviet army. The *Lyngen linje*, with ca. 550 defensive postures, was constructed by POWs mainly from USSR, at very high costs.

Leaving for the *Lyngen linje* the Germans used the scorched earth tactics, destroying most of the infrastructure in northern Finland and northernmost part of Norway. A number of 175 000 civilians were forced to leave their homes.

After the war people went back starting rebuilding their homes. In the north, the collective experience and memory from the evacuation is still a vivid memory. This however, is under communicated in the "official" Norwegian war history, reinforced by the fact that the government, in a possible conflict with Soviet during the cold war, planned to give up the northernmost part of Norway and evacuate the population, a copy of the German plans from the end of WW2.

This landscape is a palimpsest of traces from occupation, terror and war crimes during WW2, and from the military rearmament during the cold war period. This gives the landscape and the material remains an ambiguous status of meaning, opposing the more "official" Norwegian war and cold war history.

AM16 ROUND AND ROUND IT GOES (OR EVOLUTION OF THE REVOLUTION IN CERAMIC PRODUCTION): THE POTTER'S WHEEL IN THE ANCIENT MEDITERRANEAN

Jill Hilditch¹, Maja Gori¹, Marco Betelli²

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This paper presents a brief overview of major developments within the study of the potter's wheel in the ancient Mediterranean, to contextualise and provide a common foundation from which to consider the Mediterranean-wide case studies of this session. Despite forming a coherent thread within early technology and ceramic studies, specific methodologies for investigating the appearance and development of the wheel were diffuse and incoherent. Early approaches considered the arrival of the wheel as inherently bound up with mass production strategies leading to increasingly standardised material outputs, and used ethnographic studies to bolster the relationship between production organisation, labour investment and skill. Within these models, however, the social contexts in which these new wheel techniques were learned, transmitted and reproduced were largely ignored. The recent rise of ethnoarchaeology, in combination with the adoption of systematic experimental techniques for investigating ancient technologies, has reinvigorated the study of the potter's wheel, turning it from a primarily economic technological adaptation into a dynamic choice that embodies the social, ideological and material interactions of ancient potters AND consumers.

AM14 ANIMALS AND BELIEF IN THE NORSE NORTH ATLANTIC

Lara Hogg

CARDIFF UNIVERSITY

In the North Atlantic prior to conversion of Christianity, around the 11th century, there existed belief systems that can be seen from a modern perspective as a 'non-doctrinal community religion'. These pre-Christian beliefs were fluid and permeated everyday life and so were not only visible through specific symbolic rituals. These beliefs were subjective and impalpable yet reveal much about social identity and society.

There have been some significant studies into pre-Christian beliefs in Norse society but these have often been concerned with mainland Scandinavia. Although the Norse North Atlantic shares many similarities with the Scandinavian region is also very, and significantly, different.

Studying belief has the potential to reveal much about past societies as it provides information on thought, perception and understanding. Animals were key to pre-Christian beliefs and they were crucial in mediating human connections with the spiritual world. Shape shifting, obtaining animal characteristics or working alongside animals were viewed as extremely important and powerful within this belief system. By examining the relationships between humans and animals our understanding of pre-Christian North Atlantic beliefs will significantly increase. Furthermore as belief was very much integrated into Norse society studying human-animal relationships in relation to belief will reveal significant information concerning worldviews and social identity.

This paper will examine animals and belief to better understand social identities and society on the islands of the Norse North Atlantic. Given the ambiguous nature of pre-Christian belief it will draw upon evidence from a variety of sources to consider alongside the archaeological evidence.

AM9 PREHISTORIC HIGHWAYS; RIVERS AS ROADS IN PREHISTORIC LINCOLNSHIRE AND EAST ANGLIA

Floor Huisman

DURHAM UNIVERSITY

When we study roads in the prehistoric past, we have to study rivers. In many prehistoric landscapes, major rivers and their tributaries probably acted as roads. Rather than studying them as passive natural features, we need to look upon them as active agents, which connected people, places and different elements within the natural and cultural landscape at various spatial scales. In this paper I aim to explore the role of rivers as roads and demonstrate how this approach may help us transcend scales whilst providing interesting insights into past life.

As corridors for local, regional and interregional mobility, rivers allow us to examine both inter-site connections and off-site spaces within the landscape. Thus we can move beyond the local scale and place individual sites (the traditional dots on a map) in a wider context, whilst answering questions about past trade and exchange, communication, landscape perceptions, identities and social relations. People, objects and ideas travelled along rivers and connected communities at a(n) (inter-)regional scale. By studying rivers' relation to different cultural and natural features along their course we can gain insights into people's perception of the landscape. Past identities and social relations may be theorised by considering the riverine journeys people undertook. These and other themes will be explored by considering how some of the major rivers flowing into the Wash

on England's east coast were used through time, with a focus on the Bronze and Iron Ages, when we have ample evidence for the importance of rivers as communication routes.

AM13 MOVING BEYOND SITES; (INTER-)REGIONAL MOBILITY AND SOCIAL RECONSTRUCTION IN THE PREHISTORIC FENS

Floor Huisman

DURHAM UNIVERSITY

Social relations in the prehistoric Fenlands in England have been studied mainly at the level of the individual site. Although it is recognised that people had connections beyond this local level, social models are often descriptive and simplistic. They do not consider *how* social relations were actively constructed, maintained and negotiated through people's interactions with material culture, animals, the landscape and each other at different, interconnected spatial levels. This issue can be addressed by studying movement at various spatial scales. It is through such movement that people, places and objects are linked whilst the act of movement, the journey itself, also provides many opportunities for interactions between different agents.

In this paper, these interrelations will be examined at different scales within and beyond the Fenlands, ranging from the household to the (inter-)regional level. I will explore how we may study patterns of movement at these various scales and consider how different identities and social relations are constructed and maintained through these. I will pay particular attention to the understudied middle-range mobility, which will be examined by considering the major rivers flowing into the Fens as corridors for (inter-)regional mobility. This allows us to study inter-site connections and off-site spaces within the landscape. Patterns of mobility through time will be considered and I will examine how repeated movement into the Fens allowed communities to 'come into the land' (Evans and Hodder 2006), as people acquired the skills and knowledge permitting them to settle and thrive in this dynamic wetland environment.

AM9 TWO SECTIONS OF THE MEDIEVAL WATER AND OVERLAND ROUTE ON THE VOLGA-BALTIC WATERSHED

Inna Islanova

INSTITUTE OF ARCHAEOLOGY RAS

The first information about the settlement Vyshny Volochok located between Novgorod and Moscow at the beginning of the transition from Tsna river (Baltic water system) to Tvertsa river (Volga water system) is related to the 15th century. Western travelers stayed here many times in the 15th – 16th centuries. Vyshny Volochok was mapped at that same time.

Historians and archaeologists believe that in this place was the ancient portage – one of the major transitions in the 9th – 10th centuries on the Volga-Baltic Way. However, archaeological materials suggest that in the second half of the I – the beginning of the II millennium AD the main transition area located southwest and had no direction at Tvertsa, but had the direction at its tributary – the river Shegra. The basis for this assertion is the concentration of settlements and cemeteries on Shegra and a small number of such objects in the upper reaches of the river Tvertsa.

There was administrative and commercial center on the river Shegra, near the modern village Shitovichi, in the 10th – 12th centuries. Arabian and Western European coins of the 10th – 12th centuries, weights, and seals of Novgorodian princes of the 12th century were found during excavations. Settlement Shitovichi is mentioned in the birch-bark scrolls found in Novgorod in the layer of the end of the 11th century. The transition area on the river Tvertsa near the settlement Vyshny Volochok undoubtedly existed, but in the early Middle Ages it was an afterthought.

AM20 ROMAN AND PRE ROMAN LONG DISTANCE ROADS : FROM EXCAVATION TO ROAD NETWORKS

RESTITUTION

Bruant Jean

INSTITUT NATIONAL DE RECHERCHES ARCHÉOLOGIQUES PRÉVENTIVES

The excavation of the Orleans-Paris ancient road highlighted the revelation of a Gaulish sunken track on which a roman road was built. Used until the Modern period, this roadway makes it a textbook case.

Apart from the excavated parcel, the correspondence between the former Orleans-Paris path mentioned in ancient cartography and the demarcation of the roman road was established by observing the ghost remnants of leaguestones which marked out the way. On maps, it consists in observing remarkable points (crossroads, ecclesiastic and administrative boundaries, religious buildings, land parcel elements) corresponding to the resurgence of leaguestones punctuated by the gallo roman league (1.5 mile / 2222 m). This phenomenon comes from the fact that the milestones played, even once they disappeared, an attractive spot location (topographic remanence).

The analysis also revealed more ancient survey traces which certify a late latenian period use of the road and the existence of a 2535 m league. This work has shown a coincidence between the origin and the arrival landmarks of the route traced (gaulish and gallo-roman) in Orleans as well as in Paris. By widening the study area, the same metric has once more been observed, revealing the existence of a common measure unit on the territories of Carnute, Parisii and Senon peoples. Surrounding

Chartres (*Carnutes' oppidum*), a circular ditch being used as pomerium was identified as being the starting point of the surveyed roads with the given metrics.

AM9 WHAT CAUSED LINEAR ALIGNMENT OF NEOLITHIC BURIAL MONUMENTS ON THE JUTLAND PENINSULA?

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In this paper we describe, compare and analyse alignments of various types of Neolithic burial monuments in the northwestern part of the Jutland Peninsula. We focus in particular on 1) the long barrows of the early and middle Funnel Beaker period, including those with wooden chambers as well as those with megalithic chambers, and 2) the stone heap graves of the late Funnel Beaker period. Discussing these we also include relationships and comparisons to a number of other Neolithic monuments, contemporary as well as later. We provide a number of examples of the situation of these two types of monuments in the landscape and discuss the extent to which it is possible to identify general patterns of orientation and alignment for them. Here we discuss various factors that potentially limit the representativity of the current record. We then compare our findings for the long barrows and for the stone heap graves, and this leads to our discussion of what caused the observed patterns and of the roles linear alignment is likely to have played in these respective cases. Why do we see this theme in the 4th and 3rd millennium burial record of this region, and which consequences did these monumental alignments have, short-term and long-term?

AM9 THE WAY TO THE HILLS: MOVING FROM FARM TO COMMON WITHOUT TREADING ON OTHERS' TOES

Andrew Johnson

MANX NATIONAL HERITAGE

The Isle of Man is a small island of 580 square kilometres which boasts the remains of more than 50 medieval seasonal settlements in upland locations. Most are just a few kilometres from the home farms from which their occupants would have decamped each summer to take animals to graze on the upland common. The uplands comprise about a quarter of the island's area, and were a significant common asset which was exploited from at least the medieval period onwards, providing pasture, peat (for fuel) and quarried stone.

Despite the short absolute distances involved, the creation of routeways along which animals could be moved appears to have played a major part in the formation of the modern landscape, particularly in the delineation of traditional landholdings through or past which livestock had to be moved without damaging crops. Effective boundaries were a preoccupation for Manx lawmakers from at least the early 15th century onwards, and the legal requirement for massive stockproof boundaries between which animals were historically herded towards the common has left a major mark on the local landscape.

By combining evidence from historical maps, surviving public rights of way, field observation and map-regression techniques, a picture is emerging of a network of historical trackways leading from farm to upland. The process is allowing separate identification of routes created for both peat extraction and more recent 19th century quarrying and mining, while incidentally demonstrating significant variation from the modern road system designed to move people and goods between lowland settlements.

AM7 WHERE HAVE ALL THE HUTS GONE? FINDING KNOCKALOE INTERNMENT CAMP

Andrew Johnson

MANX NATIONAL HERITAGE

The internment of foreign civilians – 'enemy aliens' – was a substantial issue for Britain at the outbreak of the First World War in 1914. Approximately 60,000 men from the Central Powers were present in the British Isles as civilians or merchant seamen and were deemed a threat to security.

Camps were constructed or converted, the latter including Cunningham's Camp in Douglas on the Isle of Man. One of the first British holiday camps – it was created just twelve years before – the varied accommodation of bell tents, chalets and communal halls was far from ideal for housing so many on a year-round basis. In late 1914 a riot over food and conditions, in which five men died, accelerated the construction of a purpose-built concentration camp already begun at Knockaloe, in the west of the Island.

Ultimately accommodating over 20,000 men, Knockaloe camp was built from scratch, requiring a new railway spur, utilities, and its own security, domestic and catering infrastructures. The first compound was constructed using local resources, but thereafter the camp was rapidly expanded using British War Department-pattern huts. The impact on the Island, with its own population of just 55,000, cannot be over-estimated: this was an immense social, economic and cultural shock.

Post-war, the matériel of the camp was dismantled and sold off. Focussing particularly on the fate of the accommodation huts, and on rare instances of their survival today, it will be shown that the outcomes of the camp's removal comprise a surprising mix of preservation, acknowledgement and erasure.

AM13 REASSESSING THE ROLE(S) OF HISTORY AND TRADITION DURING SOCIAL CHANGE AMONG BRONZE AGE PASTORAL COMMUNITIES ON THE RUSSIAN STEPPE, 1700 - 900 BCE

James Johnson

UNIVERSITY OF WISCONSIN-OSHKOSH

Archaeological studies of prehistoric pastoral societies have focused primarily on socio-economic relationships between humans, herd animals, and their local environments. Such studies have centered much of their explanatory power on modeling human-environment dynamics, including diet and mobility, often utilizing isotopic analyses, GIS, and now XRF and other trace elemental identification technologies. Furthermore, these relationships have obscured the more complex social and political dynamics beyond just those involved in subsistence economies. This paper shifts focus on pastoral societies from humans and animal taking center stage to a more critical exploration of the historical socio-political dynamics that accompanied population dispersal among Late and Final Bronze Age pastoral societies of the southern Urals region, 1700 - 900 BCE. Through a combined approach of ceramic paste analysis and landscape-modeling using GIS, I investigate the role and mobility of historical capital, in the form of ceramic pastes and landscape use, that accompanied demographic dispersals first recorded for the end of the Middle Bronze Age, ca. 1800/1700 BCE, and then again around 1300 BCE. I track the use of different paste recipes that were historically grounded in the proceeding time period and which occurred concurrently with use, and sometimes the reuse, of local landscape. More broadly, I discuss the social and political implications of paste recipes and landscape use being concomitant during times of population dispersal and increased group mobility.

AM6 HERDING SHEEP AND GOATS IN THE PYRENEES MOUNTAINS DURING BRONZE AGE: AN OSTEOLOGICAL AND ISOTOPIC STUDY OF FAUNAL REMAINS.

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Mountain environments are privileged areas to apprehend the question of pastoral mobility. In the North-Eastern Pyrenees (France), the first indicators of pastoral activities appear during the Neolithic. Indeed, palynological and archeological data highlight an opening in the forest cover, emergence of plants associated to agro-pastoralism activities and also some remains of habitats and enclosures for herds. This anthropisation of the high mountain increase substantially during Bronze Age. The subsistence economy of Bronze Age societies is essentially based on farming and breeding. In this context, a zooarchaeological study of two sites of the Eastern Pyrenees contribute to the understanding of settlements function and occupation, and mobility through the mountain territories.

Llo-Lladre (Llo) is an open site at 1630 m. alt. on the Cerdanya. Its location between the Carlit and Puigmal mountain chains constitutes a strategic place with access to the highland pastures for grazing.

The Montou cave (Corbères-Les-Cabanes), situated in the hinterland at 200 m. alt., was used as a cave fold. This location is particularly interesting to investigate exploitation of the hinterland in the pastoral system.

The analysis of the slaughtering activities combined with the information provided by archeological remains, allow to infer the mode of occupation of the settlements (seasonal or permanent occupations). Furthermore, isotopic analyses ($\delta^{13}\text{C}$ and $\delta^{18}\text{O}$) through sequential sampling in tooth enamel of sheep and goats could provide information about herd management and potential seasonal altitudinal mobility.

AM10 ENGLISH WOOL AND IN MIDDLE AGES ECONOMIC, SOCIAL, RELIGIOUS AND CULTURAL DIMENSIONS

Alexandra Karagianni

ARISTOTLE UNIVERSITY OF THESSALONIKI

Wool, part of British history and heritage, was the most important source of wealth in medieval England and the principal means of financing the Hundred Year's War between England and France. Wool manufacturing had a great impact on the society and provided an important foundation for medieval urbanization. New towns were created and there was a speedy increase of population. The Cistercian and Augustinian monasteries played a significant role in the wool trade as they prepared the wool in bulks and sold it directly to merchants from Italy and Flanders. They also created significant tapestry panels, for indoor decoration of castles and rich houses, with religious and mythological images and hunting scenes. Wool remains until today a sustainable product.

Byzantium on the contrary established a monopolistic imperial silk weaving industry from the fourth century. Silk became the symbol of the Emperor's power and prestige, the ransom for Byzantine prisoners, the grant to villagers that helped silk merchants through trade routes and the dowry gift to the rulers of the Latin West. As diplomatic gifts, silks secured peace treaties and sealed political marriage alliances. The Byzantines demonstrated their technological superiority in silk art crafts and impressed the West that assimilated it and tried to imitate it.

This paper aims to explore the different environmental conditions that favored the development of wool and silk trade in England and Byzantium and to study the economic, social, religious and cultural dimensions of it.

AM15 MARITIME TRANSPORT CONTAINERS IN LATE BRONZE AGE TIRYNS

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At the Mycenaean citadel of Tiryns, the final destruction of the palace in LH III B2 sees a large number of imported ceramic transport vessels deposited in dumps of material from the palace itself and from other areas of the settlement. These vessels continue to arrive at Tiryns well into LHIIIC. The array of sources of these jars, as well as the situation of Tiryns in the past, close to the shore of the Argolic Gulf, testify to the bulk movement of commodities by sea and their study by both typology and petrographic analysis has provided results of great interest.

Five different groups of maritime transport containers (MTCs) have been identified, among which the Transport Stirrup Jars and the Canaanite Amphorae are most frequent. Of special interest are the transport amphorae of Aegean origin related with production centres on the mainland, Crete and Kythera. Some MTCs represent rare developments of much earlier transport vessels and occur *only* in the upper citadel, and may have been used as containers for the transport of exclusive goods. We discuss whether, from their distinctive morphological features, most of the MTCs could have been identified by Bronze Age inhabitants as products from specific production centres.

AM21 GOING WEST – A MIGRATION PERIOD CEMETERY IN MIREN (SLOVENIA)

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The territory of present day Slovenia has always been a transitional area at the crossroads of different peoples moving to the west. In the Migration Period, one such people were the Ostrogoths, who left some scarce traces at different sites discovered in the Slovenian territory. One of these sites is Miren in the westernmost part of the country. Parts of a cemetery were discovered on the left bank of the Vipava river in several investigations between 2009 and 2013. Remains of nine inhumation burials were unearthed in a rescue excavation. Three adult males, four females and two children were found in grave pits, aligned west-east. The deceased were buried according to the custom of the time, i.e. with small everyday objects and wearing the traditional attire. In some cases, graves contained pottery or glass vessels. The skulls of two females had been deformed by circular binding.

The investigation of the cemetery took a strongly interdisciplinary approach. Scientific analyses have revealed several interesting details concerning the health of the deceased and their diet, the fabrics used in their clothing, and chemical properties of metal finds.

On the basis of analogies, the Miren cemetery can be dated in the end of the 5th century and the first half of the 6th century. The people buried there probably belonged to the Germanic Ostrogoths and Gepids, who, led by their king Theoderic, crossed the Slovene territory on their way to Italy, where they founded their kingdom after the Battle of the Aesontius in 489.

AM15 TRANSPORT AMPHORAE FROM METHONE, NORTHERN GREECE: AN INTERDISCIPLINARY STUDY OF PRODUCTION AND TRADE C. 700 BC

Evangelia Kiriatzis, Noemi Müller

FITCH LABORATORY, BRITISH SCHOOL AT ATHENS

Maritime Transport Containers have a long history in the Mediterranean. Much relevant literature work has focused on Greek transport amphorae, but the introduction of this type of vessel in the EIA has received insufficient attention. In our paper we focus on what is probably the earliest known large and varied assemblage of Greek transport amphorae, which dates from around 700 BC. This assemblage was found in a specific context at the site of Methone in the Thermaic Gulf (NW Aegean). According to ancient literature, Methone was the earliest Greek colony in the north Aegean and was founded by Euboeans in the late 8th century BC. The amphora assemblage in question dates from the early days of the colony and raises many issues on trade and colonization. Amphorae from this context recently became the subject of an interdisciplinary research project aimed at exploring holistically issues of typology, provenance, technology, and content. Taking further Ian Whitbread's seminal study and making use of the Fitch Laboratory's extensive reference collection, the current project combines petrographic and elemental (WD-XRF) analyses of the amphorae fabrics with organic residue analysis, as well as macroscopic examination, typological classification and the study of inscriptions and graffiti rendered on many of these vases. Our work challenges a range of established ideas on Greek amphorae and lends support to others, but also offers many new and unexpected insights in trade and the economy of the Aegean at c. 700 BC.

Collaborators: Antonios Kotsonas, Xenia Charalambidou, Noemi Mueller, Maria Roumpou, Manthos Bessios

AM16 THE INTRODUCTION OF THE POTTER'S WHEEL IN THE NORTH-WESTERN AEGEAN: EXPLORING CERAMIC TECHNOLOGICAL INNOVATION IN THE CONTEXTS OF LOCAL SOCIAL REALITIES AND INTER-AEGEAN

INTERACTIONS

Evangelia Kiriati¹, Stelios Andreou²

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The present paper focuses on the conditions of the introduction of the 'Mycenaean' potting tradition, involving the use of the potter's wheel, in the NW Aegean and its subsequent co-existence with the local tradition of handmade pottery, laying emphasis on the ways these pots were manufactured, consumed and perceived in the region's communities and on the social contexts within which these processes occurred. Through the integrated scientific analysis of the ceramic material from Thessaloniki Toumba, emphasis is placed on the reconstruction of the potters' choices throughout the manufacturing process, in the context of both potting traditions. The social and economic implications of these choices are evaluated and discussed in parallel, in the context of local societies with references to other sites in the region. Such a comparative study of the two ceramic traditions facilitates the better understanding of the organisation of the relevant production systems and of the social mechanisms concerning the transmission of related technological knowledge and concepts. Furthermore, comparisons are drawn with other areas in the east Aegean and the central and eastern Mediterranean, where similar phenomena of initial importation of Mycenaean pottery followed by local production are also attested. The comparisons illustrate the distinct ways of selection and assimilation of 'Mycenaean' elements by local societies (with a special consideration on the potter's wheel), reflecting presumably different social realities in each case, and different patterns of interaction between pre-existing and newly introduced potting traditions triggered and developed equally by internal and external factors.

Collaborator: Stelios Andreou

AM20 FROM INLAND CASTLES TO COASTAL TOWERS: A SHIFT IN MOBILITY AND DEFENSIVE STRATEGIES WITHIN POST-MEDIEVAL SICILY

Scott Kirk

UNIVERSITY OF NEW MEXICO

It could be argued that the origins of modern mobility, and to some extent western identity, lie in the trans-Atlantic voyages spearheaded by Spain and Portugal in the 15th and 16th Centuries. With this shift in mobility from over-land to maritime travel in the post-medieval world came a shift in the infrastructure and material culture of these nations as well. By the 15th Century Sicily had already become an early addition to the newly unfolding Spanish Empire and, perhaps one of the most distinctive changes that can be seen across the island roughly coinciding with this is in the shift away from the castles that had been the hallmark of the Middle Ages to more of a coastal defensive strategy. This new strategy employed the use of towers to form a line of sight network around the island with fewer large military installations located in more strategic positions and places of greater population density. This paper uses Sicily as a case study to analyze the changes that occur in defensive strategies over time through geospatial modeling and postulates that they were the direct result of the changes in mobility spearheaded by Spain and the increased importance of maritime trade at the dawn of the Age of Exploration. Thus, the changes seen in Sicily's defensive strategies can be seen as a shifting away from inland travel and medieval identities and towards maritime mobility and an early modern identity.

AM5 ALTOGETHER NOW: EARLY MEDIEVAL GRAVE DISTURBANCE FROM BAVARIA TO KENT

Alison Klevnäs

STOCKHOLM UNIVERSITY

This paper discusses an interpretative puzzle: why did people all over western Europe suddenly start reopening and rifling recent graves in the late 6th century AD? Deliberate contemporary grave disturbance is a long recognised phenomenon in early medieval cemeteries in Germany, Austria, France, Spain, England, Belgium and the Netherlands, but has only recently become the subject of concerted research. This form of reopening causes significant damage and disorder to grave contents, contrasting markedly with the carefully laid out burial displays of the period, and is apparently motivated by removal of grave-goods and sometimes body parts. Several major studies have recently advanced understanding of how, when, and by whom the disturbance was carried out, but significant questions remain unanswered - in particular, the sudden and nearly simultaneous appearance of the phenomenon over such a wide geographical area. This paper asks whether transmission of this cultural practice can be seen from region to region, and what it can tell us about local and long distance connections. Why did grave reopening become an acceptable - or even eagerly adopted - practice in the diverse communities of the period?

AM15 MARITIME TRANSPORT CONTAINERS IN THE BRONZE-IRON AGE EASTERN MEDITERRANEAN:

INTRODUCTION

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The maritime transport of goods in bulk provides a clear indicator of many facets of trade: e.g. merchants, networks and economic transactions. One of the key material factors involved in what we term the Maritime Transport Container (MTC), e.g. Canaanite jar, Transport Stirrup Jar or more generally transport amphora. Although studied systematically during later periods,

the early phases in the development of MTCs are comparatively obscure, because their maritime function and attributes are often overlooked. This paper provides an overview of these early stages — from the Early Bronze to Early Iron Ages in the Aegean, on Cyprus, in the Levant — in the emergence and development of MTCs, and their diverse roles in connectivity and trade throughout the Aegean and eastern Mediterranean. By reconstructing these early phases of their production and use, we gain important insights into the initial phases of seaborne trade in the Mediterranean, and will be able to understand better how maritime transport containers might serve as markers of trade mechanisms of different scale, or of economies that more or less depended on seaborne trade.

AM6 UPLAND AND MARINE RESOURCE EXPLOITATION UNDER THE INCA EMPIRE: THE CARINGA OF PUEBLO VIEJO-PUCARÁ, PERU.

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The varied expansion strategies of the Inkas during the Late Horizon period (1430-1532 A.D.) had an enormous impact on all areas of a community's life, including subsistence and diet. Pueblo Viejo-Pucará is an archaeological settlement in the central Andean region of Peru for which ethnohistorical evidence suggests an inhabitation by the Caringa, a coastal ethnic group under the rule of the Inka Empire. Both, the topographic location in the Andean Mountains, about 500 m above the South-Pacific Sea coast, and the political situation with tight connections to the Inka rulers suggest a wide spectrum of food sources that may have contributed to their diet. These include marine fish and seafood and locally grown agricultural products. Archaeological evidence, specifically corrals for domesticated llamas, point to pastoralism as main socioeconomic activity and meat as an important foodstuff. Being part of a broad imperial trade network may have provided access to a variety of non-locally produced goods. Moreover, a distinctive architectural pattern points to connections to or even an origin from the highlands.

This presentation will introduce an integrated archaeological, anthropological, and stable isotope study of the Caringa population at Pueblo Viejo-Pucará to explore diet and subsistence strategies, and to evaluate the hypotheses of a highland food tradition. The study combines a dental anthropological analysis, and the investigation of carbon and nitrogen stable isotope ratios of bone collagen and structural carbonate. It sheds light on subsistence, social differentiation and on the exploitation of marine and upland resources in a highly diverse landscape.

AM3 MOBILITY AND REMOTENESS IN THE MIDDLE SUSITNA, ALASKA

Kathryn Krasinski¹, Brian Wygal¹, Fran Seager-Boss²

¹ADELPHI UNIVERSITY, ²MATANUSKA-SUSITNA BOROUGH

Located 160 km north of Anchorage, Alaska, United States, the Middle Susitna region contains the earliest evidence for human occupation in Southcentral Alaska. Despite its proximity to major urban centers today, it was socially and economically remote throughout prehistory. Located in the subarctic, the Middle Susitna was heavily glaciated during the Last Glacial Maximum and sparsely occupied during the late Pleistocene. Despite its social and economic remoteness, high residential mobility was an effective strategy for minimizing risk in an unfamiliar landscape, especially as a response to a warming climate, the extinction of preferred game animals, changing vegetation regimes, and volcanic activity. Disconnected from the largest population and economic centers on the coast, residential mobility remained high for Dena'ina and Ahtna peoples in the late Holocene. This increased cultural resilience as food resources were less abundant than those on the coast where permanent villages were established. Well established trails, ethnonyms, and high mobility facilitated the survival of Dena'ina and Ahtna in the Middle Susitna valley of Alaska despite volcanism, climate change, and Euro-American contact.

AM11 THE GEOARCHAEOLOGICAL QUEST FOR SHIELING SITES IN SCOTLAND AND ICELAND

Patrycja Kupiec
UNIVERSITY OF ABERDEEN

Transhumance is believed to have been a common economic practice from at least the Iron Age in parts of the British Isles, Ireland, and Scandinavia. Historical sources, saga literature, and place-name evidence strongly suggest that the seasonal movement of livestock from the main farm to summer pastures played a particularly important role in the decentralized farming economy in Scandinavia and the North Atlantic region during the Viking Age/Early Medieval, and High Medieval periods. However, due to the paucity of excavated shielings, little is known about the degree to which they were materially distinct from upland farms, making their identification challenging. This presentation will focus on high-resolution microscopic approaches to detect the seasonality of occupation, which is the main characteristic that distinguishes shielings from perennially occupied farms. The potential of micromorphological analysis of floor deposits to identify punctuated occupation is illustrated by two case studies from the Outer Hebrides, and three cases studies from Iceland. The analysis of thin sections taken from these putative shieling sites revealed a sequence of thin, periodic occupation surfaces, separated by accumulations

of aeolian sand. This pattern can be interpreted as reflecting periods of intermittent occupation, separated by abandonment phases. The microscopic analysis of floor deposits also highlights the complex occupation history of shielings, with the periods of likely permanent occupation, long-term abandonment and partial collapse, use of partially collapsed structures as temporary shelters, or phases when their function changed to middens, or animal byres.

AM19 INSIDE JOB: THE EFFECTS OF ARCHAEOLOGICAL INVOLVEMENT ON THE ILLICIT ANTIQUITIES TRADE

Meg Lambert

UNIVERSITY OF GLASGOW

For decades, archaeological heritage has been under threat as the illicit trade in archaeological objects has obliterated sites worldwide. Archaeologists are in a unique position: they are affected both at the source of looting as well as the final destination of objects in collections and museums, yet as a field they have failed to aggressively or effectively address the issue. While museums have borne the brunt of the legal and social ramifications of knowingly and unknowingly engaging in the illicit antiquities trade, academic actors have generally not faced the same professional setbacks, public criticism, or alteration to conventional procedure. Practices such as the authentication of unprovenanced objects, the publication of those objects, and the publication of field reports without mention of looting on site are still conducted despite dispute. This paper explores recent empirical research on how academic involvement has affected the illicit market in West African cultural objects. This research provides a much-needed criminological perspective to a small body of research that scrutinizes the role of academics in the illicit antiquities trade. The theoretical background to this topic employs Diane Vaughn's macro-meso-micro framework for analysing the normalisation of crime and social harm in organisations. It will investigate the modern evolution of archaeological ethics in relation to handling unprovenanced artefacts, the transformation of the relationship between the academy and the art market over the 20th century, and whether the withdrawal of university support in authentication and publication services to the market has affected moral and social arguments on market credibility.

AM21 MOBILE MEANINGS: CONTEXTUALIZING READING AND WRITING ON ATTIC FIGURED POTTERY

Elizabeth Langridge-Noti

AMERICAN COLLEGE OF GREECE

How mobile is an image? In a Mediterranean world with shared but differing customs, stories and rituals, can an image retain a particular meaning as it travels or is the deliberate ambiguousness of an image part of how portable objects like vases were conceived, so that meaning could be structured for a particular context and by a particular people? Indeed, the possibility of competing contextualized readings of a scene on a figured vase is rarely considered in discussion, since actual find contexts are often not discussed.

This paper will reflect on what relationship the production of imagery in Athens might have had to the use of this imagery within a foreign market by examining images of reading and writing on Athenian pottery within their excavated contexts. Pots with this imagery are almost always read as being meaningful within an Athenian context despite the fact that many have been found outside of Attica, often in Etruria. This paper will examine the traditional interpretation of this imagery and place it against both the find contexts and recent scholarship that indicates the importance of reading and writing to the Etruscan and larger Italic world. It will address the reception and manipulation of 'Greek' imagery within Etruria, focusing on how this imagery connected with its ultimate audience within Etruria and who was doing the connecting. Finally, it will return to the idea of competing contextualized interpretation of portable imagery that recognizes the contributions of both producer and consumer in creating meaning.

AM15 HINDSIGHT IS 20/20? EARLY IRON AGE SHIPPING CONTAINERS AS VIEWED FROM THE LATE ARCHAIC AND CLASSICAL FUTURE

Mark Lawall

UNIVERSITY OF MANITOBA

Recent years have seen an explosion of interest in shipping containers of the 8th and 7th centuries as the finds from Methone, Klazomenai, Pithecusai and elsewhere expand on early reports from Kommos. Looking at amphora production and distribution in such earlier periods from later vantage points highlights features whose significance emerges particularly in hindsight. Amphora research in the later Archaic and Classical periods has identified certain axes as useful in characterizing amphora production and use: city-specific shapes vs. regional styles; presence or absence of markings (graffiti, dipinti, stamps) at different stages of amphora use; regional zones of circulation vs. long distance shipping. Such analytical axes can be used to link the amphora record with broader questions of the scale and mechanics of ancient economies.

While the history of amphora use in later periods can already be written in the context of such a framework, this paper explores the applicability and advantages to using similar constructs in the study of earlier containers. Comparisons involving records of amphora production, distribution, and use at late Archaic and Classical centers such as Athens, Corinth, and Iliion demonstrate the dynamic nature of amphora-related behavior. While certain aspects of Early Iron Age amphora use (e.g., early use of apparently numerical graffiti) do resemble later behaviors, other aspects (e.g., selection of shape) seem rather different.

Without such a critique of analytical models, research on Early Iron Age shipping runs the risk of importing invalid baseline assumptions.

AM13 PATHWAYS TO PAST WAYS

Jim Leary, Martin Bell

UNIVERSITY OF READING

The world around us is full of the evidence for past mobility – from roadways and trackways to routeways and holloways, to name but a few – and yet mobility as a research topic in its own right has frequently been neglected within archaeology. Prehistorians in particular have often been quite pessimistic about the possibilities of establishing the date of certain routes, especially holloways. This paper will discuss why this might be so, and set out some methodologies for understanding past mobilities. We will consider the historically contingent circumstances, largely consequent on the publication of Alfred Watkins' *Old Straight Track* in 1925, which led to a neglect of mobility studies through most of the twentieth century in the UK. A greater level of awareness and practical engagement was evident elsewhere in northwest Europe. An emphasis on trackways is, however, evident in the case of wetlands, although this has been limited by the challenges of establishing a connection with dry ground patterns.

Archaeology offers a chronological perspective that few other disciplines have, and the methodologies discussed here take a multi-period approach to mobility. They also involve integrating evidence from diverse sources. Furthermore, by drawing on recent studies of mobility from elsewhere in the social sciences we are able to provide a more refined understanding of past movement. Focusing on mobility provides a dynamic approach to archaeology, and we will address what mobility can contribute to the understanding and interpretation of past landscapes and move away from archaeology's traditional focus upon place and location.

AM22 RECYCLING SHIPS, MARITIME ARCHAEOLOGICAL ASPECTS OF SUOMENLINNA

Minna Leino

THE NATIONAL BOARD OF ANTIQUITIES OF FINLAND

In recycling, the old ship can be compared to a deceased with an organ donor agreement, everything valuable is cannibalized, and there are hardly anything left of the original ship. This presentation takes a different stand to recycling behavior and widens the scope to deal with the whole hull. The recycling behavior recovers a floating vessel to serve in a different form or function as a scuttled object. An old ship gets a new life as a recycled piece in the underwater landscape. However, the vessel easily loses the identity in the recycling process and creates a challenging study field for maritime archaeology.

The case study is the underwater landscape of the 18th century fortress islands in front of Helsinki, (Finland), called Suomenlinna (until 1918 Sveaborg). The site locates in the Gulf of Finland, in the eastern part of the Baltic Sea. The fortress was built during the Swedish reign, used in the defense of St. Petersburg during the Russian rule, and finally became part of the defense of the capital of the newly independent state of Finland in 1917. The site forms an important monument in Finland's past; nonetheless it also has a global significance as a UNESCO World Heritage Site. The activities of the different periods in the past have left a unique footprint with wrecks in the underwater landscape, which has not been comprehensively analyzed before this study. The presentation bases on the forthcoming doctoral dissertation of the author, which deals with maritime recycling.

AM3 READING THE STONES. MODELLING THE EARLY AURIGNACIAN ARCHAEOLOGICAL LANDSCAPE OF THE BANAT (SW-ROMANIA)

Ine Leonard

CRC 806 'OUR WAY OF EUROPE' | UNIVERSITY OF COLOGNE

Understanding global dispersal of prehistoric humans has always been a heavily researched and contested topic of prehistoric archaeology. A consistent model can only be achieved if the organizational strategies of past human communities are better comprehended. If insights in the intricate interplay of ecological and socio-cultural factors within a local archaeological landscape are acquired, it becomes possible to look on a larger scale and to reconstruct mobility patterns and past migration routes. The presented doctoral research of the CRC 806 'Our way to Europe'-initiative aims to model such a local archaeological landscape for the Banat region in South-western Romania during the early Upper Palaeolithic. The three preserved open-air sites – Romanești-Dumbrăvița, Tincova and Coșava – each comprise of early Aurignacian assemblages. Although these assemblages show mutual technological and typological similarities, differentiating records indicate that multiple organizational strategies in relation to subsistence provisioning, raw material economy and lithic technology were at hand. Since the area holds a spatial and chronological key-position in the migration story of anatomically modern humans, the aforementioned research aims at delivering new insights concerning human behaviour during the initial peopling of Europe.

The proposed talk presents the initial results concerning the raw material economy. The dominance of the local sedimentary rock 'Banat flint' and the underrepresentation of other local raw materials, such as quartzite, suggest an opportunistic, yet

targetted, acquisition strategy. A small portion of distant raw materials, such as obsidian, suggests an additional dimension to this strategy, which either involved exchange or long-distance (seasonal) movements.

AM23 PREHISTORIC JOURNEYS: BRINGING THE 'EXOTIC' HOME TO LATE BRONZE AGE IRELAND

Katherine Leonard

NATIONAL UNIVERSITY OF IRELAND, GALWAY

The high status objects produced by highly skilled craft-workers which are found in Bronze Age contexts in Ireland often display technical or stylistic influences from distant regions of Europe. Although no Bronze Age sea-going vessel has (yet) been uncovered in Ireland, the presence of continental European objects demonstrates that sea journeys were taking place. Thus, although evidence of seaworthy boats may be lacking from the Irish archaeological record, objects displaying 'exotic' influences and foreign raw materials clearly indicate that travel across the seas (Irish, North, and Celtic) and interaction with outside groups was an important activity for at least some members of Irish Bronze Age society.

By considering the material culture evidence for long-distance interaction in Late Bronze Age Ireland this paper will discuss how the activity of journeying can create social bonds between the participants. Furthermore, such exotic and unusual prehistoric journeys would undoubtedly have had wider implications within the 'home' communities, a factor which may have affected the transmission of technologies, styles, objects, ideas and practices across Europe in the Bronze Age

AM8 COMMENSALITY AND LONG-DISTANCE INTERACTION IN THE BRONZE AGE OF ATLANTIC EUROPE

Katherine Leonard

NATIONAL UNIVERSITY OF IRELAND, GALWAY

The exchange of goods over long distances may be motivated by many different factors, however the results can be seen archaeologically and reflect the human agents who transported them. In Bronze Age Europe, perhaps especially in the later Bronze Age, there were groups and/or individuals who travelled and who brought ideas, materials and things with them and returned home with different ones. Certain ritual phenomena and material culture extant in Late Bronze Age Ireland were influenced from outside the island, for instance the formalized use of bronze feasting equipment like the cauldron and flesh-hook.

This paper will discuss how the presence of very similar feasting equipment across the Atlantic zone of Europe in the Bronze Age may reflect the existence of formalized commensality across a wide geographical area. Feasts are an ideal venue at which to (re)establish long-distance connections through *fêting* visitors, exchanging gifts and negotiating alliances. It will be suggested that participation in formalized feasting and hospitality rituals was an important mechanism for facilitating inter-cultural interaction in Bronze Age Europe.

AM8 NEW DISCUSSION ON DATED EXOTIC OBJECTS OF EARLY MEDIEVAL CHINA (3-10 C.AD)

Yusheng Li

SCHOOL OF CULTURAL HERITAGE, NORTHWEST UNIVERSITY

During the past 60 years, thanks for the great achievements of Chinese field archaeology, lots of exotic objects, which could be confirmed by their different chemical compositions, irregular shapes or unusual decorative motifs, have been found and published. Their possible date, place of origin and importing process have been widely discussed by both Chinese and foreign scholars. Based on their studies, this paper will focus on the influence of exotic objects in the importing area instead of tracking their origination, try to analyze specific discoveries with clear date and archaeological contexts such as the ones unearthed from dated tombs and underground palaces (crypts) of Buddhist pagodas, which could liberate our attention to concentrate on other equally important but always ignored questions such as: comparing with other contemporary discoveries, what is the special part of the one with exotic objects? What did the objects mean to the owner and their context? Based on integrated study of source, epitaph and other material, is it possible to trace and reconstruct the details of how the owner got the objects? Considering the social and cultural background in general, what about the real influence of exotic objects, including the technique and aesthetics behind them, on their times? Some of the questions such as the last one may be too difficult to unfold in this paper, but all of them are proposed from the perspective of ancient Chinese, namely their ranks, conventions, aesthetic tastes, knowledge and curiosity towards foreign lands.

AM19 THE INTERFACE BETWEEN CRIMINOLOGY AND ARCHAEOLOGY: TRAFFICKING CULTURE

Simon Mackenzie

UNIVERSITY OF GLASGOW

The Trafficking Culture project at the University of Glasgow (traffickingculture.org) has as one of its aims the promotion of a discussion between the two disciplines of archaeology and criminology. What does that discussion look like? Reflecting on some of the work of the project over the last four years, it's timely now to begin to describe the context of our attempt to move the debate about 'illicit antiquities' forward, and the key insights which have been made possible by bringing a criminological lens to an archaeological problem.

AM22 AN INVESTIGATION OF A OENOTRIAN PEOPLE OF SOUTHERN ITALY, CONNECTIONS ACROSS THE MEDITERRANEAN SEA

Patrizia Macrì

INDEPENDENT

The *Oenotrians* inhabited much of southern Italy from the Early Iron Age to the Archaic Period. The paper proposal comes from the PhD research based on the study of 80 graves from two *Oenotrian* necropolises of Basilicata, a tiny proportion compared to 1900 burials recovered. Nevertheless, analysis has allowed considerations of the links forged across the Mediterranean and the trade network between coastal and inland settlements. The grave assemblages highlighted significant changes in the funerary practices starting from the end of the 8th century, through the Orientalising period that saw a widespread increase in imports and innovations denoting an evident wealth. This increase found its peak in the 6th century and only during the 5th century does the archaeological evidence indicate a decline of *Oenotrian* civilization, or at least the beginning of this process. Changes have also been examined as a possible consequence of strengthened economic interests and of modified trade conditions and connections due to Mediterranean traders and the permanent presence of Greek colonies.

The unexpected outcome of this research has been the dissimilarity of these two, geographically very close, cemeteries in grave goods. During the 7th and 6th centuries, the funerary assemblages show that Guardia Perticara seemed more selective, preferring diversity and Adriatic trade routes, while Alianello favoured quantity and Ionian - Tyrrhenian trade routes. At the end of 6th century the pattern of both necropolises become definitely similar in imported objects, mainly Greek, and funerary choices.

AM15 STORING AND TRANSPORTING MEAT IN THE PHOENICIAN AND PUNIC PERIOD. THE AMPHORAE FROM UNDERWATER EXPLORATIONS OFF THE COAST OF NORA (SARDINIA)

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Six extensive campaigns of underwater exploration and recovery were directed by Michel Cassien (Touring Club de France) between 1978 and 1984 in the waters around the Nora peninsula (Sardinia). The complete edition and re-examination of the investigations, however, only took place recently. The large amount of recovered material, mainly transport containers and ceramic tableware, was found in an extraordinary state of preservation, and this paper deals with the class of the Phoenician and Punic amphorae. In particular the analysis focuses on the containers used for the transport and storage of foodstuffs. Regarding the contents the identification of ovine and bovine bones (in some cases related to species from north Africa), sometimes in association with grape seeds, suggests a specific procedure of preserving the meat during maritime transport, here detected at least from the mid-8th century BC. The examination of the typological sequence of the transport containers, moreover, reveals the continuation of this storage technique throughout the early/mid-first millennium BC, as indicated by several finds recovered from the sea of Nora and of other Sardinian coastal settlements. Thanks to an integrated study of the reports and maps edited by Cassien, it has been possible to reconstruct reliably the positions of the amphorae recovered. The repositioning of the finds on a new map, together with the chrono-typological analysis of them, highlights an extremely interesting context, one that is fundamental for a better understanding of local and overseas trade flows that affected Nora between the early Phoenician and the late Punic periods.

AM8 WORKSHOPS, GOLDSMITH AND TRADE IN 5TH-7TH CENTURIES (LOWER DANUBE AREA)

Andrei Magureanu

INSTITUTE OF ARCHAEOLOGY "VASILE PARVAN"

Lower Danube region in the Early Middle Age was a forge of different kind of identities based on a large exchange of goods between Byzantine Empire and *Barbaricum*. Each good is a carrier for ideas and symbols interpreted, reinterpreted, filtered and accepted in their own understanding by each individual or groups from that region. In this respect, we intend to debate some aspects of 5th-7th centuries from Lower Danube area and not only.

Different objects founded in the mentioned area can reflect long distance relations from many points of view. For social one can be quoted the case of brooches (fibula) especially bow ones, connected either to Germanic population, either to Slavic ones. For religion we can mention moulds for casting cross-shape objects usually connected with Christianity. For technology we mention both moulds and simplicity or complexity of elaboration the final object. For fashion, moulds are one of the main topic to debate.

But none of those mentioned themes can be discussed without understanding the movement of objects. And for these we first need to establish where the objects were produced – where are the workshops. We need to see why those objects are moving and to know the relation between demanding and offering and why some object can be wanted by someone. And we need to figure how those objects are crossing areas – what are the clues that can afford us to tell if some object was the subject of an economic trade or of a social trade.

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AM18 FROM DANUBE TO ATLANTIC. ROUTE OF IDEAS AND GOODS ALONG OF A FORMER MILITARY INFRASTRUCTURE.

Andrei Magureanu

INSTITUTE OF ARCHAEOLOGY "VASILE PARVAN"

At the beginning of Middle Age, and not only, it is important to be able to establish the existing relations between different worlds: in my case - Byzantine Empire and Barbaricum; relations between different centers and their peripheries and their hierarchy: for example Gepids or Avars can be seen as a periphery of the Byzantine Empire, but, at their turn they represent a center in relation with the eastern Carpathian region. Those relations can be noticed analyzing/identifying roads. In this respect we think we can argue, mapping the goldsmith graves or Byzantine type buckles, that the former 4th century Roman border, was still in use connecting different areas of Europe. The same situation can be observed when mapping the dies (moulds) especially those for making pressed objects. All those and others strongly suggests an usage of an ancient road in the down of middle age, connecting South-East Europe with Western Europe, like a backbone of an entire network of roads involving into a large scale exchange both “barbarians” and romans.

Our challenge is to get more proofs to sustain the idea of this main road, to see arguments for possible secondary routes and to understand how the flow of objects can reflect (can be understand) identities at different levels. Nevertheless, what can be the mechanism of this process is another subject to follow, trying to see the role of the craftsmen, like carriers of ideas symbolized by their products, goldsmith being the perfect emblem of the balance between demanding and offering.

AM17 FROM ARISTOCRATIC MARKET PLACE TO ROYAL MANOR: LANDING PLACES AT ESTUARIES IN SOUTH-EASTERN NORWAY IN A LONG TERM PERSPECTIVE FROM THE ROMAN PERIOD TO THE MIDDLE AGES

Birgit Maixner

MUSEUM OF CULTURAL HISTORY

Within the last five years, increasing metal-detecting in South-Eastern-Norway resulted in the discovery of an until than unknown category of production and market places at the estuaries of the main streams flowing into the Oslo fjord. The find material from these places shows a continuity from the Roman age to the Viking period, proving participation in long-distance contacts. Richly furnished graves as well as treasure troves can be found in the surroundings of these places, demonstrating the wealth of these nodal points at the transition between sea transport and river traffic. In many cases medieval churches are located nearby, and some of these centres continued even as royal manors into the Middle Ages. The location of these Iron Age landing site localities follows a specific topographical pattern, and even if they are still in use in the Viking Age, their location is quite different from that of the coastal market places founded in the Viking Period. Simultaneously, one can observe a distinct pattern of place names in their vicinity, containing a variety which is largely common for all of these places. By presenting some examples of this new category of landing-places from South-Eastern Norway, their function and specific character will be analysed in a long term perspective, and possible models for this peculiar concept of a maritime based market and production place will be discussed.

AM8 THEORIES ABOUT APHRODITE’S CULT ORIGIN IN THE MILESIAN GREEK COLONIES OF THE BLACK SEA.

Elena Brîndușa Manea

UNIVERSITY “ALEXANDRU IOAN CUZA”

Religious elements have represented for the ancient Greeks an important aspect of their life in the polis, an essential component of the identity of the „new born”citizens, and an important instrument in the colonisation process that began with the VIII century B.C., during which the main deities of the Greek pantheon played a defining role. The influence of the metropolis Miletos in the whole process of creating new colonies in the Black Sea can be observed from a religious point of view. This in particular can be seen in the way that most of the gods of the metropolis are transferred and are accepted in the Greek *apoikiai*.

This paper aspires to identify the essential aspects of the origin of the goddess’s cult in the milesian Greek colonies of the Black Sea and the role that it had in these new city-states. The main purpose is to observe how the religious practice in honour of Aphrodite developed in the metropolis, how it was adopted in the colonies and the eventual influences that Aphrodite incorporated from the local features. Several theories that combine the archaeological data, the literary, and the epigraphical evidence have been proposed by the scholars in order to create a complete image of the origin of her cult, the transformation it suffered and its role in the territories of each milesian colony.

AM11 TRANSHUMANCE TYPOLOGIES IN THE CANTABRIAN RANGE (SPAIN)

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One of the major research topics in the Iberian Peninsula during the Middle Ages has been the issue of long-distance transhumance, called *La Mesta*. Written documentation provides significant amounts of information about the conflicts that arose between shepherds and peasants, and about the relevance acquired by the trade of Castilian wool in the European context. However, the study of the large infrastructures related with the *Mesta* has overshadowed the analysis of the complexity of local farming practices, which are not usually described in written documentation.

This presentation puts forward an archaeological research agenda in pasture areas of the Cantabrian Range, located in the north of the Iberian Peninsula. The exploration of archaeological remains in pasture areas reveals the complexity associated with the exploitation of these areas, as well as their antiquity. Through them it is possible to deepen our knowledge about the types of work performed by shepherds, and also the property and management regimes where the concepts of collective and communal played significant roles. Similarly, the presentation considers the resilience of these spaces and how this poses problems for the chronological ascription of the archaeological record.

AM6 VERTICAL MOBILITY AND EXPLOITATION OF PLANTS RESOURCES DURING THE NEOLITHIC: TWO EXAMPLES FROM THE NORTHERN FRENCH ALPS AND THE SWISS VALAIS.

Lucie Martin¹, Claire Delhon², Alexa Dufraisse², Stéphanie Thiebault²

¹UNIVERSITY OF GENEVA, ²

During Neolithic, mountains are exploited for their natural resources like flint, rock crystal, greenstone or soapstone. The mountainous areas are also assigned to hunting and pastoral activities. First agropastoral communities reached the Alps from the south (northern Italy and Rhône valley) and settled in the subalpine massifs (Vercors, Chartreuse), as well as in the internal Alps (Aoste, Valais, Maurienne, Tarentaise...).

Archaeobotanical studies conducted over a dozen sites allow us to understand the plant economy of these Neolithic communities. These data, taken from settlements, hunting camp or sheepfold, permit to determine which crops were cultivated for human consumption, which plants were used as fodder, and which wild plants were gathered for consumption, medicine or other purpose, such as firewood.

For this presentation, we take as an example two regions – the Northern French Alps and the upper Rhone valley (Valais, Switzerland) –, and we will see that the use of plant resources and the exploitation of territory are very different for the same period from one region to another, depending on the activities carried out on each site but also on cultural requirements.

Using both plant macroremains and charcoal, archaeobotanical data indicate how these people took resources from various plant association growing from the collinean belt to the subalpine belt, and thus contribute to understand mobility in mountainous contexts.

AM15 THE DEVELOPMENT OF CANAANITE AND PHOENICIAN STYLE MARITIME TRANSPORT CONTAINERS (MTCs) AND THEIR ROLE IN RECONSTRUCTING MARITIME EXCHANGE NETWORKS

Robert Martin

UNIVERSITY OF TORONTO

This paper provides a diachronic overview of the evolution of the 'Canaanite style' MTC in the Levant from the Early Bronze Age (EBA) II/III (ca. 2700 BC) to the Iron Age (IA) III (6th century BC). The focus falls on the morphological development of these vessels and how this relates to function, containerization, standardization, and technological innovation. In classifying these Levantine MTCs, and in examining their distribution and provenance, their essential relationship with eastern Mediterranean maritime (and terrestrial) exchange networks becomes evident. Their morphological development reflects growing specialization as an MTC, the refinement of which appears to relate most essentially to the transport of bulk liquid staples (oils, resins, and wine) characteristic of the Levant throughout these successive periods. In examining their distribution, emphasis is placed upon the importance of littoral, and dendritic patterns of exchange. The diachronic and interregional distribution of specific Levantine MTC types is examined, which reflects anticipated expansions and contractions in long distance trade during both the Bronze and Iron Ages. These patterns nonetheless demonstrate some consistency, and largely suggest continuity in trade networks stemming from coastal nodes, which themselves interfaced with other (often long distance) networks via maritime and interregional trade network connectivity.

AM5 MONUMENTS IN MINIATURE: BROOCHES AND MULTISCALAR NETWORKS IN MIGRATION PERIOD EUROPE

Toby Martin

UNIVERSITY OF OXFORD

This paper investigates the relationship between feminine dress and networks in 5th-to 7th-century Europe. The dress of elite women during this period was characterised by large brooches, often covered in complex ornament. During the first half of the 20th century this jewellery became a highly influential means of constructing culture-historical models of interacting groups on global and regional scales. Problematically, the social exchanges that constituted such interactions were dissolved in a sea of abstract competing 'cultural influences', which lacked much meaning beyond the somewhat dubious tracing of tribal migrations, a method now regarded with a healthy degree of scepticism. As a consequence of that critique the study of

brooches has become limited to increasingly local scales in which the big picture can be obscured behind a screen of technical detail. This paper uses a new database of several thousand European brooches in an attempt to reinvigorate the subject using an approach based on network and material culture theory. I propose a model of multiscale networks operating from the global to the local, characterised in terms of style and use. Taken together, these brooches covered most of present-day Europe. Undeniably, they represented a globalised phenomenon. Yet because they were a part of dress their meanings and significances were enacted during proximal interpersonal interactions. This leads to questions principally concerning scale, inviting comparisons between the institutional power of Roman monumentalism and the intimacy of early medieval power relationships facilitated by personal objects.

AM6 HERD MOBILITY ALONG THE GORGAN WALL AND ON THE ALBORZ FOOTHILLS DURING THE SASANIAN PERIOD (NE IRAN).

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This paper will address herd management in the Gorgan Plain of NE Iran during the Sasanian period (AD 225-640) utilising the faunal material of three sites; Dasht Qaleh, an urban site; Qaleh Kharabeh, a campaign base; and Fort 4, a military fort. They are located along the Gorgan Wall, which stretches from the Caspian Sea toward the east for over 200km. The wall divides the region between two ecological zones, the piedmont of the Alborz Mountains and the lowlands and steppes of the Gorgan Plain. These sites were excavated by the joint Irano-British archaeological expedition directed by E. Sauer, H. Omrani and J. Nokandeh and funded by the ERC Persia and its Neighbours Project.

Isotopic analyses (Carbon, Oxygen and Strontium) were performed of 60 herbivorous teeth from this region and indicate mobility patterns. On the basis of these results it can be hypothesised that pathways may have existed that allowed the circulation of populations between different locations in the region. In parallel to these studies remote sensing of historical satellite imagery and archaeological survey have located features associated with different types of pastoral mobility. These include pens and shelters related to the seasonal use of the plain near the Caspian Sea. Also hollow way route systems likely represent the movement of people and animals between settlements and outlying fields. Taken together, this evidence suggests that the movement of herd animals was an important part of the subsistence strategy for some communities on the Gorgan Plain for thousands of years.

AM20 RECONSTRUCTING THE ROMAN ROAD NETWORK AROUND PADUA (ITALY): AN ARCHAEMORPHOLOGICAL APPROACH

Michele Matteazzi

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Among the main objectives of the archeomorphological analysis there are the roads. In this sense, remains fundamental the study of E. Vion according to which, within an archaeology of the territory, the analysis of ancient communication routes must first of all define the whole structure, i.e. the road network, and then analyse each part of it, i.e. the "itineraries" (namely first order communication routes of regional or extra-regional type) that form it and then the "traces" (in the sense of the different segments) that compose the itineraries. Then, by analysing the relations between itineraries and traces, their overlappings and their movements, we can determine relative chronological sequences showing the evolution of the road network.

Following this methodological approach, it was carried out the analysis of the road network around the city of Padua, coming to identify a number of routes of probable ancient origin that radially converge toward the center of the Roman *Patavium*. These routes linked the Roman town with other urban centers of the region and with particular areas of the territory where archaeological data show there were important settlements and worship places. The presence of Iron age settlements along the path of many of these roads, also suggests the possibility that the formation of such a road network already begins in protohistoric times (V-IV century BC.), proving the ancient strategic importance of Padua and the territory under its control, always a fundamental junction for the communications between the center and the north-east of the Italian peninsula.

AM14 FOOD AND IDENTITY IN EARLY MEDIEVAL ATLANTIC EUROPE: THE EMERGENCE OF OAT AS A MAJOR CROP

Meriel McClatchie

UNIVERSITY COLLEGE DUBLIN

Modern consumers are increasingly interested in the health benefits of food, and oat is now recognised as a 'superfood' amongst cereals. Oat has long been an important crop in Atlantic Europe. The introduction of domesticated oat during the Iron Age represents an important change in food production, and by the early medieval period, oat had become one of the major

crops of this region. What can archaeology tell us about the beginnings and spread of oat cultivation in Atlantic Europe? What foods were created using oat, and to what extent did this new crop play a role in the creation of social identities? This paper will address these questions through examination of archaeobotanical, documentary and related evidence for the cultivation and consumption of oat.

AM3 THE END OF IMMOBILISM: ARCHAEO-LINGUISTIC EVIDENCE FOR HOLOCENE LANGUAGE GROUP EXPANSION IN NORTH-WESTERN AUSTRALIA

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'Immobilism' (Hawkes 1987, Härke 1998) or 'anti-migrationism' (Anthony 1990) has cast a spell over archaeology in many parts of the world, but nowhere more so than in Australia, where the idea has also affected linguistics, and anthropology in general. A few migration hypotheses have been proposed in relation to the expansion of the Pama-Nyungan (PN) language family during the Holocene (eg. McConvell 1996, 2013), but with some exceptions (eg. Veth 1989, Bellwood 2013), archaeological reactions have mainly been skeptical (Hiscock 2008). Recent archaeological studies are now providing a greater understanding of Aboriginal populations and movement over the last 50,000 years; and show demographic stability in the northeast – the likely source of PN – during the Last Glacial Maximum, and re-colonisation of the arid core in the early Holocene (Williams et al., 2013; Smith, 2013). Improved climatic conditions in the mid-Holocene resulted in technological and behavioural shift that culminated in demographic expansion and environmental in-filling in the last 2-3,000 years (Williams et al. submitted). These processes provide one possible mechanism for the spreads of PN languages across Australia over the Holocene. This paper highlights a particular instance of such spread in the late Holocene northward from on the northern boundary of PN, and considers linguistic, toponymic, historical and anthropological evidence for this expansion into the Kimberley and Victoria River District. New work in the archaeology of the Kimberley region (eg. Maloney et al. submitted) is also opening doors to an interpretation in terms of mobility and migration in this period.

AM11 THE 'UPS AND DOWNS' OF TRANSHUMANCE OR BOOLEYING IN THE CIVIL PARISH OF ACHILL IN WESTERN IRELAND

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Transhumance, called booleying in Ireland, is a practice found in many parts of the country that involves the movement of livestock and their keepers from lowland permanent settlements to summer pasture in the uplands, where they remain generally from May to October. In this paper it will be shown that the practice of booleying benefited both man and beast, as the removal of livestock in spring helped to protect crops and grass for use as winterage at the permanent settlement from the depredations of livestock, while the change of pasture maintained the health of livestock and enabled larger herds to be kept. It is argued that booleying was common in the Civil Parish of Achill until the mid-nineteenth century and gradually declined after that, partly because of the availability of seasonal work in England and Scotland.

Not all transhumance movements in the Civil Parish of Achill were to upland sites. There is convincing evidence that the status of sites in the Civil Parish of Achill changed over time. This seems to have been in response to prevailing political and economic conditions resulting in the reversal of movements from the uplands to the lowlands as well as changes in status of both permanent and temporary settlements. This suggests that the practice of transhumance or booleying was a flexible economic system that in responding to people's needs was often modified, altered or when no longer viable was abandoned for a more advantageous system such as seasonal work abroad.

AM17 METHODS AND APPROACHES TO INVESTIGATE THE ELUSIVE HARBOURS IN THE NORTH ATLANTIC (FAROE, SHETLAND, ICELAND AND GREENLAND)

Natascha Mehler

GERMAN MARITIME MUSEUM

This paper will present the preliminary results of an international research project to investigate Viking and Medieval harbours / landing places in Iceland, Shetland, Faroe and Greenland, funded by the German Research Council (DFG). Most harbours consist of simple landing places without archaeological traces left in the ground. Seemingly insignificant, these landing places were part of a larger network of North Atlantic trade and communication. The paper will present the methods and approaches applied to find and study these sites. Special attention will be paid to discuss the use and analysis of ballast, the function of these sites, and the role of estuaries as location factor. Written sources such as Sagas and law codices have been analysed to help understand the operation and management of these landing places.

AM1 DRESSED IN TIN - AN EARLY BRONZE AGE WOMAN'S BURIAL WITH TIN BEADS FROM BAVARIA

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INSTITUT FUER VOR-U.FRUEHGESCHICHTLICHE ARCHAEOLOGIE U. PROVINZIALROEMISCHE ARCHAEOLOGIE

The paper introduces a newly discovered Early Bronze Age women's burial in the Lech Valley in Southern Germany containing a unique attire of thousands of tiny tin beads, next to a rich set of other dress accessories. The local as well as interregional context of this exceptional find will be presented on the background of scientific analyses as well as a cultural historical evaluation. The grave inventory is particularly striking since it can be dated to the beginning of the south-central European Early Bronze Age, where the majority of metal artefacts are still made of copper instead of tin bronze. Due to the lack of tin sources in the wider area the question of mobility and elite exchange in Early Bronze Europe will be re-addressed.

AM23 MOBILITY AND SOCIAL DYNAMICS IN BAVARIA AND NORTH TYROL IN THE URNFIELD CULTURE (13TH-9TH C.B.C.)

Carola Metzner-Nebelsick¹, Simone Reuss¹, Dominika Wycisk²

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Based on the study of burial rituals of the Urnfield Culture in southern Bavaria (1300-800 B.C.) the paper examines the reasons for the close cultural affiliation of those graves with comparative sites in the upper Inn Valley. In the 13th c. B.C. an unprecedented social acceleration in southern Bavaria can be observed in the context of prestigious grave and burial customs in general. At the same time the expression of material culture in graves of this region finds close parallels within newly founded cemeteries in the Tyrolean Inn Valley. It has been a long standing supposition that the phenomenon can best be explained by the immigration of north alpine communities into the Alps in search of copper, the control of the exploitation of the local ore resources and the distribution of copper artefacts. The paper reports about an interdisciplinary project. Combined with the results obtained from the anthropological examinations, special focus is directed to the question about the nature and dimension of mobility, migration, and cultural transfer. For the first time it will be possible through the analysis of stable isotope ratios in cremated human bones to provide answers as to whether this phenomenon was due to immigration or acculturation.

AM7 SHEDDING LIGHT ON GERMAN POW INTERNMENT IN ENGLAND DURING THE FIRST WORLD WAR

Dan Miles

ENGLISH HERITAGE

This paper aims to shed light on and discuss various aspects of the internment of German POWs in England during the First World War, by examining the evidence from the POW camp at RFC Yatesbury aerodrome, North Wiltshire. Established in early 1917, this camp housed around 800 German soldiers and sailors, who, along with prisoners held in other nearby work camps, were employed at the aerodrome and on roads, quarries and fields, contributing to the war effort. Since 2010, a community archaeology project, run by Finding the Forgotten and the Wiltshire Archaeology Field Group, has been investigating the aerodrome at Yatesbury and in particular the POW camp. By successfully combining archaeological investigations, including excavation, geophysical surveying, field walking and metal detecting, with comprehensive documentary research, the project has revealed a great deal about the camp, its occupants and its context within the national POW system it was part of.

This paper will bring together the evidence from this project to examine various aspects of the POW camp; on a micro scale focussing on the camp itself – its physical landscape and infrastructure, internal processes and organisation, conditions, daily routines, duties and interactions with the local community, of the German prisoners, – and at a wider, more macro scale, setting the camp into the national context of the POW internment system.

AM14 GRAVE-GOODS IN VIKING AGE SCOTLAND AND ICELAND: THE ROLE OF BIOGRAPHICAL OBJECTS AND MEMORY IN TWO SETTLEMENT REGIONS

Janis Mitchell

UNIVERSITY OF ICELAND

Variation in burial is noted throughout the Viking world. Not only are there differences between regions, but also from grave to grave. In this paper, the focus is on the grave-goods selected for inclusion in burial and how these relate to memory in the Scandinavian settlement regions of Scotland and Iceland. There may be various reasons for depositing an object in the grave, from the wider range of available objects; however, one explanation is that the grave-goods chosen were valued for their biographical associations. Potential biographical objects, such as heirlooms and antiques, may have been more mnemonically useful, as objects remembered in association with the deceased and events from their life. There is also suggestion that this process of selection could incorporate incomplete items and deliberately altered, fragmented and token objects are found in burial. Furthermore, there are examples of re-opened graves contemporary to the Viking Age where some, but not all, objects were robbed. This raises the question of whether the inclusion of objects, in some circumstances, could be regarded as a temporary aspect of burial ritual. The role of these biographical objects, whether they are included in burial as complete or incomplete items, remain in the grave or are later removed, are explored in relation to memory.

AM13 CHOREOGRAPHY OF EXISTENCE: LANDSCAPES AND MOVEMENT

Dimitrij Mlekuz

UNIVERSITY OF LJUBLJANA

There is more to mobility than just corporal travel of people around the landscape. Mobility involve complex “hybrid geography” (Whatmore, 2002) of humans and non-humans that enable people and stuff to move and to hold their shape as they move across landscape. Hägerstrand (1976, 332) calls this the “principle of togetherness”. This is not, he writes, “just resting together. It is also movement and encounter ... because what is all the time resting, moving and encountering is ... humans, plants, animals and things all at once”. Material “stuff” makes up places, and such stuff is always in motion, being assembled and reassembled in changing configurations. Movement is intertwining of many lines running concurrently, making it a generative and recursive practice. This “choreography of existence” (Pred 1977) forces us to move beyond static network topologies, of communications between fixed places, to fluid, emerging, changing, always becoming topologies and changing assemblages. Movement is continuously generative, and if we want to understand it archaeologically, we need to develop approaches that can cope with the fluid conditions of these generative practices. From the archaeological perspective we need to focus on processes of inscription and erasure that continuously produce these emergent assemblages. We need to understand how the complexity of the material connections accumulated over time creates massive inertia in landscape and understands forces that reorganize it. The paper thus explores archaeological landscapes as more-than-human, hybrid emergent assemblages emerging from acts of movement.

AM13 MATERIAL CONNECTIONS AND MOBILITY AT LOCAL SCALES: THE CASE OF SOUTHWEST ANATOLIA

Jana Mokrisova

UNIVERSITY OF MICHIGAN

Southwest Anatolia has long been considered a frontier between the Aegean and the Anatolian interior. While the past two decades witnessed an explosion of interest in contact in this region after the demise of LBA polities, this subject has been examined mainly in terms of ethnic identities and colonial frameworks (e.g., the Ionian migration). Communication between the Aegean and Anatolia, however, can be demonstrated as early as EBA and intensifying during MBA, when the region was incorporated into an evolving “interaction sphere” expressed through elite exchange and mercantile relations. The emergence of broader communication networks facilitating sharing of ideas and technologies set the stage for repeated multidirectional movements between Anatolia and the Aegean, a continuous process characterized by varying degrees of intensity and frequency across time and through space. Earlier research on mobility has not done justice to this process inasmuch as studies have tended to focus on long-distance immigration identified through the introduction of “non-native” material culture. While these interconnections have been traditionally explained in terms of large-scale migration and acculturation, I apply a contextual and diachronic approach and investigate regional short-range movement. I examine the mobility of both peoples and materials by situating the archaeology of domestic setting within a broader regional framework, which addresses inter-site communication and interaction with the environment. I will show that the creation of shared Aegean/Anatolian material culture in EIA was caused by protracted small-scale mobility, which maintained a milieu of familiar places and people, a shared knowledge base, and commensurate economic systems.

AM15 MEASURE FOR MEASURE: CONNECTING TEXT TO MATERIAL THROUGH LATE BRONZE AGE SHIPPING JARS

Christopher Monroe

CORNELL UNIVERSITY

Textual evidence from Ugarit pertaining to units, jar types, and jarred commodities is interpreted in light of intact amphora assemblages from Late Bronze Age Uluburun and Minet el-Beida. To refine notions of standardization in commerce involving shipping jars, different volumetric quantities for the Ugaritic term *kd* are considered relative to the apparent jar sizes at Uluburun and Minet el-Beida. Other terms, including logographic DUG, Akkadian *sūtu*, and Ugaritic *krs*, *prs*, and *ṯ*, are considered in terms of volume and whether they refer to divisions of the *kd*, the jarring of particular commodities such as olives, wine, and resin, or something else. The prominence of Ugaritic *kd* and its possible equivalence to DUG is considered, with regard to interpreting several documented cargoes. In sum the evidence suggests caution when speaking of standardized jar sizes: much remains undefined, highlighting the need for quantitatively detailed publications of shipping jars.

AM9 FINES AFRICAE: A GIS PERSPECTIVE ON ROMAN MAUSOLEA AS LANDMARKS IN THE NORTH AFRICAN LANDSCAPE

María del Carmen Moreno-Escobar¹, Sergio España-Chamorro², Estefanía Benito-Lázaro²

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Landmarks are signs to help navigate across the landscape. In the context of the Roman province of Africa we find a specific type of landmark, or tower-shaped *mausolea*, whose origins can be traced back to the pre-Roman period, when they were used to delimit the territories of Carthage and their neighbours. However, the Roman conquest and the incorporation of this area into the Roman world brought new meanings to these monuments, such as *limites* or boundary marks, funerary monuments, family memorials, meeting points for ethnic groups and extended families, as well as territorial landmarks related to roads and routes connecting the coastal cities and the inhabited areas in the Sahara desert. Despite of the fact that previous research on this topic has provided the idea of mausolea as landmarks, no archaeological spatial analysis has been carried out

in order to explore the relationships between these mausolea and the landscape they are part of. Given the current state of this debate, this paper aims to explore the changing role of these *mausolea* during the Roman period and their relation to roads and the wider North African landscape through the application of a number of techniques of archaeological spatial analysis, such as viewshed and accessibility analyses. In so doing, a better understanding of the development of Afro-Roman territoriality and of the mobility patterns through the landscape will be achieved, providing a new insight into the Archaeology of Roman Africa.

AM20 SENSING MOBILITY THROUGH EPIGRAPHIC RECORDS: THE INSCRIPTIONS OF FOREIGNERS AND PILGRIMS IN EARLY MEDIEVAL ROME

Arianna Nastasi

SAPIENZA UNIVERSITÀ DI ROMA

Speaking of epigraphy and mobility may seem a contradiction: how can such still artifacts affect movement, journeys and paths? However through the epigraphic analysis it is possible to observe a strong sense of mobility through immobility. The most striking example are the Roman milestones that marked distances along the community roads, but there is a plenty of other epigraphical records that provide to this investigation as the inscriptions that foreigners, travelers and pilgrims have left in Rome during the early medieval centuries. This specific group is one of the most tangible signs of the great mobility characterizing Rome in the early middle ages. In these centuries the city stands out as the greatest repository of relics in the Mediterranean area exerting a new attractive power. Graffiti are the main witness of this extraordinary movement toward Rome as well as epitaphs of pilgrims who died during their Roman stay or monumental epigraphs connected to the foreign elites. Through the analysis of this graphic set is possible to outline what has moved with the pilgrims and what they acquired from the Roman epigraphic tradition. Through onomastic and paleography is possible to define the origin when not declared by recurring formulas. In monumental inscriptions, instead, is evident as the uninterrupted epigraphic Roman tradition is still the model for this kind of historical records creating a sort of backwards path from the centre to the far end of the empire.

AM11 SOCIAL LIFE IN THE UPLAND LANDSCAPES – A CASE-STUDY OF A DESERTED MEDIEVAL FARM AND ITS SURROUNDINGS

Therese Nasset

UNIVERSITY MUSEUM OF BERGEN

The medieval, deserted Hellaug farm lies in a small, low-altitude mountain valley in Southwestern Norway. Surrounded by mountains, the ruins of this single farmstead lies quite isolated and is today considered as a marginal site. After the desertion of the Hellaug farm in the late Middle Ages the main activities in this area has been connected to shieling activities of other farms in the vicinity. Because of this, the cultural landscape has been well preserved at Hellaug and the surrounding mountain areas, making a unique possibility to study a larger area that can be connected to the farm. Studies of the topographical conditions of the outland of the Hellaug farm indicates the possibilities for a vertical transhumance, moving the animals to the pastures at the closest terraces in the early parts of the summer, and continues upwards to plateaus in higher altitudes with more marginal pastures during mid- and late summer. It should thus be expected to find archaeological evidence of outland utilization at the different mountain terraces surrounding the farm. Last summer I conducted an archaeological investigation, documenting archaeological remains in this area. What kind of activities do these structures represent? What do they tell us about the relationship between the farm and its surrounding areas, and thus the social and economic conditions at the Hellaug farm? And do these remains reflect what we know from later historical and ethnographic sources concerning outland use, or can such investigations illuminate new knowledge of outland activities during the Middle Ages?

AM8 ROME IN THE NEW WORLD? EARLY EXPLORATIONS OF TRANSATLANTIC TRANSFERS OF EUROPEAN CLASSICAL IDENTITY

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There has been a great deal of research comparing the Roman Empire and modern colonial empires, like those seen in the Americas, since the 16th century. Much of this literature is theoretical in nature and is limited to the political and intellectual use of classical (Roman and Greek) identity in the formulation, affirmation and justification of colonial policies. However, there has been little research into the material transference of this classical identity within the period of global European expansion during the 16th through 18th centuries. This paper will discuss a selection of case studies showing the potential of this material approach: including the perceptions, trade and consumption of early modern goods framed in a classical ideal by early modern consumers and the physical transference of actual ancient material culture to the Americas in both intended and unintended ways. Examination of the material culture being traded in the 16th through 18th centuries opens the door to questions of identity transfer between Old and New worlds. This paper will explore some of these questions, including implicit versus explicit transference of the classical European identity: can material evidence yield information on the intentional adoption of classical identities in the early modern European global expansion or are we seeing the residual effects of ancient materials which continued to be prominent in European life in the 16th through 18th centuries?

AM9 THE EVOLUTION OF ROUTEWAYS: USING AGENT-BASED MODELLING TO DEMONSTRATE MOVEMENT AS A CUMULATIVE PHENOMENON

Yolande O' Brien

NATIONAL UNIVERSITY OF IRELAND, GALWAY

Classic approaches to movement have often involved the identification of ancient roadways, and it has been a valuable exercise in terms of placing settlements in a movement-centric context, and illuminating communication, economy and power structures. What are the processes though that lead to the creation of routeways? To answer this question, we must do more than simply join dots on a map, but acknowledge that routeways are dynamic entities which are sensitive to change. The evolution of routeways is a cumulative exercise which is the result of the actions of many individuals over the course of time. It requires personal decision making, and also the acknowledgement of the actions of our predecessors. These actions may take the physical form of *desire lines*, or may be more intangible social knowledge. Initial attempts to traverse a landscape may seem inefficient, but repeated iterations will usually find ways to cut corners and the routeway will eventually evolve into an established and more efficient routeway. This paper will discuss this phenomenon as demonstrated by Agent-Based Modelling of the evolution of a routeway. The result is remarkably similar to Least-Cost Path analysis and the current road network, but this method allows us to consider the evolution process and how sensitive it is to changes in landscape, settlement and behaviour.

AM13 THE ROLE OF PERSISTENT PLACES IN NAVIGATION

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Ethnographic studies have demonstrated remarkable abilities of orientation and navigation when negotiating landscape. It has been known for some time that kinesthesia and feedback from the vestibular system are crucial in this process, as they allow us to estimate how far we have walked and to maintain orientation. The discovery of *place cells* and *grid cells* in the brain has a serious impact on landscape archaeology, and in particular how we go about learning the landscape and moving through it. These discoveries tell us that the concept of place is the key component of our internal GPS and so, any consideration of movement must first explore how the cognitive map was constructed. Throughout prehistory and beyond, there has been an enduring attraction to natural features such as mountains, lakes and rivers. These *persistent places* are highly visual, and attractive features for those learning a landscape. Their inherent suitability for this process is reinforced by ritual activity, place names and mythology. Thus, the patterns of activity around such features may provide clues as to how people in the past constructed their cognitive maps and perceived their landscape. This paper will explore the impact of such landmarks on how movement is performed in the spaces between these places.

AM10 CUCULLI LIBURNICI - TRACES OF WOOL PRODUCTION IN ROMAN DALMATIA

Ivana Ožanić Roguljić, Goranka Lipovac Vrkljan

INSTITUT ZA ARHEOLOGIJU

Textiles and wool from Liburnia were sporadically mentioned in the sources from the 1st century. These testimonies seem to echo the fact that finished products exported from Liburnia included cloth and clothes, i.e. cloaks (*cuculli liburnici*). The scanty information from the sources on textile production from the territory of Liburnia combined with the discoveries of truncated-pyramid weights around a smallest kiln in pottery workshop in Crikvenica seem to highlight the great need for making vertical looms. Textile production leaves few traces, so the quantity of discovered weights sheds a new light on the evolution of the textile production in the territory of the Roman province of Dalmatia. These few notes on the Liburnian cloak and the Liburnian coarse cloth in Latin sources are very important, since they point to export to the territory of Italy during the 1st century, that is, at the time of intensive activity of the Crikvenica workshop.

AM14 HORSES OR MARES? NEW ADNA RESULTS FROM HORSE BURIALS FROM VIKING AGE PAGAN GRAVES IN ICELAND

Albina Hulda Palsdóttir¹, Rúnar Leifsson², Jón Hallsteinn Hallsson¹, Arne Ludwig³, Saskia Wutke³

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Viking Age pagan graves in Iceland have long been the foundation of Icelandic archaeology. Of the roughly 320 pagan graves found so far about a third (115) are associated with horse burials which makes horses the most common grave good in Icelandic pagan graves. Traditional zooarchaeological analysis shows that all of the horse skeletons which could be sexed were male, based on the presence of canines and in a few instances on pelvic morphology. This was different from Viking Age pagan burials in Scandinavia where mares have also been identified. New results from ancient DNA analysis on horse bones from Icelandic pagan graves which shows that some of the skeletons come from females will be presented. This new study illustrates one of the potentials of aDNA analysis as a new tool in zooarchaeological research.

AM14 THE PIONEER FRINGE IN GREENLAND FROM A FOSSIL INSECT POINT OF VIEW

Eva Panagiotakopulu

UNIVERSITY OF EDINBURGH

Norse Greenland provides a classic example of a community in a marginal landscape facing the problems of the pioneer fringe and ultimately failing. From the optimism of the initial settlement, the Norse colonisation declines towards final abandonment in the fifteenth century. This paper will explore palaeontomological data from both the Eastern and Western settlements and will draw similarities and differences from contemporary Norse settlements in the North Atlantic region. Information for collective practices, organised by the elite at Garðar in the Eastern settlement, indicates a hierarchical structure where the core farm managed the periphery. In the Western settlement the farms seem to follow more independent paths, with a tragic end for some and uninterrupted patterns for others, as for example at Gården under Sandet, where the recently finalised archaeological matrix provides interesting information in terms of assemblages from different phases of occupation. Isolation and lack of change could be partly the reasons for the failure of the settlements after a few hundred years. What is certain is that the current landscape has been dramatically modified in terms of insect faunas, with woodland insect species disappearing locally after Landnám, while species which thrive on modern hayfields, comprising a significant part of modern faunas in southwest Greenland, first appeared together with the Norse. The short Norse presence in Greenland provides information not only for settlement patterns and their success or failure but also for the rate of ecological change as a result of human impact on marginal landscapes over the longer timeframe.

AM10 TORRE VALCA: THE PROCESSING OF WOOL IN THE CAFFARELLA VALLEY, REGIONAL PARK OF APPIA ANTICA, ROME.

Angela Paolini

UNIVERSITY OF TOR VERGATA

The Caffarella Valley falls into the Appia Antica Regional Park, is located outside the Aurelian Walls, between the Via Latina and Via Appia Antica and finally is crossed by Via dell'Almone at the south.

This is an alluvial valley consisting of summit tuffaceous plains, slightly steep slopes and of a valley floor rich of aquifers and numerous mineral springs.

Particularly significant is the presence of the river Almone, sacred to the Romans, still the third river in Rome for the flow rate, and the streams fed by numerous local sources, already known in Roman times. Formerly in the Caffarella Valley the hydrographic network was developing a lot more complex than the current one.

Many artifacts are still visible or detectable in the valley and prove the many human activities carried out for the use of surface waters, like Torre Valca one of the most important visible example of an ancient mill.

The medieval tower is located in a strategic position to the river Almone, this consolidating the system of exploitation of the water in the valley.

Dating back to the twelfth century, the tower is built on the previous structures. The tanks inside suggest the utilization of the factory as "valca", from the Lombard word "walkan" that means "to roll", a particular water mill used for working and washing wool clothes.

AM20 HISTORICAL ROUTES AND CONTEMPORARY MOBILITY IN THE DIGITAL ERA.

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Nowadays, the relationship of uncovering historical routes and the contemporary mobility faces new challenges. This paper provides a new perspective by proposing an innovative idea of how uncovering historical routes can be presented and broaden the horizons of the available methodological tools. A hi-tech application which provides a virtual tour on a selection of historical routes in ancient Greece functions mainly as a new methodological approach of revealing the past. However, it provides a link between the past and the contemporary mobility, capable to promote the sustainable development of a given territory.

In archaeology, researchers focus on cultural artifacts, assets and values that have been set aside over the years. The new technological stream on virtual travelling and e-learning activities suggests a new method of enlightening and presenting the cultural heritage. In that sense, revealing historical routes of the city-states of ancient Greece (Athens, Epidaurus, Messene, Olympia) presented via a virtual journey, facilitates the contemporary mobility under the label of an e-learning activity. It is in our project the adoption of a new methodological approach of uncovering historical routes that facilitates the contemporary mobility to a great extent. The creation of a new distribution channel –such as the one described previously- for the results of the archaeological enquiry regarding the historical routes is the key to address the broader notion of mobility, extended from cultural mobility to the mobility of knowledge.

AM7 BARBED WIRE AND WHITE BUSES. THE ARCHAEOLOGICAL EXCAVATION OF A SECOND WORLD WAR REHABILITATION CAMP IN SWEDEN.

Maria Persson

HISTORICAL STUDIES, UNIVERSITY OF GOTHENBURG

This paper considers the theme of the session from a Swedish perspective. In focus of the paper is an archaeological excavation of a Second World War rehabilitation camp in Sweden. 550 survivors from Nazi concentration camps came to the Skatås Camp in Gothenburg, Sweden, in 1945. They were part of a total of 30.000 survivors who came to Sweden during this time, most of them brought to Sweden through the rescue action of "the White Buses". Skatås was a camp set up for their rehabilitation. An archaeological excavation of the site was conducted in order to recall memories of the camp. Amongst many other finds, a piece of barbed wire was found during the excavation. We learned that it originated from the fence that enclosed the camp. Since the camp was accommodated by survivors of the holocaust this was a controversial find. With the take-off point in this rusty piece of wire it is possible to tell a multifaceted story, concerning Sweden's stance during World War Two, especially when it comes to refugee politics. The paper also highlights that the construction of camps was not limited to the wartime period. They were also required afterwards for those displaced by war and its aftermath. Furthermore, camps were not limited to the belligerent or occupied countries. They were also to be found in a neutral country like Sweden.

AM11 FROM WRITTEN SOURCES TO ARCHAEOLOGICAL REMAINS. MEDIEVAL SHIELINGS IN MID SCANDINAVIA.

Susanne Pettersson

INDEPENDENT

Most shielings in Sweden and Norway have been deserted in the 20th century, but the sites are often known by name, through written sources, oral tradition, visible remains from modern times and historical maps. Sometimes the buildings are preserved and use for other things such as modern summerhouses. But, although we know that many shielings have been established already in the Iron Age and the Middle Ages, remains from these periods are not visible when mapping shielings and hard to detect also during excavation. A major reason for the problem of locating older remains of houses at a shieling is the building tradition in mid Scandinavia being log timbering, a technique leaving few archeologically detectable traces. Other problems is the lack of old maps including the outland and the location in the outskirts of today's infrastructure involving very few shielings in rescue investigations. That will leave most of the field of research to small scale investigations for better or worse.

The aim of this paper is to discuss different methods to locate and identify prehistoric/medieval remains at post-medieval sites referred to as shielings.

AM11 TRANSHUMANCE AND LANDSCAPE IN ENGLAND AND ITALY: A COMPARATIVE APPROACH

Sabrina Pietrobono

FORMER MARIE CURIE FELLOW

This paper debates the problems in reconstructing transhumance with reference to the archaeological data: I will present some case-studies in England and in Italy, where grazing livestock has contributed to shaping the landscape, through the building of huts, fences, walls, macéres, paths, and so on.

In England, movements of herders disappeared earlier than in most of Europe, but they may be analysed through documents and field surveys. In order to understand the legacy in the landscape of the historical transhumance in Northumberland the first case study will focus on Newminster Abbey, near Morpeth.

In Central Italy, two main strategies emerged for seasonal movement of livestock from the late Middle Ages:

1 - A centrally-organised 'transhumance', practiced along the tratturi from Central Italy to the Tavoliere di Puglia. The second case study, Carovilli, is a settlement developed along two of the main tratturi across Molise.

2- The third case study examines a small-scale local "transhumance", which can be also studied thanks to local reports and oral records: as is the case of Ambrifi (Lenola, LT). This was an abandoned castle in Lazio, later remained as central reference for pastoralism in its area.

By examining peculiarities of the local practices through the analysis of the landscape, as well as the historical links with monasteries and their role in local land exploitation, I will attempt to depict social and economic transformations occurred in the transhumant way of life from the Middle Ages to the post-medieval period.

AM23 A COLLECTION OF ATYPICAL ARTEFACTS IN MELUN (ILE-DE-FRANCE, FRANCE) WITNESS OF AN EXOGENOUS COMMUNITY ?

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Several preventive excavations in the city of Melun and around (south-east Paris ; city of the Senons) allowed to uncover about 60 objects in terracotta dated from the Early Roman Empire which are unusual for this region.

These artefacts, probably prepared in the local tile-making workshops, have been made with the same clay that the building materials ; they have been brought in shape and cut. Some of them wear a decoration sometimes quite elaborated.

Four categories of artefacts can be roughly discerned :

- « lids » : thick disks with a prominent lug,
- vessels such as tripod and quadrangular vases,
- curb shaped artefacts whose function is undetermined,
- a collection of vase-supports (*incitegae*).

The exotic aspect of this group of items can be compared with several sites of the Eastern Gauls and in *Germaniae* ; it leads to the hypothesis of the occurrence in Melun of exogenous populations (army veterans ?). As a matter of fact these types of objects seem to be mainly localised on military sites (Strasbourg and Saalburg : civilian agglomerations round a legionary camp) and colonies (Augusta and Avenches). Lastly, parallels can also be seen in the Danubian provinces (*Moesiae*).

AM3 MODELLING MOBILITY: THE CASE OF THE CHICKEN

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BOURNEMOUTH UNIVERSITY

With a near global distribution, the domestic fowl is the most widespread non-mammalian domesticated animal. Since its arrival in Europe after the Bronze Age, it has played a significant role in human-animal interactions; ranging from food and feathers to entertainment and ritual. In order to achieve this, the species has exhibited immense geographical, environmental and social mobility within its relatively short history.

Descended from the Jungle Fowls of South-east Asia and India, the chicken has transformed from a tropical-forest-residing wild bird into a domesticate which now populates most climates and habitats of the world.

This paper demonstrates how application of ecological modelling and biogeographical techniques can be used to understand the challenges of this transition and illustrate the successful expansion of the domestic fowl's range so far beyond that of its wild ancestor.

Much of this success can be attributed to the populations transporting them. Spatial analysis of the archaeological record for the Bronze Age to Roman period demonstrates changes in behaviour toward the domestic chicken over time; informing on the relationship between birds and humans. The evidence reflects the journey of an exotic species which was to become a staple of everyday life.

Keywords: Zooarchaeology, ecology, evolution, human-animal interaction

AM16 WHEEL-THROWN OR WHEEL-FINISHED FIGULINA PITHOI?

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Long distance trade involves not only goods but also the exchange of ideas and technology across different areas.

A relevant example of this kind of exchange can be found in the introduction of the potter's wheel in some of the indigenous contexts of the Italian peninsula since at least the 13th century B.C., following the first contacts with the Aegean area and Cyprus during the Middle Bronze Age. The introduction of the potter's wheel marks the beginning of the production of three new important wheel-thrown/wheel-finished pottery classes: the so called Italo-mycenaean, the grey pottery and the figulina pithoi.

This paper will focus in particular on the use of the potter's wheel for the production of figulina pithoi and on the technological aspects of this new pottery class. This study follows and deepens the study by Sara T. Levi (1999). Through some x-ray analysis of several fragments discovered in Broglio di Trebisacce (Cs) and the comparison with experimental items made by the experimental potter G. Pulitani, the manufacturing process of Southern Italy products will be carefully described, including regularities and differences in the use of the potter's wheel among different phases, from the pithoi of the Italian Recent Bronze Age to the Final Bronze Age and the First Iron Age.

This analysis will also allow us to compare more specifically the Italian pithoi with the Aegean and Cypriot samples from which they are assumed to be derived, and therefore trace more precisely the technological links between these areas.

AM15 GREEK COMMODITIES MOVING WEST: COMPARING CORINTHIAN AND ATHENIAN AMPHORAE IN THE EARLY ARCHAIC PERIOD

Catherine Pratt

UNIVERSITY OF WESTERN ONTARIO

This paper seeks to illuminate aspects of Greek involvement in nascent trade networks of the early Archaic period through a comparison of Corinthian and Athenian amphora distributions. Both types of amphorae have been studied independently as indicators of early Greek seaborne trade. However, a detailed study comparing their distributions has yet to be undertaken.

This research is especially pertinent considering the increase in the number of published excavation reports over the last twenty years. The assumption of Corinthian supremacy in early Archaic maritime trade may indeed be challenged when one takes into account the quantity of 8th and 7th century Athenian amphorae (the so-called 'SOS' amphora) abroad. A comparison of the distributions of these two amphorae provides interesting parallels and discrepancies that might reflect different trade routes and the varying actors that facilitated the movement of these maritime transport containers.

AM8 WERE MYCENAEANS LIVING ABROAD? ANTHROPOLOGICAL APPROACHES IN THE STUDY OF CROSS-CULTURAL TRADE BETWEEN CENTRAL AND EASTERN MEDITERRANEAN

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In Bronze Age, cross-cultural trade between the Aegean and Italy was common and stable. The archeological record shows a significant impact and change on material culture especially in the south of the Italian Peninsula and eastern Sicily. These changes included, for instance, the local production of pottery using specialized techniques of Aegean origin, local imitations of Aegean and Cypriot wares, manufacture of metal objects using lost wax technique, the presence of architectural elements, agricultural tools and crops originating from the Eastern Mediterranean. Recent studies suggest that these evidences of Eastern Mediterranean cultural elements in Italy involved a close interaction between local native peoples and foreigners. In particular, Lucia Vagnetti (1993: 152; 1998: 71) points out that this technological specialization or "know how" can only be learnt by a close interplay between craftsman and apprentice. The goal of our study was to explore to what extent trade between Middle and Eastern Mediterranean populations involved the circulation and movement of people and ideas and to determine the way it took place. For this purpose, we used anthropological approaches, specifically, the study of the Swahili trading system, which shows analogous patterns to Bronze Age trade between Mediterranean populations. We interpret that trade was based on the development of social relationships between merchant foreigners and native settlers. In particular, our study suggests that foreign artisans' sons moved to local populations where they got married with local women, creating kinship relationships among cultures and as a consequence, the importation of knowledge, ideas and cultural traditions.

AM10 WOOL AND WOOL PROCESSING TRADITION IN MEDIEVAL RURAL HANDICRAFT IN ESTONIA

Riina Rammo

UNIVERSITY OF TARTU

The focus of this paper is on wool production and processing as possible indicator of local tradition and identity in Estonian areas in the Middle Ages (14th-16th cc). Presentation is based on clear distinction between the wool samples from textiles found in urban and rural contexts. Main methods used to study wool are microscopic investigation and wool fibre measurements. Source material come from the cesspits in a medieval hanseatic town of Tartu, and from contemporaneous rural cemeteries in Southern Estonia. The reasons for differences between wool types can be various. First, the sheep breeds as source of wool. Local sheep breeds obviously belonged to the widespread northern short-tailed group with heterogeneous fleece. Majority of the ca 3000 analysed textile fragments in Tartu origin probably from imported fabrics brought by the hanseatic merchants from Western European production centres, where fine wool from England was often used. Secondly, methods (principals of sorting, dyeing, and blending) and tools (combs, sticks, cards) used for wool processing before spinning may be different. Thirdly, the character/essence of the whole textile production process (large-scale production vs village handicraft) and the desired end product affect the ways the wool was treated (e.g. time spent on the process). Does the differences in handicraft tradition, e.g. in textile making, express the identity?

AM6 THE ORIGINS OF PREHISTORIC ALPINE ANIMAL HUSBANDRY: RECENT DISCOVERIES IN THE SILVRETTA RANGE (SWITZERLAND/AUSTRIA)

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Few regions in Europe are so strongly associated with alpine animal husbandry as the Swiss-Austrian mountain regions. The seasonal use of alpine pastures by sheep, goat and cattle herds and the immediate utilisation of animal products seems perfectly adapted to the alpine landscape, so much so that this tradition continues into the 3rd millennium AD. Perhaps this is part of the reason why origins and development of 'Alpwirtschaft' in the central Alps are still so badly understood. However, this might also be due to the methodological difficulties of alpine archaeology.

An interdisciplinary research project was initiated already in 2007 to study the origins and development of alpine animal husbandry in the Silvretta range on the Swiss-Austrian border. Starting points of the surveys were a number of prehistoric settlements on the valley floor. Till 2014 during seven campaigns a large number of high alpine (over 2000 masl) sites dating between the earliest deglaciation and the modern age could be discovered. These included Mesolithic, Neolithic and Bronze Age abri sites as well as unique structures from the 1st millennium BC, such as animal pens and huts. These are chronologically similar to and functionally complement the valley sites and are the very first architectural buildings precisely dated to the prehistory in the Swiss Alps.

The results of the still ongoing project show that the extensive alpine pastures were being used from at least the 2nd millennium BC for summer grazing. These archaeological results are supported by e.g. archaeobotany, archaeozoology, toponymy and dendrochronology.

AM16 MORE THAN MEETS THE EYE. INTEGRATING 3D SYMMETRY ANALYSIS AND SURFACE MACROTRACES CHARACTERISATION FOR INVESTIGATING WHEEL-FASHIONING METHODS

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UNIVERSITY OF AMSTERDAM

Over the past two decades, the application of ethnographic and experimental data to archaeological material made substantial contribution towards the definition of attributes characteristic of specific ceramic forming techniques. In particular, the thorough study of surface features, axial symmetry and regularity in wall thickness proved to be a key-element for identifying wheel-fashioning methods. However, to investigate the morphology and co-occurrence of surface macrotraces such as striations, fractures, undulating ridges and grooves, archaeologists rely almost exclusively on their experience in the visual and tactile examination of the ceramic material. Although recent studies on symmetry analysis carried out on archaeological ceramics have already demonstrated the importance of using 3D acquisition for distinguishing wheel-fashioning methods (e.g. Mara, Sablatnig 2008), not as much has been done to explore the full potential of this innovative tool in terms of surface analysis.

In this paper, we argue that the integration of 3D scanning technology within standard procedures of macrotrace analysis not only enables us to record vessels' surface topographies more systematically and in greater detail than with the naked eye, but may lead ultimately to the development of an algorithm that automates the process of identifying different forming techniques. By presenting a multidisciplinary study conducted on both experimental and archaeological ceramics (from Late Bronze and Early Iron Age Central Italy), involving a ceramic analyst and IT specialists, we seek to illustrate how significantly the use of 3D technology may implement the quality and quantity of information at our disposal for assessing wheel-fashioning methods.

AM22 NAUTICAL ARCHAEOLOGY AND THE HERMENEUTICS OF THE ANTI-SOCIAL

Sara Rich

MARITIME ARCHAEOLOGY LTD

As the ultimate objects of mobility, ships and boats also literalize metaphor: *meta* (across) + *phorein* (carry). A fleeting moment, a naval fleet, both have etymological origins in the Old English *floetan* (to drift, float, or flow) – the object is inextricable from its temporal-spatial passage and physical form. Ships are collections (authenticated by the past), but somehow they are also souvenirs (authenticating the past), and as both, they physically and metaphorically mediate time and space. But what about shipwrecks, who have failed in their task of carriage? While we speak of ships as transporters and connectors, like other tools, once they break, they are disposed of and become forgotten rejectamenta, removed from the human-social sphere. And yet when we examine them, we go to great lengths to reinstate their 'authentic' socio-cultural statuses, possibly at the expense of other endeavours. This paper will analyse these paradoxes using a recent movement in metaphysical philosophy, object-oriented ontology. This philosophy is deanthropocentric and largely anti-social; that is, without the Kantian subject-object or human-world divide, or a reliance on agents of exchange or actor networks, objects are simply autonomous and completely inexhaustible. When applied to archaeology, which often tends to embrace the socio-cultural aspects of objects without embracing the rest, it means that objects can be understood, not through their physical properties or networks of relationships, but as intrinsically paradoxical and with an infinite informational capacity. In essence, shipwreck-objects can be seen as ontological sources of movement and cessation, independent of the (social) human gaze.

AM13 GENETIC EVIDENCE FOR METAL AGE MOBILITY IN EUROPE

Martin Richards, Maria Pala

HUDDERSFIELD UNIVERSITY

Evolutionary genetics has undergone a remarkable shift in the last decade, mainly due to a diverse range of new DNA sequencing technologies – usually referred to collectively as "next-generation sequencing" (NGS). This has impacted on two distinct areas of evolutionary genetics that have, as a result, been brought closely into alignment. The first is *genomics* – it is now possible to generate whole-genome sequences at a rate and cost that were undreamed of only a decade ago. The second is *palaeogenetics*, or the study of "ancient DNA" (aDNA) – that is to say, DNA from long-dead remains. The potential for recovering aDNA has been boosted as much by the introduction of NGS as it was by the original 1980s invention of the polymerase chain reaction – arguably more so. Both are contributing enormously to our understanding of the human past, in the discipline of *archaeogenetics*, and they have come together in some of the most spectacular scientific successes of modern times – the sequencing of whole genomes from extinct humans. But they are also making a powerful contribution to our knowledge of the genetic make-up and demographic history of early modern humans, and in particular the unprecedented use of aDNA analyses in the last few years are allowing progress with reconstructions of mobility in later prehistory, over shorter

geographic ranges than the mainly inter-continental dispersals that have been addressed in the past by means of inferences from modern patterns.

AM8 CAROLINGIAN MALE ORNAMENTS IN GREAT MORAVIA – JUST A FASHION OR A MANIFESTATION OF SOCIAL IDENTITY?

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INSTITUTE OF ARCHAEOLOGY OF SLOVAK ACADEMY OF SCIENCES

The paper presents results of analyses of chronology and archaeological context of imports and local imitations of male ornaments and elements of warrior attire of the Carolingian type in the Great Moravia of the 9th century – particularly during Christianisation and state formation periods. Despite the long-term neighbourhood between the Slaves (inhabiting territories of today Slovakia, Moravia and Bohemia) and the Carolingian state, we cannot speak about any horizon of imports dated back to the second half of the 8th century as we have only a few finds of the Carolingian type coming from that time. A significant wave of Carolingian imports to these areas seems to be linked with social and cultural changes that took place in the Middle Danube Basin after the collapse of the Avar Khaganate in 803. The western European originals in majority are dated back to the first half of the 9th century, while those dated back to the second half of the 9th century are almost exclusively local imitations.

Based on the analysis of archaeological sources the paper attempts to answer the following questions: When and why male part of the Moravian population considered “Carolingianness” as desirable (as there are no finds of female ornaments)? What started the wave of imports and what caused production of local imitations? Was it only a fashion or was wearing attire and equipment of the Carolingian type popular due to other reasons? Did Carolingian type artefacts affect the social and cultural identity of their owners and if yes how?

AM3 CROSSING THE COASTLINE: THE ROLE OF THE SEABOARD IN THE MOVEMENT OF PEOPLE AND CULTURE

Alice Rogers

UNIVERSITY OF READING

In recent years the topic of prehistoric movement has sparked the interest of many researchers, as evidenced by the proliferation of isotopic analysis and studies looking specifically at different zones of movement and interaction in the archaeological record. Movement is a fundamental part of human life; it provides practical, social and ritual benefits by linking people together and forging new relationships. One of the key questions in archaeology is what form does this movement take in the record and how can it be detected?

Though the importance of movement along the coastline has long been recognised in Mediterranean research, it has been overlooked in archaeological discussions of movement elsewhere, despite being highly significant for encouraging connections between people and places. It is also greatly relevant to the idea of crossing boundaries, both of a physical and metaphysical nature, with the coastline itself often being perceived as a liminal location.

This paper presents the results of doctoral research examining evidence for the movement of people, ideas and objects between the communities living alongside the British North Sea coastline during the Neolithic and Early Bronze Age (c.4000 – 1500 BC). It includes the evidence from monuments, burial practices and material culture. In particular, I will examine the specific nature of the coastal travel proposed in my work, drawing upon the social and ritual importance of coastwise travel, as outlined by Braudel (1972) and Helms (1988).

AM16 THE INVENTION OF THE POTTER'S WHEEL: CONDITIONS AND CONSEQUENCES IN TERMS OF DIFFUSION

Valentine Roux, Johnny Samuel Baldi

CNRS

According to the macrotrace analysis of the ceramic shards from Tell Feres al-Sharqi (in the Khabur basin, Syrian Jazeera), as well as from some surveyed “tells” in the Ranya and Qara Dagħ regions (Iraqi Kurdistan), the introduction of the potter’s wheel in Northern Mesopotamia dates back to the beginning of the 4th millennium BC. It is documented by some fine wheel-coiled little-sized globular bowls entrusted with a particular social meaning. In this period, the entire production was in the hands of a small number of specialists, who attended to all the steps of the *chaîne opératoire*. This innovation took place in a proto-urban organizational context, where some large agglomerations and strongly ranked elites were emerging. A more and more hierarchical system was developing and ancient kinship-based territorial and economic organizations were turning into centralized proto-urban institutions. This historical scenario raises the question of the conditions necessary for the innovation of the potter’s wheel. By comparing the Mesopotamian and the Southern Levant context where the potter’s wheel has been invented in the second part of the 5th millennium, it appears that in both cases, the potter’s wheel appears with craft specialists attached to an elite and in response to the request of specific vessels. As a result, new technological norms were developed that explain why the wheel coiling technique was not transferred to utilitarian vessels

AM16 DECONSTRUCTING THE POTTER'S WHEEL: INVESTIGATING CERAMIC TECHNOLOGY IN EARLY IRON AGE GREECE THROUGH MACRO-TRACE ANALYSIS

Štěpán Růckl

UNIVERSITY OF AMSTERDAM

In general, and within the context of Aegean pre- and proto-history in particular, the introduction and use of potter's wheel is traditionally related to a very specific ceramic technology – that of wheel-throwing. However, the past two decades has witnessed a growing awareness in the archaeological community of the variety of ways the potter's wheel can be used. Due to the efforts of a number of ceramic specialists working in the Aegean, wheel-fashioning or wheel-coiling methods, which are technically distinct from the wheel-throwing technique in terms of technological knowledge and skills, have been identified in contexts ranging from Early Bronze Age mainland Greece to Middle Bronze Age and early Late Bronze Age Crete.

Based on the evidence of Protogeometric (1050-900 BC) ceramic material from the sites of Lefkandi, Mitrou, and Halos (all in Central Greece) and the outcomes of a small experimental project, I will argue that the results of my analysis extends the use of wheel-coiling even further into the post-Mycenaean period. Moreover, the consequences of my research are quite unexpected: the question is not whether there was any Bronze Age and Early Iron Age *wheel-coiled* pottery in Greece but rather how to identify *wheel-thrown* pots with any certainty in the first place.

AM7 GERMAN ARCHAEOLOGY AND FORCED LABOUR DURING THE NATIONAL SOCIALIST PERIOD (1933-1945)

Judith Schachtmann

INDEPENDENT

Even 70 years after the end of World War II still new aspects of forced labour such as the involvement of smaller companies in forced labour are being presented. But turning to German prehistory and early history which highly benefit by a large number of foundations of archaeological institutes at universities and archaeological museums during the NS no studies have been taken so far. That German archaeology is connected to forced labour is shown by several publications on archaeological sites when the involved labours such as prisoners of war or inmates from concentration camps are mentioned. Further details and any discussion are unfortunately lacking.

German prehistorians not only used inmates from concentration camps and prisoners of war but also prison inmates on several archaeological excavations in Germany and in the occupied countries. In my talk I would like to present a first overview on that topic. Beginning with technical conditions the second part will give several examples for the three afore mentioned groups. Besides personal motivation and the ideological background of the archaeologists the treatment of the labours by archaeologists will be discussed. Finally I will also show how the results of the excavations were presented in local and in scientific publications.

AM7 WORLD WAR 2 FORCED MIGRATIONS IN THE ARCTIC: CULTURAL HERITAGE AND THE EVACUATION AND DESTRUCTION OF FINNISH LAPLAND IN 1944

Oula Seitsonen

UNIVERSITY OF HELSINKI

In the later part of World War 2 Finland and Nazi Germany were co-belligerents, with over 200 000 German soldiers holding the frontal responsibility in the northern half of Finnish eastern front. As a consequence of a major Russian offensive in 1944, Finland made a cease fire treaty with the Soviet Union: this treaty demanded Finns to drive out the German troops which resulted in a Finno-German "Lapland War" in 1944-45. Practically the whole civilian population of Lapland was evacuated to the southern parts of Finland and to Sweden before the outbreak of hostilities, excluding some reindeer herders who stayed behind in the fjells to look after the animal herds. Germans used the scorched earth tactics during their retreat to Norway, and destroyed the infrastructure within their reach and littered the landscape with explosives. In 1940-44, before the Lapland War, the relations between German troops and civilians in Lapland were generally cordial, but the post-war memories have been taken over by the powerful images of a homeland destroyed by fire and explosion, in both the official and private accounts. This appears to also colour the views of and engagement with the cultural heritage of the era. In this paper I review the experiences of Lapland's evacuees, and assess the effects these incidents might have had on the way different communities signify the material remains of German presence. Also the material heritage of the evacuation itself is considered, for instance the refugee camps established in Sweden.

AM17 PROSPECTING FOR ORKNEY'S MARITIME HERITAGE

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Maritime activity has been the key to the human occupation of the Orkney islands since they were first settled. Orkney has a rich array of evidence of maritime activities such as fishing, waterborne trade, transport and communication. Their remains survive on land and underwater, on the coast and even further inland (e.g. navigation beacons). The study of such activity has tended to concentrate on the 18th - 20th centuries usually from an historical or ethnographic point of view, partly due to the fact that more evidence survives than for earlier periods, yet maritime cultural heritage is central to the history of the islands,

especially in the Norse and medieval periods when Orkney was the centre of a Norse earldom and a stopping point on routes linking Scandinavia, Scotland, Ireland and the islands of the North Atlantic, as shown in the *Orkneyinga Saga*.

This paper presents a research project that has been initiated to identify Orkney's early harbours, landing places and maritime infrastructure, taking an holistic approach that incorporates Westerdahl's definition of the maritime landscape. A multi-disciplinary methodology is used to identify maritime landscapes, sites and structures - especially landing places and harbours. This includes targeted walkover, diver and marine geophysical surveys, historical, toponymic, ethnographic and cartographic data, and the analysis of currents and tides along with community knowledge to identify where landings are or were possible. Reflections on the approach and results will be presented, as well as thoughts for the future.

AM1 HOW VALUABLE WERE THESE BRONZES ANYWAY? - FROM THE FRONTIER OF BRONZE DIFFUSION ON THE KOREAN PENINSULA

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The Korean peninsula witnessed spectacular development of weapon shaped stone tools during the Bronze adoption process in the first part of first millennium BC. These stone tools are not just replicas of bronzes which originated from the northern part of the Eurasian continent, as suggested in the 20th century, but probably embodied local identities that were facing new technological and ideological innovation from developed civilization. Considering this competitive situation, the authors examine how valuable the initial bronze products were in this area. There are five major kinds of grave offering goods in the Korean Bronze Age: bronze daggers, stone daggers, arrowheads, red burnished pots and stone bead ornaments. Through an analysis of their associations, combinations and correspondence with cemetery structure and size, we argue that bronze was not the only noble product at this time, but in some cases was considered even less valuable than the other goods made from locally available materials.

AM9 NEW ROAD, OLD ROADS AND PEOPLE'S LIFE IN ROMAN DACIA, BETWEEN APULUM AND MICIA. PREVENTIVE ARCHAEOLOGY AND GIS DATA INTEGRATION.

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The history of humanity is nothing else than the history of raw materials, of any kind, and the communications links between them. In 2011 - 2013, construction of the highway Sibiu - Nădlac (Romania) have brought a significant contribution to the knowledge of this portion of the middle Mureş Valley, between Apulum and Micia. Thus, traces of Roman structures have been reported to Pianu de Jos, Tărtăria, Balomirul de Câmp (Alba County), Şibot, Gelmar II, Spini, Simeria Veche, Şoimuş and Brănişca (Hunedoara County). All these sites, plus the ones from the area between Simeria and Vinţu de Jos, where a series of Roman structures were indicated by aerial surveys, raise problems of interpretation. It is obvious, given the alignment of these new findings, that all of them are related to a road network, which can be hardly considered as secondary. At this stage of research it seems to be a main Roman road (with small sections outlined in archaeological research) to which are related a number of secondary roads, along to natural corridors described by Pianu Valley, Cioara Valley, Cugir Valley, continuing to the Strei Valley, to the capital of the Roman Province of Dacia. These data, connected in a GIS application with those contained in ancient, medieval and modern topographic resources, as well as mapping areas of mineral resources (metal, salt, stone) define a highly complex archaeological landscape, shaped permanent by human factor. (Mihaela Simion, Decebal Vleja, Florela Vasilescu)

AM14 CLIMATE CHANGE, RESILIENCE, AND COLLAPSE IN MEDIEVAL NORSE GREENLAND: A DECADE OF INTERDISCIPLINARY RESEARCH.

Konrad Smiarowski¹, Christian Madsen², Thomas McGovern³, Jette Arneborg², Ian Simpson⁴, Michael Nielsen⁵

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Changes in climate regimes have played a significant role in the cultural settlement patterns of Greenland for several millennia. This paper focuses on the Medieval Norse Settlement ca. 985-1450 CE and how the terrestrial and marine (wild and domestic) resources were utilized, managed and modified in the face of climatic and environmental changes at all levels of the Norse social strata. Datasets from small tenant farms and shielings in marginal areas, such as E74 Qorlortorsuaq and E168, middle size independent farms like E172 Tatsipataa and E171 Tasilkuloq, and magnate holdings like E29N Brattahlid and the Bishop's See at E47 Gardar (Greenlandic center of power), are utilized to understand the site specific, local, and regional management strategies and the level of their long-term sustainability. The Eastern Settlement strategies are compared with parallel data from the Western Settlement; small site W48 Niaqussat, middle size farm GUS (Farm Beneath the Sand) and a high status chieftain manor at W51 Sandnes. Their comparison aids in understanding the collapse of the whole Norse colony, a century after the abandonment of one of its two core components, the Western Settlement. Results from disciplines such as

zooarchaeology, isotope studies, regional GIS surveys, and geoarchaeological investigations employed by the team are presented in this paper.

AM10 SORTING SHEEP AND GOATS IN MEDIEVAL ICELAND AND GREENLAND: LOCAL SUBSISTENCE, CLIMATE CHANGE, OR WORLD SYSTEM IMPACTS?

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This paper assembles current zooarchaeological data to document a key aspect of complex interactions of economic strategy, landscape change, climate fluctuation, and the impact of an early proto-world system on distant suppliers: the management of the mixed sheep and goat flocks. While this paper focuses upon caprine (sheep and goat) management, it is clear that medieval Norse farmers had a need for a far wider perspective. Farming decisions were driven by a need to balance different human needs; including basic household provisioning with food and woolen cloth required for immediate survival; production of goods that could be mobilized for rent, tribute, or market sale; and maintenance of household prestige, social capital, and biological reproductive capacities. Caprine management was thus always embedded in a wider matrix, and could be impacted by both local environmental factors (e.g. rangeland productivity changes, soil erosion) and social factors (changing demands for rent or tribute). Another factor would be ongoing critical zero-sum calculations of winter fodder consumption by different stalled domestic animals during the long winters, and the availability of wild food to supplement domesticates' milk and meat. As both Iceland and Greenland were stratified medieval societies by the 13th century, the different economic and social positions and objectives of magnate households, middle ranking independent farmers, and poorer tenants or subsidiary farmers would have major impact on the respective farm herding strategies and the resulting midden contents that provide the proxy evidence we report here.

AM8 LONG DISTANCE CROSS-CULTURAL CONTACTS OF LATE PALAEOLITHIC SOCIETIES IN POLAND

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Studies of long distance exchange and mobility have rich literature in archaeology. In case of Late Palaeolithic societies, raw material is the only sources to document these activities. However, new discoveries along with the development of methods of chemical identification of outcrops have increased the possibilities of examination of routes, range, and significance of a variety of rocks in Late Palaeolithic inventories. Several kinds of rock, i.e. Baltic flint, chocolate flint, Jurassic flint, Świeciechów flint, quartzite, obsidian and radiolarite had various meanings for ancient societies resulting from their localisation, availability, quantity and quality. A number of both economical/technical and/or non-utilitarian factors may account for their presence in inventories. In this paper, we shall trace back the social networks of Polish Late Palaeolithic societies and their neighbours on the basis of the presence of non-local raw materials in assemblages, by examining the distance of their movements and interpreting data from a social behavioural perspective.

AM18 CHANNEL TO HADRIAN'S WALL

Marie Soto

UNIVERSITY OF LAUSANNE

Following the conquest of the Britain by the Romans, they built the Hadrian's Wall in AD 122 to define the border line of the Roman Empire. From Londinium (London), they set up a network of roads in order to connect the most important military places and thus to maintain the Roman occupation on the conquered land. They paved these roads in order to allow a fast movement of the troops and military garrisons. It was then essential to create and maintain a contact between the Hadrian's Wall with the rest of the Empire. This layout also sets up a vital infrastructure for the trade and goods transport. So what kind of system was created for linking the south coast ports to Hadrian's Wall ? By water, it was cheaper and faster than overland transport. Finally, what was the impact of the roads on the landscape ? So we will study the extension and the mobility of the crossing over the Channel to the Hadrian's Wall.

AM11 SHORT AND LONG DISTANCE TRANSHUMANT SYSTEMS AND CONFLICTS ON COMMON-LANDS IN POST-CLASSICAL ARCHAEOLOGY: CASE STUDIES FROM MEDITERRANEAN MOUNTAINS.

Anna Maria Stagno

UNIVERSITY OF THE BASQUE COUNTRY

In the last years the new interest of post-classical archaeology for the study of mountain areas has brought to a new attention to the study of common-lands. In this framework, the paper aims to discuss the first results of a multidisciplinary research project devoted to the historical investigation of the conflicts on commons through the comparison of case studies from Basque mountains, French Pyrenees and Ligurian Apennines.

At least in Mediterranean, mountain areas were historically characterized by different seasonal movements of animals: long distance transhumant systems, mainly of sheep, which involved both coastal and mountain areas (as winter and summer pastures) and short distance transhumant ones (the Italian "monticazione" and the French "estivage"). In order to allow and

conciliate these seasonal movements many local rules (local statutes) on the access rights to grazing lands were defined during the Old Regime. Some communities excluded the foreigners animals from the common-lands pastures, while others made sort of agreements allowing it. However, a lot of conflicts for the access rights to collective lands, which involved the different social actors, are well documented since the Middle ages.

These conflicts have left several material evidences (in the form of usurpations acts) that archaeology has generally neglected. Starting from the study of these types of evidence, the paper will discuss the possibility to distinguish not only the different forms of mountain exploitations, but also the markers of property and conflictuality and also, thanks to them, to identify the possible indicators of the different transhumance movements.

AM21 REVEALING THE ROMAN FRONTIER IN A MODERNLY ALTERED LANDSCAPE. THE CASE STUDY OF LIMES TRANSALUTANUS

Dan Stefan, Maria-Magdalena Stefan

INSTITUTE OF ARCHAEOLOGY VASILE PÂRVAN

An interdisciplinary team of specialists conducted by Dr. Eugen Teodor from National Museum of History in Bucharest is currently involved in assessing an ancient site which by size and features is equivalent with an entire landscape – a linear set of earthworks, stretching for 155 km from the Danube towards the Carpathians - the Roman frontier in south-eastern Dacia (*Limes Transalutanus*). This study presents the conceptual and methodological challenges the team tried to overcome – the need to identify in a modernly altered situation, those human-environment relationships relevant for a past reality and to adjust the prospection to fit both the need for large scale covering and resolution/relevance.

The dyke shape and layout is nowadays little to none noticeable to archaeologists, as the Romanian Plain was intensively affected by deforestation, desiccations and agricultural works during the last two centuries. In addition, its logic in terms of strategic significance adjusted to the environment (a typical Roman military constraint) is not entirely understood as some segments are missing, while others are apparently defying the norms of tactical location. Thus, detection of the embankment and adjacent fortifications, understanding the spatial and temporal development of the secondary road networks, towers and villages that made the border more than a line, and, above all, recovering the past features of the landscape, represent mandatory steps of the investigation which has been permanently bouncing from big-data to pin-pointed explorations, by combining various types of remote sensing data, 3D mapping, historical cartography and toponymy, geophysics, geological drillings and archaeological field-walking.

AM17 “TO TRAVEL TO ØRESUND AND ELSEWHERE...” FISHING SITES IN THE ØRESUND REGION IN THE MEDIEVAL PERIOD

Morten Steineke

MUSEUM OF COPENHAGEN

In the Medieval period, herring was an important supplement to diet as a result of the annual Lent period. The fish were mainly caught in the Øresund strait which separates the modern Danish island Zealand from the southern Swedish province of Scania. Because of its favourable geographical location, the Falsterbo Peninsula of Scania became the centre of this intensive fishing from the 13th century. The Scanian market was central in a trading network that stretched between Novgorod and London, laying the foundation of an internationally commodity market with merchants from several northern European cities and fishermen mainly from Denmark.

Archaeological excavations have shown that the market also comprised several transit- and commodity places on both sides of Øresund. Lack of firmer constructions suggests that these temporary bases, close to the fishing areas, were extensively exploited locations where people sorted their catch, dried the fish and mended their nets, probably undertaking limited bartering of goods. These activities are best represented by a specific type of features called clay lined pits.

These types of transit sites then became centralized in the medieval period when the royal power started to enact tax on the herring industry. This in-turn led to increased international trade, hastened by the Hanseatic League's influence. The industry thus changed and by during the 13th century, archaeological features such as clay lined pits ended in their use.

AM9 ROADS, ANTIQUARIAN STATUS AND BIOLOGICAL TRACES

Ylva Stenqvist Millde

COUNTY ADMINISTRATIVE BOARD UPPSALA

Even if roads have been investigated more frequently recently dating issues are still a major challenge when working with roads and tracks.

In my paper I will discuss the antiquarian status of roads and tracks due to Swedish Law and archaeological practice. In my opinion the most interesting research is often done at the interaction of a range of different sources from different disciplines, and when it comes to roads, I am convinced that it is an absolute necessity. I will therefore also up for a discussion of in what

way biological traces can be used to map different kind of roads for example winter roads and what the biological traces can tell us about how the roads have been used and by whom.

AM11 THE PASTORAL SETTLEMENT IN THE MIDDLE MOUNTAINS OF CANTAL AND SANCY (MASSIF CENTRAL, FRANCE), DURING THE MODERN PERIOD

Frederic Surmely¹, Jay Franklin²

¹DRAC AUVERGNE - CNRS, ²ETSU

Within the frame of the multi disciplinarian and diachronic research projects, concerning the history of human occupation in these areas, we have taken an interest, since the year 2000, in the seasonal pastoral settlement of the low mountain range of the "Auvergne" (Massif Central, France) during the modern period (XV-XVIIIth centuries). We explored two distinct geographic areas, one in the Cantal mountains, the other in the Sancy mountains. The absence of major rearrangements or profound changes due to ploughing following the medieval period has allowed the preservation of archaeological sites and sometimes plot shapes. The research was a collective and multidisciplinary scheme combining several different chronological specialists, historians, geologists and environmental paleontologists (Palynologists, Anthracologists, Carpologists). Our work began by systematic pedestrian survey and complemented by aerial surveys and archival research. Following this, we tested and dug the more significant sites. We discovered the evolution of pastoral activities, including the evolution of the pastoral buildings. First, small excavated huts were built, followed by stone walls buildings of different kinds (single room, with an inside dividing wall, with or without a cellar). The results of our last research in the Sancy Mountains, show, that in spite of following similar overall rules, this area has evolved at a slightly different rhythm than the south Cantal. Paleoenvironmental analysis helped us to understand the socio-economical frame, focused on the cow cheese making, and also the use of the buildings. Some were used as human dwellings, others as animal shelters or forage/tool storage.

AM11 MOVING UP AND DOWN THROUGHOUT THE SEASONS: WINTER AND SUMMER GRAZING BETWEEN PROVENCE AND SOUTHERN ALPS (FRANCE) - AD 1200-1600

Burri Sylvain¹, Py-Saragaglia Vanessa¹, Durand Aline²

¹CNRS, ²UNIVERSITÉ DU MAINE

Transhumance of livestock between Provence and Southern Alps is a key component of the regional identity, as evidenced by the transhumance organized on the occasion of Marseille-Provence 2013 European Capital of Culture. It has been studied since the early twentieth century by geographers and ethnographers, followed by historians from the 50s to the 80s. Until the 1990s archaeologists have started to study the herders' huts, not as such but as chronological milestones of mountain anthropisation. Our paper deals with summer and winter grazing as a socio-economic phenomenon between complementary territories from 1200 to 1600 AD. Recent multi-disciplinary research (historical, archaeological, bio-archaeological and environmental studies) provides the opportunity to synthesize the dispersed data. Each type of sources gives pieces of a same reality at different scales of time and space. Texts provide information on the economic, political and spatial organization of the seasonal movement of livestock (goats, sheep, cattle), but offer few data on herders' lifestyle. Conversely, archaeology documents the materiality of this phenomenon (huts, shelters, enclosures) but faces several problems: how can the archaeologists deal with wooded structures? How to link an archaeological structure to animal husbandry in low mountains and lowlands where a large spectrum of outland activities exists? How to distinguish remains of transhumant and domestic herding in lack of isotopic analysis? Forms, artifacts and bio-archaeological evidence of seasonality crossed with textual data give elements of response. This research highlights the need to study the transhumance as a socio-economic system taking account of both winter and summer grazing.

AM20 ON THE ROAD TO DAMASCUS: A GIS EXPERIENCE

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The contribution focuses on the road between Homs and Damascus through the Beqa'a plain. It aims at investigating its development on the "longue durée", from the Roman times until the contemporary period.

This research originates from a broader work on the Aleppo-Damascus road from the beginning of the Islamic period until the end of the Mamluk period in the XVI century. The results of this research show that, at the beginning of the Islamic period, Homs and Damascus were connected by two different routes but that one of them, which passed through the Beqa'a, has apparently been abandoned in the XII century.

The aim of this contribution is twofold. Firstly, it aims at asserting the relevance of the written sources that stop mentioning the Beqa'a road by comparing them with archaeological data. Secondly, this work will expand the chronological framework of the research to consider the whole period between the Roman times until the end of the Ottoman age. It will thus be possible to understand if the Beqa'a road predates the Islamic period and if its use bounced back in the Ottoman era. If these hypotheses prove correct why has the road been abandoned during a certain period? Why at a certain moment this path was not a sustainable connection between Homs and Damascus?

The use of historical, archaeological and cartographic data coupled with GIS analysis will hopefully provide an answer to this question and a better comprehension of the development of the routes of the region.

AM20 URBAN SPATIAL ANALYSES: EXPLORATORY ROMAN LAND USE MODEL, CARNUNTUM (AUSTRIA)

Tomáš Tencer¹, Wolfgang Neubauer²

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Roman Carnuntum is situated within the Vienna basin just south of the river Danube. As the capital of the Roman province Pannonia, played an important town role during the first four centuries of the first Millennium AD. The archaeological landscape of Roman Carnuntum is a complex representing almost all human activities. It consists of the civilian town, a legionary fortress with adjacent canabae, several burial grounds, temples and two amphitheatres.

For a nearly half of the century, the Carnuntum landscape has been in the focus of aerial archaeology and geophysical prospection. Currently the archaeological landscape of Roman Carnuntum is completely surveyed using state-of-the-art magnetometry and high-resolution GPR within a research project lead by the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology. In combination, prospection projects have gathered a considerable amount and wealth of new data about buried cultural heritage and significantly contributed to the massive expansion of our knowledge on the Roman town of Carnuntum. This allows a preliminary master plan of the civil of the town to be constructed.

The here presented paper focuses on the layout of the street system of the Roman civil town, demonstrating the application of Space Syntax approach to the analysis of the archaeological prospection data. The aim of the present study is to understand the organisation of the space and to propose an initial model of land use for the civil town of Carnuntum.

AM4 ARCHAEO TOURISM AND ITS IMPACT ON SITES AND LOCAL COMMUNITIES

Ben Thomas

ARCHAEOLOGICAL INSTITUTE OF AMERICA

As the popularity of Archaeotourism grows, it is becoming increasingly important to assess the impact of tourism on archaeological sites and to carefully plan for the future to ensure that positive outcomes are achieved and negative outcomes are minimized. The Archaeological Institute of America (AIA) has been involved with this issue on several fronts. In 2009, the AIA in collaboration with the Adventure Travel Trade Association (ATTA) created a set of guidelines both for people interested in organizing tours to archaeological sites and for those interested in visiting sites. The ATTA, a membership organization for companies in the travel trade industry, makes the guidelines available to its more than 1000 members and the AIA requires all participants in AIA tours to receive a copy of the guidelines. The AIA-ATTA tourism guidelines were one of the inspirations for the current discussion about the creation of a framework for European guidelines. In addition to creating the guidelines, the AIA through its Site Preservation Program works with organizations and projects around the world that are considering opening archaeological sites to tourism; training local community members as site stewards and tour guides; and providing education and outreach to both local communities and visitors. In this discussion, I hope to be able to share some of the things that we have learned through our efforts and in turn hear about different approaches and ideas from the other participants.

AM17 RURAL LANDING PLACES AND SEA STRUCTURES IN THE ARCHIPELAGO OF SOUTHERN FYN, DENMARK. AN ARCHAEOLOGICAL APPROACH TO THE MARITIME CULTURAL LANDSCAPE

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In September 2014 The Archipelago Museum of Southern Fyn (Øhavsmuseet) started a research project in corporation with University of southern Denmark and the Danish Agency for Culture. The project is a pilot study with the aim to map and investigate seaward structures in the maritime cultural landscape of the archipelago around Southern Fyn in order to integrate the simple landing sites in the understanding of the infrastructural network of the region.

The maritime cultural landscape of trading and landing sites of the Danish late Iron Age and in particularly the Scandinavian Viking Age has enjoyed the primary attention of researches on the subject of landing sites. Research in the maritime cultural landscape for the medieval period has until recently mainly concerned the development of the medieval coastal boroughs as the primary contact sphere between land and sea. The towns represents the regional and super regional infrastructural network of the maritime transport, but without the presence of its rural counterparts of the simple and often anonymous landing sites, the network is incomplete.

Several sea structures have already been localized from aerial photography but the spring and summer 2015 will be the first season of field-data collection. The presentation will therefore focus on the progress and problematics of data collection and discuss the relevant problematics of dating simple seaward structures.

Co-authored by O. Udlum, Museum of Langeland.

AM12 THE DAWN OF PREHISTORIC SEAFARING: QUESTION OF METHOD AND MEANING

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In this paper, the author discusses the topic of the Dawn of Mediterranean Prehistoric Seafaring, trying to propose a chronological and cultural interpretation of this human activity.

In detail, the author will first present some elements allowing scholars to identify some possible areas in which navigation could have had its very first origin. To do this, the paper deals with the problem of what can be considered navigation as a proper activity and not as a simple sea-movement or displacement.

After discussing this, the author will discuss iconographic and direct evidences of prehistoric seafaring trying to propose some clue elements of methodology. Even though many scholars think that navigation could be considered a particular field of study, in some way isolated and autonomous, in this paper the author will propose a different point of view. In fact, many elements concerning the dawn and the very first appearance of this human activity seems to confirm that naval archaeology of prehistoric times must be interpreted as one of the multiple aspect of general human prehistory, to be analyse from a paleo-ethnological point of view, rather than a branch of naval archaeology or naval history.

AM6 SEASONAL ALTITUDINAL MOVEMENTS OF WILD SHEEP IN KALAVAN -1 (ARMENIA): CONTRIBUTION TO THE MODEL OF SEASONAL OCCUPATION OF THE HUNTING CAMP SITE BY EPIGRAVETTIAN COMMUNITIES.

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Kalavan 1 (14000 BP) is a hunting camp site in Aregunyats mountains chain of north-eastern Armenia (Caucasus region). The site is located at 1640 m above sea level in a narrow bottleneck limiting the descent into the valley of the Barepat from the alpine meadows. The faunal assemblage and lithic collection reflect preparation of hunting weaponry, mass hunting targeting wild sheep, and treatment of carcasses in order to constitute animal product reserves. This Epigravettian occupation could have occurred during migrations of wild herds in the Barepat valley.

A key parameter to this model is wild sheep ethology, specifically seasonal altitudinal mobility, based on observations from 19th –20th centuries in Armenia, Azerbaijan and Iran describing a pattern of altitudinal mobility where wild sheep migrate in the spring to the high altitude meadows before returning in late summer / autumn to valley bottoms for wintering

The prerequisite of seasonal altitudinal mobility of the Epigravettian wild sheep was tested on archaeological specimens, through sequential isotope analysis ($\delta^{18}\text{O}$, $\delta^{13}\text{C}$) in tooth enamel. A well-preserved isotopic signal was retrieved from the wild sheep teeth, allowing paleoethological interpretations. Results confirm that wild sheep operated a seasonal migration from high altitude pastures during warm season to lowland areas in winter. Furthermore, the specimens analyzed show a great similarity in $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ values, reflecting homogeneous environmental / climatic conditions and feeding strategies, possibly suggesting accumulation over a short period of time. Overall, these new pieces of information strengthen the model of seasonal occupation of Kalavan-1 proposed earlier.

AM17 INLAND OUTPORTS. SURVEYING MEDIEVAL LANDING SITES AT THE GATEWAY TO BRUGES

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GHENT UNIVERSITY

The Zwin tidal inlet functioned as the Medieval gateway to the port of Bruges. Along the banks of this linear harbour-hub, a series of smaller landing sites soon acquired city and commerce privileges. The towns got engaged in specific functions of transshipment, reparation or commerce and were integrated into international trade networks. Therefore, the development of Bruges cannot be understood without considering the gateway system as a whole. However, economic, geomorphological and military developments in the troubled 16th century showed that smaller landing sites were inviable without the port network in which they sprout. Consequently, they were gradually deserted and disappeared from the landscape.

The research on these outports was until now predominantly based on written sources and focused on socio-economic functions, whereas the topography of the sites and their harbour-related infrastructure remained largely unknown. This paper will show how we detect and assess the location, morphology and state of preservation of these deserted ports.

First, the broader port area was approached from a macro-scaled historical-geographical framework in which remote sensing techniques were combined with cartographical and geological data. Then, the focus narrowed to a micro-scaled high-resolution scan of the outports themselves, using geophysical survey, DGPS-mapped fieldwalking, and UAV-mounted 3D-photogrammetry. The integration of these highly detailed datasets enabled us to relate proto-cadastral documents with archaeological surface finds and a geophysical scan of the subsoil at the scale of individual Medieval allotments. The combination of these traditional and innovative techniques delivers a promising methodology for non-invasive research on Medieval landing sites.

AM19 AN EVIDENCE-DRIVEN APPROACH TO MAPPING ILLICIT ANTIQUITIES NETWORKS

Christos Tsirogiannis

UNIVERSITY OF GLASGOW

Since the early 1970's, archaeologists and criminologists have been trying to understand and map the routes followed by looted antiquities until they rest far from their country of origin, in foreign museums and private collections. However, although hundreds of such cases have been revealed, the lack of concrete criminological evidence has led some of these researchers to adopt the methods of combining different news reports or comparing interviews with different members of the grey market of antiquities dealing, producing general and, sometimes, uncertain results. The discovery of three major dealers' archives, containing tens of thousands of images and documents, provides the opportunity to change our methodology and to use this evidence for the production of an expanded and more detailed criminological map of antiquities trafficking. This talk will present visualizations of these results for our knowledge about the structure of the international illicit antiquities networks during the last 4 years, based on selected cases of antiquities identified as illicit when they were offered for sale in the London and New York markets.

AM23 SYMBOLIC LINKAGES IN THE BALKAN-ANATOLIAN CHALCOLITHIC: COPPER AND ANTHROPOMORPHIC FIGURINES

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Area of cultural convergence, the Central-Eastern Europe faces an outstanding booming of the Chalcolithic civilizations during the 5th – 3rd millennia BC. Among these, the Cucuteni-Tripolye civilization represents a climax of the ancient human communities' achievements, its exceptional manifestations rivaling with those of the civilizations in the Near East.

Last year's researches allowed the identification within the anthropomorphic figurines of the Cucuteni-Tripolye cultural complex of another type of adorning the figurines, consisting in the use of metal inserts. The aesthetic goal of such adornment manner was doubled by other less obvious aspects, pertaining more to the symbolic field. The recent identification of the presence of a copper chip in the ceramic material of an anthropomorphic figurine in the Tripolyan area is an argument in this regard.

Starting from this, our aim is to centralize and analyze the anthropomorphic figurines (made of fired clay and of bone) which in various circumstances were associated to metal. The main objective of this research is the identification of the symbolic valued of such linkages. Visible on the outer surface of the items or included in their paste, metal inserts and accessories allow the identification and development of new direction of interpretation of the importance of metal into the cultural and social processes of the Balkan-Anatolian Chalcolithic (5th – 3rd millennia BC).

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AM20 HIDE AND SEEK. ROADS, LOOKOUTS AND VISIBILITY CONES IN CENTRAL ANATOLIA

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Within the framework of the road system of Byzantine Cappadocia (central Turkey), certain routes which were only alternatives or of a secondary importance during the Roman period, acquired a new and particular relevance. This is the case of the system of the communications established between *Tyana/Kemerhisar* and *Koloneia/Aksaray*. Here, starting from the 6th century onwards (i.e. approximately when Cappadocia became a disputed territory of the Byzantine Empire), mountainous routes became effectively more followed than the axes running across the plain beneath.

Such a change was certainly determined by strategic and military issues, as has been already supposed on the basis of the archaeological evidence: above all the fortresses and castles built in strategic positions all over the landscape, overlooking ways of communication and passing places.

But is it possible to find out some confirmation of this sort also at a geomatic level?

In order to address this question, the relationship between movement and visibility will be considered. In particular, great attention will be given to the evaluation of the different levels of 'visibility' of the roads ('looking in') and *from* the roads themselves ('looking out').

Through the application of the ArcGIS tools *Viewshed* and *Observer Points*, visibility cones will be generated from targeted and strategic spots set along the various routes considered. This will allow to better understand the role and, in a certain way, the different functions of those axes which crossed central Cappadocia, and to evaluate the Byzantine/Arab military strategies in central Anatolia.

AM20 19TH CENTURY MODEL VILLAGES IN IRELAND; TRANSPORT IN A CONTROLLED LANDSCAPE.

Elena Turk

UCC

This paper explores the way transport networks were developed and managed within controlled landscapes in 19th century Ireland. By controlled landscape the author refers to any well-defined area which was owned or leased by one person, or group of people, and developed according to their specific aims. This paper takes Portlaw, a model village and industrial complex in County Waterford, as the primary example, comparing it to other industrial villages, military complexes and religious foundations. These are considered as complex yet rigidly structured landscapes which both reflected the world views of their creators and fundamentally impacted on their communities. Transport and movement were one of the primary mechanisms which framed their existence.

The late 18th and 19th century saw massive economic and demographic growth throughout Europe. Ireland, despite a general lack of intensified industrial development, the unrest caused by civil conflicts, and catastrophes such as the Great Famine, saw comparable changes. At the same time attitudes to development and urban planning changed dramatically. There was increased an awareness of social responsibility, and with the development of the social sciences the concept of social engineering emerged. Consequentially this period saw an unprecedented expansion in the number of heavily controlled domestic landscapes in Europe and Ireland – model villages and utopian communities. This study focuses on the identification of patterns in transport routes and technologies within these sites which are archaeologically visible today. It will consider how transport technologies were adopted and developed within the site and how the system was utilised.

AM14 INCOMING & ACCOMMODATING: LOCALISING MODELS OF SCANDINAVIAN SETTLEMENT IN THE NORTHERN AND WESTERN ISLES

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Models of Viking Age and Norse Scandinavian settlement in the Northern and Western Isles of Scotland, which were created decades ago in a very different intellectual climate, are still in use to locate and interpret settlements of this period in the region. However, these models are increasingly at odds with both the excavated evidence and our academic understanding of the period. Since the work of Small (1969), more than 40 years of excavations throughout the islands have provided a very varied picture of the arrival of Scandinavian incomers and their relationships with local inhabitants, but interpretation of this data is still underpinned by the same assumptions, despite increasing discrepancies. Early ninth century settlement dates remain elusive everywhere, with very few exceptions, and this absence of putative primary settlements needs consideration and explanation. Recent excavation has challenged long-held beliefs about marginality and longevity. This paper draws together evidence from nearly half a century of fieldwork, to propose new models of historically particular responses to local conditions, highlighting differences in the settlement trajectories of the island groups, grounded in the diversity of incomers and locals.

Small, A. 1969. 'Distribution of Settlement in Shetland and Faroe in Viking Times' *Saga-book of the Viking Club XVII* (1966 – 1969) 145-155

AM16 WHEN THE WHEELS STARTED TO TURN IN WESTERN ANATOLIA: THE EARLY USE OF POTTER'S WHEEL IN THE ANATOLIAN PENINSULA

Murat Türkteki

BILECIK ŞEYH EDEBALI UNIVERSITY

The EB III in the Anatolian peninsula is a period underlined by the development of urbanism (monumental architecture and possible emergence of elites) as well as intensified long-distance trade and introduction of new technologies. An important innovation in terms of new technologies is the first use of potter's Wheel, 1500 years later than its invention in Mesopotamia. At the beginning, however, it is not simultaneously used, all over the peninsula; instead, it seems that it was first introduced to the commercial centers situated along the main communication routes. Cilicia, which was under Mesopotamian cultural influence since middle Chalcolithic period, is on a strategic position for the transfer of this new technology to the western part of Anatolia. In its early phases the wheelmade pottery is confined only to certain specific shapes and its percentage in the total pottery is low. This might have something to do with the adaptation process and production of wheelmade pottery by travelling potters. It is also possible that this pottery was manufactured at the certain commercial centers over the main communication routes and distributed to the neighbouring settlements. Since the shapes and wares of the wheelthrown pottery are west Anatolian in origin and Mesopotamian forms represented only by imports might be taken as proof that the potters were Anatolian. The fact that the techniques used are not as sophisticated as those used in Mesopotamia also supports this premise. Furthermore, current research in western Anatolia demonstrates that Wheel techniques have been used in combination with the other methods.

AM3 THE PRODUCTION OF MOBILITY: THE MOBILITY OF PRODUCTION.

Andrew Valdez-Tullett

SOUTHAMPTON CITY COUNCIL ARCHAEOLOGY UNIT

All things are spatially located and all activities take place in space. The requirements of these activities shape the space around them and so can become representative of those activities e.g. ridge and furrow strip fields of the English feudal system or the production line of modern capitalist factories. Henri Lefebvre in 'The Production of Space' (1991) explored Marx's modes of production from a spatial perspective, equating each with different spatial patterns and ultimately replacing them with a 'history of spatialization' (Shields 1999).

The world is not static but dynamic and filled with movement and change (kinesis). Motion is integral to the activities that shape space and the mobilities movement within the social sciences has become adept at its interrogation of the mobile dimensions of modern capitalist production and Globalization (e.g. Cresswell 2001; Urry 2007). Archaeology sadly trails behind the other social sciences in the adoption of the mobilities paradigm and its application to historical periods.

This paper seeks to address historical mobilities by illustrating how certain modes of production have not only particular patterns of spatialization but also specific patterns of mobilities that underpin them. It will assess the varying scales of movement inherent within the relations and forces of production and how these often nested systems combine to create the mode of production that characterize different periods of European prehistory and history.

AM21 CROSS-CULTURAL EXCHANGES IN BYZANTINE CORINTH: THE POTTERY EVIDENCE

Rossana Valente

UNIVERSITY OF EDINBURGH

Unglazed utilitarian ceramics are a valuable proxy for outlining local, regional and interregional networks of exchange. Specific types of plain and cooking wares are highly regionalized, some were traded far from the immediate area of production, attracting different markets because of the manufacturing qualities.

Quantifying the presence and the percentage of unglazed pottery types in a dialectic and holistic correlation to their contexts enables to delineate technological, economical and cultural networks in which those pots were produced, used, reused and discarded.

The manufacturing production of cooking and plain wares in Corinth, from the 9th century, tends to look forward a Byzantine crafting tradition which appears to cease some decades after the Frankish conquest of the Peloponnese. This preeminent pottery industry does not resemble the Late Roman tradition of unglazed pottery production and it is diffuse in a regional and interregional geographical scale. Locally produced cooking ware, for instance, were part of a typological *koine* in the Byzantine period, in fact same types produced in Corinth have been found in stratified deposits excavated in other sites of the Peloponnese and even beyond. This appearance primarily suggests date ranges and regional and interregional trade. Furthermore, such typological consistency is evidence of connectivity and exchanges not only of goods but also of know-how. Same types of coarse and plane wares were locally produced simultaneously in distant sites. Utilitarian unglazed wares can therefore be studied as proxy for patterns of social, cultural and economic networks of exchange in the Byzantine period.

AM11 THE ROLE OF MARGINAL LANDSCAPE FOR UNDERSTANDING TRANSHUMANCE IN POST-MEDIEVAL ITALY: INTEGRATING ETHNOARCHAEOLOGY AND HISTORICAL PERSPECTIVES.

Edoardo Vanni¹, Davide Cristoferi²

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In matter of pastoralism, great prominence has been given to long-distance transhumance especially between the Apennines and the coastal plains. Little or no interest has been paid to local or short transhumance, or to farm-based pasturage. Archaeologically speaking, pastoral practices have been always considered highly mobile, and virtually impossible to identify in the archaeological record. The present case-studies thus diverts from the traditional image of pastoralism by overturning the mountains-to-plain centered perspective and by promoting the point of view of integrated agro-sylvo-pastoral practice, in the light of the particular historical phenomenon of transhumance in central coastal Italy (Maremma). From this perspective the landscape is not only a reified concept but is an active complex palimpsest of interactions produced by natural and human activities in time and space. Around the 14th-15th century the establishment of customs organizations for managing the large-scale transhumance (the so-called Dogana dei Paschi di Siena), creates new spaces of interaction for common land, where several modes of exploitation co-exist. The assumption of the present work is that the transhumance is part of a wider agro-sylvo-pastoral system. Within this system natural resources serve as impulse for mobility, which can see manifested in the landscape by a peculiar archaeological record. Ethnoarchaeological and historical data show us the decisive role played by a marginal zone in the history of post-classical transhumance in the region. The humid zones, the lagoons and marshes reflect a pattern of instability within mobility and seasonality are key concepts for understanding such socio-economic phenomena.

AM23 SEARCHING FOR SALT IN CENTRAL COASTAL ITALY (TUSCANY): MOBILITY AND EXPLOITATION OF SALT FROM THE BRONZE AGE TO THE EARLY MIDDLE AGE.

Edoardo Vanni

UNIVERSITY OF FOGGIA

The question of the production of salt has passionate archaeologists for long time. The link between mobility strategies (as transhumance) and salt production must be rethinking. First of all salt consumption increased first and foremost to preserved meats and other animal product as cheese and it may be necessary to provide addition salt to animal diet. Usually archaeologist think that in hot climates of the Mediterranean, the production of salt was made exclusively by evaporation of water without left significant traces in the archaeological record. Conversely the extraction of salt blocks obtained by cooking into boiling pots, is a method well-documented in Continental contexts. Once evaporated the water, the crystallized salt was extracted by breaking the pots. The salt could have been reduced in blocks to facilitate its transportation for long-distance trade. Nonetheless we know In Italy some sites, mainly occupied from the Late Bronze Age, where this method is attested. These sites are characterized by high percentage of red-orange vessels, manufactured with non-depurated local clays. It is not only a speculation the fact that the shepherds, during the winter-pasturing, were involved in the production of salt blocks, that they used for dairy production and as goods of exchange during the summer pastures in the Appennines. It is therefore necessary to reconsider data from past archaeological excavation to put the record in the new perspective so that the use of salt production with these techniques can at least be proposed for some sites till here interpreted differently

AM12 ISLAND SHORES IN REGIONAL CONTEXTS: PREHISTORIC MALTA IN THE SOUTH CENTRAL MEDITERRANEAN 6TH-3RD MILLENNIUM BC

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The Maltese archipelago constitutes an important case study to discuss the problem of insularity in the Central Mediterranean. In particular, a long-term view permits a better understanding of the shifting mechanisms of outside raw material procurement and utilization within an island setting. These mechanisms are especially seen in the light of the relationships between Maltese and neighbouring communities from the Early Neolithic to the Temple Period (6th-3rd millennium BC). The case of the Maltese Islands is of particular note because the archipelago lacks contemporary valued raw materials, particularly good-quality siliceous rocks greenstone, and metals. These raw materials arrive in varying quantities into these islands through a web of interactions connecting islanders to the outside world. The oscillations in the quantitative presence of foreign raw materials could be interpreted as a by-product of the Maltese Islands' island conditions. Instead, we argue that these variations combine island-specific processes to a broader historical trajectory. In the Early Neolithic connections to Sicily, the Maltese Islands strike a balance between localized preferences and shared elements. By the Temple Period, the islands are characterized by rampant monumental construction and restricted outside interactions. Even within this cultural development, Malta locally adapts the procured foreign raw materials within its own cultural paradigm. We argue that such changes are a reflection of the south Central Mediterranean transformations across the period under study. Only by contextualizing Malta in the broader region, can we better understand the reactive modalities of islanders to changes beyond their own control and shores.

AM11 TRANSHUMANCE BY THE SEA: THE SEASONAL LIVES OF NEWFOUNDLAND'S EUROPEAN FISHERS

Anatolijs Venovcevs

MEMORIAL UNIVERSITY OF NEWFOUNDLAND

Between approximately the 1660s and 1950s, the residents of Europe's closest North American colony engaged in a unique and highly unorthodox method of New World settlement. Rather than imitating the landscapes of their home countries and recreating planned, agriculture-based communities they left behind, the settlers of Newfoundland and Labrador engaged in seasonal, transhumant rounds. This lifestyle revolved around permanent fishing ports in the summer to exploit the region's aquatic monocrop, cod, and the dispersal of entire communities into the interior for the winter to harvest lumber and procure wild game. Despite this way of life being undertaken by most of the population for much of the history of European settlement in the region, this lifestyle is poorly documented and understudied by historians and ethnographers. Meanwhile, the archaeological interest in this topic, while barely five years old, is showing a great deal of potential. This research is tackling major themes including adaptation, seasonality, and the identification of transhumant huts in a large and mostly unpopulated environment. It aims to provide a better understanding of European adaptation within landscapes that were economically, socially, and environmentally marginal while building transatlantic connections through synthesis with work being done on other European transhumant traditions. At the same time, it is believed that the study of transhumance in Europe can greatly benefit from a North American perspective that saw a sedentary European population independently adopt a transhumant lifestyle.

AM1 FUNCTIONALITY AND CIRCULATION OF THE QUADRILOBED WIETENBERG VESSELS. A CASE STUDY: THE PIANU DE JOS – LUNCA PÂRÂULUI BRONZE AGE SITE IN TRANSYLVANIA.

Mădălina Voicu

VASILE PÂRVAN INSTITUTE OF ARCHAEOLOGY

The late phases of the Middle Bronze Age Wietenberg culture are characterized by the predominance of good quality and carefully decorated pottery. One of the most remarkable pottery products of this period is the so-called quadrilobed vessel, a lavishly decorated high quality product. The vessel has an odd, lobed shape, not immediately readable in terms of functionality. In addition to its esthetic and technical features, it is also a rare find: it constitutes a small proportion of the pottery discovered in settlements, being even rarely associated to funerary contexts. Further on, it appears within the settlements of the neighboring Otomani and Suci de Sus cultures. Although the quadrilobed vessel has received a certain academic attention, it was invariably analyzed as individual find. This paper discusses several recently discovered quadrilobed vessels at the Pianu de Jos – *Lunca Pârâului* settlement. By using statistical tools, the analysis aims to compare the shape and ornament repertoire of the recent discoveries with the existing corpus, in order to offer a documentation of the recurrence of decorative motifs and symbols. Secondly, it uses spatial analysis to provide an overview of the geographical distribution for this type of pottery. Furthermore, it will consider the functionality of such vessels, with a focus on the technological and morphological characteristics of the pottery found at Pianu de Jos – *Lunca Pârâului* site, on the Mureş valley. This research is financed by the *Minerva-Cooperation for elite career in doctoral and post-doctoral research*, POSDRU/159/1.5/S/137832, project co-financed by the European Social Fund.

AM20 ROMAN ROADS AND “BARBARIAN” PATHS

Armin Volkmann

HEIDELBERG UNIVERSITY, JUNIOR RESEARCH GROUP DIGITAL CULTURAL HERITAGE

The revolutionary processes of the Migration Period also led to drastic changes in settlement structure in the barbarian territories. The 5th to 6th centuries AD are a significant turning point in the Germania Magna. In this talk the long- and intensely-discussed subject of migration of tribes is addressed. In particular questions regarding possible migration routes of peoples in late antiquity will be addressed from the perspective of landscape archaeology with detail analyses of high resolution digital terrain models. This proposal also features an analysis of the assumption that noteworthy routes existed at the time.

One opinion of some medievalists has shifted in recent years to the idea of a rather static, predominantly locally rooted settlement and population development in the Roman and Migration Periods. They come to the conclusion that only small, elite groups of followers migrated, and that this relates mainly to gradual transformation processes of extensive and continuously existing population groups within Germania.

However, the idea of gradual change is based on previous archaeological finds and probably only applicable for the Roman Period in the western border regions around the Limes Germanicus – during the Romanization of local groups, for example. The finds of the area under consideration in the inner Germania indicate instead drastic processes of upheaval at the end of the Roman and Migration Periods, partially occurring within only a few decades or even years and inconsistent with a gradual transformation. Instead they suggest distinct breaches in the continuity of non-linear changes.

AM18 THE RHINE RIVER AND ITS MONUMENTS. A SEMANTIC INTERRELATIONSHIP BETWEEN NATURAL AND MAN-MADE LANDSCAPE

Valentine von Fellenberg

UNIVERSITÉ DE LAUSANNE

The Rhine River flows through several countries, connects regions from the Swiss Alps to the northern plains and models various types of landscapes. Adapting to topographical characteristics, its river bed has evolved. At the same time, the river has critically shaped the evolution of a multifaceted man-made landscape encompassing manifold monuments and buildings. The latter, however, have repercussions on the river, its banks and their uses. The interplay of natural and cultural monuments turns this region into a dynamic system of meanings. Accordingly, the evolution of the Rhine Valley may be conceived as resulting from historical references of meanings. In this context, monuments including sacral buildings, castles and site-specific monuments and remains point to certain moments in the past and contribute to a system of meanings, thereby, serving as signifiers. Building on an art and cultural history approach, this paper will analyse the historical and cultural relationships between monuments as well as explore their over-time development and dynamics. To this end, the analysis will put particular emphasis on the interplay of the natural and man-made landscape.

AM10 SCIENTIFIC METHODS OF UNDERSTANDING IN MEDIEVAL ARCHAEOLOGICAL TEXTILES

Isabella von Holstein

CHRISTIAN ALBRECHTS UNIVERSITY, KIEL

Today, wool quality is determined by average fleece fibre diameter and fibre diameter range, but additionally reflects fibre length, crimp, colour, and strength, as well as fleece weight and yield. A wide range of wool qualities traded internationally in later medieval Western Europe. There were strong geographical patterns in wool quality, the reasons for which remain unclear.

Wool quality was a significant factor determining the price of both raw wool and finished textiles. However it is not clear which of the above technical fibre and fleece criteria were the primary determinants of medieval wool prices.

This presentation will consider the three main reasons put forward to explain medieval variations in fleece quality: differences in sheep breed, environment and nutrition. It will explore how much of the recorded geographical variation in fleece quality is attributable to each. It will examine the capabilities of a range of current scientific techniques to investigate this question in archaeological sheep tissues, including fleece type analysis (where multiple categorisation methods exist), DNA analysis and light stable isotopic analysis. A case study of 9th-15th century wool textiles from 16-22 Coppergate, York, will explore how Ryder's fleece type analysis can be interpreted together with isotopic data.

AM20 THE ROAD NETWORK IN THE "LONGUE DURÉE": A READING KEY OF THE HISTORY OF THE TERRITORIES **Magali Watteaux**

UNIVERSITY OF RENNES 2 (BRITTANY, FRANCE)

The historical study of routes has long remained confined to the great Roman roads, to the modern royal roads and to the medieval pilgrimage routes. For about fifteen years the French school of Archaeogeography has deeply revisited this research field, following the first intuitions of the archaeologist Eric Vion. The innovative idea - at least because it led to a questioning of our methods - is to consider the current road network as the starting point of the analysis. It is indeed the true object of research for the historian-archaeologist because it represents a solid legacy that one must unravel the logics. Because this story is closely integrated with urban, political and economic matters, the study of this inherited road network represents a precious reading key to understanding the history of the territories, in the *longue durée*. In doing this, the archaeogeographical analysis and interpretation allow to offer to contemporary societies in charge of these territories a scientific narrative based on the paradigms of complexity and resilience. These studies can therefore be a reflection tool for the development of contemporary territories, heavily impacted by this issue of mobility.

In the frame of this talk, we propose to recall these methodological advances and to present a case study in Brittany, around the small town of Châteaugiron, where the interdisciplinary work on archaeological data (see the talk of I. Catteddu), planimetric documents and written sources allowed to offer a history of this area, focused on the issue of mobility in the *longue durée*.

AM8 THE GLOCALIZATION OF GAMMEL STRAND, COPENHAGEN, DENMARK **Stuart Whatley**

MUSEUM OF COPENHAGEN

The excavation of the former late medieval and early post medieval harbour of Copenhagen, Denmark, has given us interesting new information of how trade led to the urbanisation of the harbour region and a social change in the city. Copenhagen was founded, and arguably developed due to trade, with people moving into the city from within Denmark and from abroad, linked to trade and industry. This talk aims to look at how trade influenced the harbour region of Copenhagen, leading to urbanisation of the area, as shown from the remains of the harbour structures and the land reclamation process. The finds retrieved from the land reclamation show the story of trade in Copenhagen and how the trade affected the society over time. From these artefactual remains we can find evidence of diffusion of ideas, consumerism, immigration of foreign merchants and craftsmen. The craftsmen moved to Copenhagen to satisfy the needs of the local populace producing foreign style artefacts and clothes to be made with local materials.

By the 1600s, records and artefacts show that Copenhagen became a global city and the new merchant consumer society living within became the catalyst for its continued growth, affected greatly by the new social and cultural contacts.

AM14 ASSEMBLIES OF NORSE AND NATIVE ON THE INNER HEBRIDEAN ISLAND OF MULL **Alasdair Whyte**

UNIVERSITY OF GLASGOW

This paper will discuss toponomastic evidence for three assembly-sites in Mull within their relative archaeological, topographical and historical contexts; two of the names are coined in Gaelic, the other in Old Norse. The first, it is proposed, contains Old Gaelic *temair*, the element which lies behind *Temair Breg*, Tara of Brega, in County Meath. This name, unrecorded by the Ordnance Survey but preserved in medieval fiscal evaluation, is proposed to have originally applied to the eminence now known as Ceann Chnocain (NM642336). The second name, *Cnoc an Earrachd* (NM744333), does not appear on the modern map but applies on the Ordnance Survey first and second edition maps to a natural outcrop and is proposed to include Gaelic *eireachd*, an element which O'Grady (2008, 139) has understood as "representing particularly significant early assemblies". It is proposed that the generic element of the third site, Gruline, the name of a prominent medieval settlement in the old district of Forsa and a modern estate at the head of Loch na Keal, is Old Norse *þing*. The possibility is explored that an assembly-site here was focussed on Carn Bàn (NM546393), a mound whose dimensions are closely comparable to those of Tynwald Hill in Man. The Gruline section of the paper builds on ideas recently published in the following article: Whyte, Alasdair C., 2014,

'Gruline, Mull, and Other Inner Hebridean Things', *The Journal of Scottish Name Studies* 8, 115–52 (available online at <http://www.clanntuirc.co.uk/JSNS/JSNS8.html>).

AM3 MOBILE OR PERMANENT? SURVIVING THE LOSS OF DOGGERLAND

Caroline Wickham-Jones

UNIVERSITY OF ABERDEEN, DEPARTMENT OF ARCHAEOLOGY

The principals of mobility, fundamental to the interpretation of Mesolithic Britain, have been challenged by the identification of 'big houses', suggesting that the drowning of Doggerland led to the emergence of a degree of permanence in society.

This paper will re-examine conventional definitions of permanence and mobility with reference to the hunter-gatherers of northern Britain. Is it possible that permanence and mobility could co-exist within the Mesolithic lifeway?

Mesolithic Britain was a time of dynamic environmental change, including the submergence of Doggerland. Today this is interpreted as disastrous, but perhaps current interpretations of the loss of Doggerland say as much about our own attitudes to climatic instability and our need to sell an archaeological story as they do about life in the Mesolithic. If we look at the loss of Doggerland in other ways, a more complex, nuanced picture may be drawn.

Broadscale models provide the background to inundation around North-west Europe but focus on the loss of land. If we consider the growing seaways and impact on the coast, a different picture emerges and it is possible to interpret the emergence of 'big houses' as a response to increasingly diversified communities living in a world where the resource base was changing. Permanence does not so much challenge the conventional idea of the 'mobile Mesolithic' as enhance the flexibility of the relationship between hunter-gatherer and landscape.

AM8 "ALIEN" ARTEFACTS: TRANSFER OF VALUE AND MEANING IN THE EUROPEAN BRONZE AGE?

Lukas Wiggering

RESEARCH TRAINING GROUP "VALUE AND EQUIVALENCE" GOETHE-UNIVERSITY, FRANKFURT

With the beginning of the European Bronze Age at the end of the second millennium before Christ the different cultural phenomenons and regions in tempered Europe and along the cost of the Mediterranean Sea experienced a growth in interaction and exchange, in smaller scale as well as over long distances. All across Europe, commodities as well as artifacts were transported through networks of exchange, reaching from Scandinavia and the British Islands across Central Europe and the Carpathian Basin as well as Italy and the Adriatic Cost all the way to the Aegean Sea. Within this networks not only goods but also persons, knowledge and social values moved through Europe.

The possible exchange of social values and ideologies can be traced through foreign artefacts in the material culture. These objects can be seen as unique or scarce in the archaeological context, originating from distant regions. In several cases they experienced local reworking or are local imitations, whereas others became fully integrated and included in the local material culture and the interconnected immaterial world. Furthermore they occupied a special role within the cultural sphere. One must ask, whether this was generated due to their status as a rare and thereby prestigious object or if their original cultural value and meaning was transferred and adapted into the local customs. This transportation of values linked to objects and the dealing with the "foreign" should be illustrated through the case study of artefacts in Southern Germany.

AM12 ISLAND PARAMETERS IN A BIOARCHAEOLOGICAL PERSPECTIVE: THE CASE OF IRON AGE ÖLAND IN THE BALTIC

Helene Wilhelmson

DEPARTMENT OF ARCHAEOLOGY AND ANCIENT HISTORY

Islands have a dual nature both as isolators and conductors highly dependent on the level of naval skills and technology for contacts. In this study some aspects of what could be considered specific island parameters were traced by employing a bioarchaeological perspective based on the Iron Age (500BC-1050AD) population of the Baltic island of Öland. A sample of 109 human remains was studied with osteological as well as isotopic analysis of both provenance (Sr) and diet (C, N). In order to maximize sample size, all types of contexts as well as all available material, i.e. uncremated human skeletal remains, were sampled. The results yielded significant differences in both diet and migration during this period on Öland. The patterns for migration in the Late Iron Age, primarily the Viking Age, show a significant immigration in Öland. Concurrently there is also an overall shift in diet to a much more diverse diet for the population in general, compared to the Early Iron Age, likely related to the increasing contacts. These changes coincide with advances in maritime technology appearing in Scandinavia as well as growth of trade networks. However, the bioarchaeological data provides entirely new information, proving humans migrated at a great extent. This also gives a new perspective to the so far disproportionate focus on the Viking Age migration as only expansions from Scandinavia. Öland can thusly be proven to be functioning as a significant island conductor in this maritime oriented period.

AM4 ARCHAEO TOURISM ON THE MOVE: DEVELOPING GUIDELINES FOR EUROPE

Annemarie Willems, Cynthia Dunning Thierstein

ARCHAEOCONCEPT

The primary goal for this roundtable is to establish a framework for a set of European guidelines on archaeological tourism. The themes for the program were selected from the ideas, issues, and concerns raised in a series of workshops and discussions on archaeotourism that have been held throughout Europe since 2012. As a next step, amongst other concerns linked to archaeotourism, we would like to explore how the particularities of archaeological tourism can be used and translated into practical tools (standards and guidelines) for archaeological heritage management.

AM7 THE INFECTED HERITAGE –THE TRANSFORMATION OF MEANINGS THROUGH INCIDENTS OF VIOLENCE AND WARTIME MIGRATION

Gustav Wollentz

GRADUATE SCHOOL HUMAN DEVELOPMENT IN LANDSCAPES, UNIVERSITY OF KIEL

How does acts of violence and wartime migration transform the symbolic meaning of a landscape? In recent research concerning the cultural heritage as a means to bring people together, there has been an increased focus on the significance of specific places and the local landscape as a way to make history alive and relatable. This makes the study of landscapes tied to particular violent acts highly significant because they form symbolically loaded points within the local environment. I aim to show how the cultural heritage can be used to further divide people as well as to bring them closer together, through a study of landscapes that have been radically transformed in peoples' conception by incidents of violence and displacement. My focus in this paper will be on the city of Mostar, Bosnia. During two sieges in the break-up of Yugoslavia, 1992 and 1993, thousands of people were killed and tens of thousands of people were displaced from their homes. The cultural heritage within the city was largely destroyed and has become a focus for major works of restoration. Based on field-work within Mostar carried out in spring 2015, I will discuss how incidents of violence and displacement transform peoples' relationship to the landscape on a local level, and how this change of meaning can be approached by cultural heritage professionals involved with the dark heritage of the recent past.

AM19 PREVENTING PROTECTION: ON-THE-GROUND BARRIERS TO EFFECTIVE CULTURAL PROPERTY POLICY IN BOLIVIA AND BELIZE

Donna Yates

UNIVERSITY OF GLASGOW

For over 100 years the countries of Latin America have crafted national law and participated in international agreements targeted at ending the illicit trade in cultural property, particularly of looted archaeological objects. Increasingly since the 1970 UNESCO convention, devotion of time and money (when possible) to this issue has been prioritised as Latin American states associated the protection of cultural property with the fostering of local and national identity and the repatriation of trafficked cultural objects with restoration of national dignity. Furthermore, the rise of sustainable, eco, and cultural tourism in the region means that intact cultural heritage can be translated into much needed income.

Despite all this, cultural property looting, theft, and trafficking still occur and increased penalties for those who violate the law do not seem to disrupt the market. Our cultural property policy regime is failing Latin America. Using information gathered from fieldwork conducted in Bolivia and Belize, this paper will discuss why.

AM8 TRANSITIONAL TRENDS. POPULARITY OF WESTERN GLASS VESSELS IN CHINA AND JAPAN BETWEEN 4TH AND 10TH CENTURY AD.

Marta Zuchowska¹, Robert Zukowski²

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Imported glass objects occur in the elite graves from relatively early period in China, they are however quite rare. Their number start to grow from the 4th century AD and since the 5th century they appear also in the other than funerary contexts. From the same period comes the earliest finds of western glass vessels in Japan. Those objects are usually discussed in terms of their origin and importance in the long distance trade, while the questions concerning their value and meaning in the East Asian societies are usually neglected. In present paper we would like to look on this material through the lens of the socio-cultural context of East Asia in the middle of the 1st millennium AD. Analysing the historical background and archaeological context of these finds we will try to understand their value, cultural associations and, last, but not least, the reasons which caused the raise and decrease of their popularity in diverse regions of East Asia.

AM17 THE SONS OF HJORULV AND THE BOATHOUSE AT LUSSABACKEN NORR

Johan Åstrand

MUSEIARKEOLOGI SYDOST

Three rune stones with inscriptions from the 7th century are known from the area Lister in Blekinge, Sweden. They mention three generations of chieftains; *Hjorulv, Härjulv and Hådulv*. In 2011 a boathouse dated to 500-650 AD was excavated at Lussabacken Norr near the sites of the rune stones. Some of these three men might have taken part in building the boathouse and travelling by sea. Scandinavian boathouses, nausts, are predominantly found in Norway. Few Iron Age or Mediaeval boathouses have been found along the coasts of Sweden and Denmark. The boathouse at Lussabacken Norr had been situated by the shore of a former lagoon. It was 13 meter long and therefore smaller than many of the Norwegian boathouses from the same period. The boathouse had been surrounded by two large, contemporary longhouses. The location of the settlement did not correspond to the old agricultural landscape and there were no signs of trade. Lussabacken Norr has been interpreted as a primarily maritime settlement. The Migration period was a time of unrest and the site was situated close to a major sea route. Living near the coast was dangerous and there were different strategies to protect oneself or to get military advantages. The local response at Lussabacken Norr was to strengthen the naval capacity by moving a settlement to a well-protected landing place. The boathouse at Lussabacken Norr exemplifies the diversity of landing places that can be found around the Baltic Sea.

AM1 INALIENABLE OBJECTS OF THE EUROPEAN BRONZE AGE

Ros Ó Maoldúin

NUI GALWAY

Annette Weiner pointed out that any worthy study of exchange should also take into account that which is not exchanged. Studies of Bronze Age exchange often assume that all object types circulated through exchange, however, even within our own society, it is clear that some objects do not and that others are only exchanged with a restricted range of partners in a restricted range of circumstances. This is especially true of ceremonial objects, which can be central to a group's self-identity. This paper considers the spectrum of inalienability certain objects or materials may have had and the possibility that certain objects may not have been open to exchange at all. Furthermore, it asks, in what ways this might inform our understanding of Bronze Age values, valuables, spheres of exchange and identity.

AM8 INTERPRETATION MODELS OF THE DISTRIBUTION OF BAVARIAN CHERT AND CARPATHIAN OBSIDIAN IN THE NEOLITHIC OF THE CZECH REPUBLIC

Jaroslav Řídký, Pavel Burgert, Markéta Končelová

INSTITUTE OF ARCHAEOLOGY PRAGUE CAS

The aim of the poster is to present the distribution of two visually attractive raw sources, used for Neolithic chipped stone industry, that do not originate in the Czech Republic. These include namely the variety of Bavarian Jura cherts from the vicinity of Kelheim in German Bavaria, and the Carpathian Obsidian from the sources on the border of the southeast of Slovakia and the northeast of Hungary. Eastern Bohemia (Czech Republic) appears to be an area where the distribution circuits of the two raw sources mingled. At the same time, this area represents the furthest border in terms of the distribution of both of these raw sources in Czech prehistory. Although both raw sources can be found in different periods within the Czech Republic region, it is quite striking that their highest ration culminates during the Late Neolithic (about 5000-4400 cal. BC). In our opinion, it is possible to correlate such situation with the important social changes recognised during the first half of the fifth millennium BC (can be seen also in monumental enclosures, cemeteries etc.). The poster will present a wider interpretation of such long distance distribution.

RECONFIGURING IDENTITIES PAPERS AND POSTERS

RI28 HOW OLD IS THE DAVOCH? SYMBOL STONES AND MEDIEVAL LAND ORGANIZATION IN PICTISH SPEYSIDE

Cynthia Thickpenny

UNIVERSITY OF GLASGOW

This paper examines whether the davoch, a unit of land organization in Scotland that first appeared in the Central Middle Ages, may have originated in the early medieval Pictish period.

This paper focuses on Pictish Class I symbol stones and early historic sites from the later medieval parish of Inverallan in Moray, and on builds upon these previous works of scholarship: Alasdair Ross' doctoral dissertation and publications in which he mapped davochs within parish boundaries of the Moray diocese and identified patterns in their distribution around power centres, and Iain Fraser and Stratford Halliday's research on the relationship between Pictish stones, prehistoric sites, and parish boundaries in Aberdeenshire. Utilizing Ross' maps, RCAHMS site records, and the National Library of Scotland's Ordnance Survey maps, this paper pinpoints new evidence that in the Inverallan parish, Pictish stones with identical symbol pairs correspond to individual davochs that may have been tied to a central power centre containing several hill forts.

These results contribute to knowledge of why Pictish stones were erected and how the symbols related to each other in the historically powerful but still mysterious northern kingdom of Fortriu, and provide a template for study of symbol stones in other Pictish areas.

RI27 ALSENGEMS: PRIMARELY LITURGICAL BLINGBLING OR PAGAN AMULETS?

Vincent van Vilsteren

DRENTS MUSEUM

Alsengems are small button-like discs made of two layers of glass (the bottom one black and the top one blue) decorated with 1, 2, 3 or - very rarely - 4 stick-figures. In total some 130 have been recorded. Some of the gems were recovered from the soil as archaeological finds mainly in the northern parts of The Netherlands and Germany, in Denmark and Sweden. Others were used on liturgical objects such as book covers, crucifixes and reliquaries. These liturgical Alsengems are known predominantly from central Germany and further south. There's hardly any overlap between the two distribution areas. Dating of the gems points to the 12th and 13th century. There are clear indications that the Alsengems were used as amulets in rings or metal mountings. The iconography of the Alsengems is consistent with the visual imagery of northern Europe. It is argued that the stickfigures represent characters from the world of the northern gods. That apparently didn't preclude their use as decoration for liturgical objects in the contemporary Christian world of central Europe. How come that pagan amulets are just as easily used in a Christian context? Was the decoration on Alsengems of any importance or was it merely the ornamental effect of the gems that was of importance? How did the Alsengems from their mainly rural origin end up in the ecclesiastical treasures of the Christian towns?

RI35 INTEGRATED LANDSCAPE ANALYSIS OF UPLAND AND LOWLAND ENVIRONMENTS IN ORKNEY

James Moore

ARCHAEOLOGY INSTITUTE, UNIVERSITY OF THE HIGHLANDS & ISLANDS

The archipelago of Orkney, located off the northern coast of Scotland between the North Sea and the Atlantic Ocean is almost treeless, and annually battered by winter gales. Yet whilst many to the south might consider these islands both geographically and environmentally marginal, human settlement has flourished from the Neolithic onwards. This is visible in the wealth and diversity of archaeological remains for which the islands are famous, in sharp contrast to the present day perception of Orkney as being positioned on the periphery. Much of the modern landscape of Orkney is given over to farming however there remain extensive areas of agriculturally marginal uplands. As such a range of landscape zones – pastoral and arable fields, heath, and bog – can be closely located, each presenting different levels of preservation, survey conditions and each necessitating a different approach to investigation. Using case-studies drawn from the landscapes surrounding a number of later prehistoric sites in Orkney, this paper will explore one approach to the interpretation and integration of the diverse data sets that result from a suite of traditional and non-traditional landscape survey techniques being applied in these areas. Such an integrated approach, drawing on both theoretical and methodological elements of landscape archaeology provides a means to move beyond the prospection of new sites and the identification of features and anomalies. This allows us to explore the ways in which people inhabited the world in the past, and to critique ideas of marginality at both local and larger scales.

RI10 CAN THE PROCESSED BONES HELP RECONFIGURE IDENTITIES? THE EXAMPLE OF THE BALKAN NEOLITHIC

Monica Margarit

VALAHIA UNIVERSITY OF TARGOVISTE

This study proposes to identify the changes intervened in the processing of osseous matters, along the Balkan Neolithic, starting from three cases of exploitation by wear technique (bipartition by abrasion, segmentation by sawing and perforation), without the intervention of lithic tools. The processing of osseous materials is strongly conditioned by their anatomic form which is why we would have expected a more restrained array of the transformations variables, with minimum mutations along

Prehistory. Still, the three processing cases does not accompany human technology during the entire Prehistory, suddenly appearing at the beginning of Neolithic and again suddenly disappearing (bipartition by abrasion) or becoming sporadic (segmentation and perforation due to wear technique) along the Chalcolithic. In these conditions we may accept the fact that, drawing the geographic and temporal frontiers of the different processes of bones processing, we may contribute to reconfigure identities, at the level of the Balkan Neolithic. Basing on experimental reconstitutions of the three processing modalities and comparing with the archaeological ensembles, the study intends also to identify the raisons for the appearance and then the abandoning, the advantages and disadvantages compared to other transformation schemes, if they represented a real progress in the processing of osseous materials and if they are specific to certain cultural entities.

RI19 TRANSFORMATIONS OF THE COASTAL ECONOMY IN NORTHERN NORWAY FROM THE VIKING AGE THROUGH THE MEDIEVAL PERIOD: MARGINALIZATION OR ENHANCED SELF-DETERMINATION?

Stephen Wickler

UNIVERSITY OF TROMSØ

Although northern Norway may have undergone a process of marginalization during the period AD 800-1600 which accompanied the socio-political transformation from chiefly to royal and ecclesiastical control, it is overly simplistic and inaccurate to claim that economic exploitation by foreigners such as the Hanseatic merchants produced a more conservative, inward looking society. This is particularly true for coastal communities who benefited directly from the commercialization of cod fisheries and expansion of the dried cod (stockfish) trade with Bergen. Archaeological evidence from Vággar in the Lofoten Islands that rose to prominence as a transit port for stockfish export in the 13th to 14th centuries documents an urbanized community with direct access to European goods and fashion. Following the demise of Vággar in the late 1300s, direct shipment of stockfish to Bergen continued to enrich local communities, despite the risks involved and potential for exploitation by German and Norwegian merchants. The trade in stockfish thus represents a means by which coastal communities maintained their independence and outward looking character as a critical node within an incipient global system. This presentation discusses the archaeological signatures of a wider European context for coastal and islander society in northern Norway linked to trade.

RI14 MASS GRAVES OF MONGOL INVASION TO EASTERN EUROPE – CULTURAL, SOCIAL AND ANTHROPOLOGICAL IDENTITIES OF THE VICTIMS.

Monika Kamińska

INSTITUTE OF ARCHAEOLOGY, JAGIELLONIAN UNIVERSITY

The Mongol invasion of Eastern and Central Europe was one of the most significant moments in the history of this region. None of the previous Eastern nomad attacks (Huns, Avars, Hungarians) of Middle Ages was that wide and cruel in the reflection of archaeological and written sources. The Mongol invasion of 1237-1241 caused the collapse of the Byzantium-inspired culture of Kievan Rus and drew the chronological border between early and late Middle Ages for Central Europe's historiography and archaeology. One of the most characteristic material traces of those 13th century war events are mass graves known from historical cities and unknown by name settlements of Old Rus and Volga Bulgaria, such as Riazan, Kiev, Yaroslavl or Bilyar. The paper describes similarities and differences between 13th century mass burials in different cities of Eastern Europe. Although mass graves are not regular burials, a few funeral customs are visible in this category of burials. They also reflect the cruelty of the invaders and empathy of those who survived. Despite the fact that several sites are known since the early or middle 20th century, new interpretations still appear.

RI21 THE SCANDINAVIAN RE-USE OF BURIAL SITES FOR ACCOMPANIED BURIALS IN SCOTLAND

Shane McLeod

UNIVERSITY OF STIRLING

Scandinavian re-use of ancient landscape features for burial in Scotland is very common but it is often associated with settlement mounds rather than burials. In terms of the direct re-use of burials for Viking Age burials, of approximately 40 Scandinavian burial sites there are only six certain examples and another five probable ones. Despite these low numbers, in terms of percentages of burials the degree of re-use is significant in comparison to other areas of Viking Age Scandinavian settlement, including Scandinavia itself. The sites are widely distributed within Scotland and include both contemporary Christian cemeteries and ancient burial mounds. Concentrating on the certain examples, this paper examines re-use as a possible settlement strategy in both the promotion of community identity and the demonstration of power.

RI33 HUMANS VS. INSTITUTIONS: RE-THINKING THE ONTOLOGY AND EPISTEMOLOGY OF IDENTITY

Artur Ribeiro

GRADUATE SCHOOL OF HUMAN DEVELOPMENT IN LANDSCAPE

Identities do not exist in nature. On an ontological level, identity is a void entity as it only exists in epistemological form. Identities are constructed by us to emphasize difference and individuality, thus making anything and everything a way of identity construction. Such caveats regarding identity forces us to re-think the archaeological material and record given that identity does not exist ontologically but can be attributed and assigned to any material object. This presentation intends to argue that there needs to be an epistemological tool that mediates the empirical record with the need of human societies to identify themselves as something. It is suggested that Institutions, as defined by the later Wittgenstein and Vincent Descombes, might fit this role perfectly. It will be further argued that putative cultural traits are nothing more than agreements and blind agreements, the multiple ways in which humans simply adopt a certain practice, object, place, languages, and rules, and the 'membership' to each of these is what forms an identity.

The notion of institution holds innumerable advantages in defining identity because institutions are empirically substantial and dissolve the culture/nature dichotomy. Following this perspective, it will be claimed that identity is neither a difference in

nature (as claimed in the ontological turn), neither is it a difference in culture (cultural relativism) but rather on what agreements have been established among members of foreign, past, and modern societies.

RI14 TRAINING LOUIS XIV'S TROOPS AT THE FORT SAINT-SÉBASTIEN. ARCHAEOLOGY AND PREPARATION OF SIEGE WARFARE IN THE XVIIITH CENTURY

Séverine Hurard

INRAP

A 28 hectare preventive excavation was conducted in 2011-2012 by the Inrap in Saint-Germain-en-Laye – 30 km north-west of Paris, on the alluvial plain of the river *Seine*.

This excavation led to the discovery of abundant remains of the *fort Saint-Sébastien*, presumably built in 1669. Over the course of only 2 years, it allowed the siege warfare training of 16 000 to 30 000 men, belonging to the military household of Louis XIV.

The excavation unveiled impressive fortified structures of the XVIIth century as well as encampment areas within the fortifications with 3 500 archaeological structures and almost 2 km of defensive moats.

The excavation is an unique archaeological testimony of the preparation to siege warfare of the 1670's.

The excavation gives a rare material testimony, in an unusual scale (28 ha) of the military practices and society of the 1670's and highlight that particular European political context as much as the emergence of a standing army. The data provide us with precious informations on the soldiers and the officers daily lives, on the origin and forms of supplies of the king's army and on the social and spatial organisation of this military society where infantry, horsemen or musketeers cohabited.

Archaeology triggered an investigation mobilizing biological sciences, archives and geography in order to refine the understanding of a complex society of war, never observed in that scale from the material point of view.

RI12 STOPPING THE WALKING DEAD? - RETHINKING EMPTY GRAVES AND SECONDARY BURIALS IN EARLY MEDIEVAL (C.800-1300 AD) INHUMATION CEMETERIES OF FINLAND.

Ulla Moilanen

UNIVERSITY OF TURKU

In Finland, the Late Iron Age/Early Medieval (c. 800-1300 AD) inhumation cemeteries sometimes contain "empty graves" without any sign of bones but a set of commingled artefacts. Such finds have usually been explained as indication of grave robbery. More thorough examination of the phenomenon reveals that the practice of secondary opening of graves and even reburial was quite common in the period. The various types of secondary treatment of the inhumed cadavers might include disarticulation, complete exhumation, reburial, and possibly decapitation. In the presentation I am discussing the examples of such finds in the cultural context of the burials. The beliefs surrounding such treatment might be diverse, but some of the graves might be explained as a manifestation of "bad death", a culturally unacceptable way of passing, and include an anti-revenant message. The affect of taphonomic processes and the possibility of skull-collecting is also taken into consideration.

RI14 IN SEARCH OF GROUP IDENTITIES DURING THE DUTCH WAR OF INDEPENDENCE (1568-1648)

Maxime Poulain

GHENT UNIVERSITY

The Dutch War of Independence gave rise to a whole new system of fortifications in the Low Countries. These fortified places are all too often regarded as a singular male and military environment. The non-military aspect of an army must, however, also be borne in mind. The material response to the Reformation and subsequent Counter-Reformation is but one of the myriad aspects of a soldier's life. Moreover, several documents clearly indicate the presence of women and children in garrisons during the Dutch War of Independence. For example, the chaplain of the garrison church of Antwerp baptized 571 children between 1628-37. How is this presence of women and children translated into material culture, how was the gender division organized in a fort and how was sexuality experienced? For the first time, this paper explores the social side of the Dutch War of Independence. By comparing different sites, a new insight is obtained in how the different social groups at play in the early modern Low Countries maintained, transformed and expressed their group identity through the use of material culture. In doing so, this paper bears a wider, European significance as the many nationalities involved in this conflict took some of the social and cultural practices of the Low Countries back to their homelands (e.g. the English Civil War).

RI29 MEDICINE, BUILDINGS, AND ARCHAEOLOGY: TOWARDS A METHODOLOGY FOR INSTITUTION-SPECIFIC ARCHAEOLOGY

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Since the late 1990s, archaeological investigations of institutions designed for public confinement, public health, and public welfare have evolved. Key publications have raised the profile of 'institutional' archaeology in North America, while in recent

years, archaeology-based and built-environment focused research on institutions in the British Isles has gained momentum. In light of recent scholarship, homogenisation of institutional building types is no longer so useful. Focusing on the British Isles, this paper outlines a series of archaeological methodologies employed to study institutions, methods that set British and Irish institutional approaches within their unique context. Focusing on two institutional building types designed for large scale confinement, the asylum and the workhouse hospital, the significant difference between these building types and others that are frequently considered analogous will be made apparent.

RI25 GIANTS OF THE CLYDE: HOW MEMORY AND CULTURAL IDENTITY CAN BE EMBODIED IN POST-INDUSTRIAL LANDSCAPES

Martin Conlon

UNIVERSITY OF STRATHCLYDE

Around 40 Giant Cantilever cranes were built in Scotland – transformative technology that allowed Scottish industry to dominate world markets, bringing more people to work amidst booming manufacturing, forming new communities in once pastoral landscapes. The decline of heavy industry means there are only four left in Scotland; obsolete of their original function in rapidly changing urban landscapes.

This paper seeks to explore the cultural value of these last remaining Giants, at a time when their survival is under threat; the A-listed Fairfield crane was demolished in 2007, despite various local attempts to save it. The cranes are immortalised in song, literature and art – cultural representations that allowed for ordinary people to engage, and at times even resist, the processes of deindustrialization that were going on around them. Today, imagery of these structures crops up in unusual places; on buses, as the backdrop to national news reports, and as a centerpiece to the opening ceremony of Glasgow 2014 Commonwealth Games.

What do the cranes mean today, and how has this shift from working object to monument impacted on both local and national identity? Combining archival research, new oral history testimony and critical analysis of material culture, this paper will explore Scotland's remaining and removed Giant cranes through the memories and interactions of the people that have existed around them; defining their cultural value in the context of deindustrialisation and the development of a new post-industrial identity, ultimately outlining the need for their preservation.

RI33 PERIPHERAL IDENTITIES

Bryan Feuer

CALIFORNIA STATE UNIVERSITY, DOMINGUEZ HILLS

I begin with the premise that identity is neither monolithic nor uniform, but rather fluid and mutable, varying both within and outside of a given group or society. One source of variation is spatial, in that factors such as distance and communication may influence commitment to or involvement in a given identity. A second source of variation derives from interaction with the Other, which introduces and offers alternative identities as contrast and opportunity. A confluence of these elements is encountered in peripheries, and I will argue in this paper that those who inhabit border and frontier regions may perceive identity differently than those in the core or center because of them. I examine Late Bronze Age Thessaly in this context in respect to Mycenaean civilization and will also *inter alia* consider some of the epistemological considerations involved in peripheral identity.

RI37 ORGANIZATION AND TOPOGRAPHY OF EARLY MEDIEVAL BURIALS IN SOUTHERN SWITZERLAND:

Aixa Andreetta¹, Sandra Lösch², Christa Enböther³, Reto Marti⁴

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The chronology of the Early Middle Ages, the burials' organization as well as the populations and their living conditions remain largely unknown in the southern Swiss Alps.

This interdisciplinary project aimed to improve the knowledge about the organization and the development in various early medieval funerary areas. The project combines an archaeological study and physical anthropological examinations, including stable isotopes analyses and radiocarbon dating, to identify similarities and/or differences of rituals and of populations.

The study material consists of 300 graves with 430 individuals from 15 different burials sites in the cantons Ticino and Grisons, Switzerland. They date to the 6th to 11th century AD.

The anthropological examination includes the determination of sex and age at death, palaeopathological and anthropometrical studies. With the absence of grave goods the archaeological study is based on the funerary architecture, grave typology, manner of inhumation and organization (spatial distribution, topography), and correlation with the different construction phases of the associated building.

Most of the 15 burial sites are churchyards, but three of them are not directly associated to a Christian building.

The comparison between the different cemeteries reveals that various burial traditions seem to be present in the Alpine valleys. A possible hypothesis might be a multitude of complementary approaches to death or more probably a plurality of identities, converging to a more homogenous scenario only after the 11th century.

RI4 FORMING IDENTITIES, TRANSCENDING BOUNDARIES: THE TRADE AND CONSUMPTION OF BEARDED FACE JUGS IN THE NORTH SEA REGION, 1200 – 1350.

Kelly Green

UNIVERSITY OF SHEFFIELD

This paper explores the role of bearded face jugs in constructing multiple facets of social identity in the later middle ages, specifically in relation to urbanism, commercialism, community and masculinity. The main focus will be on the distinctive bearded face jugs produced at the lucrative pottery industry based in the village of Grimston in north Norfolk. By examining the distribution of these vessels on a regional and inter-regional scale, this paper will move us towards a more contextualised understanding of the role of these vessels in constructing identities across a wide geographical and social spectrum. In particular, the construction of bonds of common interest and difference between multiple sectors of society will be considered, highlighting the multi-vocality of material culture in forming, reproducing, and challenging collective identities.

RI5 NEW FINDS FROM SEYITÖMER MOUND IN THE BRONZE AGE

Dr. A. Nejat Bilgen

DUMLUPINAR UNIVERSITY

The inland western Anatolia region has often been viewed as a passive periphery to the complex societies that emerged around it in the third and second millennia B.C. Yet rather than being a cultural backwater, this region forged its own unique identity by engaging opportunistically with its neighbors throughout the Early Bronze Age (EBA) - Middle Bronze Age (MBA) periods. Newly excavated material from Seyitömer Höyük in western Anatolia indicates that the beginning of the second millennium was an important turning point in this region, in which local production and sporadic trade with the Aegean declined as the region was incorporated into a broad, well-organized long-distance trade network that stretched to central Anatolia and Syro-Mesopotamia. This paper discusses the chronology of this shift, and reviews material culture evidence from Seyitömer Höyük and its neighbors within the context of these shifting interregional dynamics.

RI32 MARWEDEL (LOWER SAXONY, GERMANY) – AN EARLY ROMAN PERIOD „FÜRSTENSITZ“

Doris Gutmiedl-Schumann¹, Hans-Jorg Nüsse²

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Through the large-scale archaeological excavations of the residence of two germanic "chieftains" from the second century AD, Marwedel has become one of the leading sites even beyond the borders of German-speaking countries. Through our research of the last 10 years it has been possible for us to make a very precise description of the rise and fall of a settlements of social elites. The well known "Fürstengräber" are structurally connected to the adjacent settlement and reflect only a very specific aspect of society: the material culture from the settlement offer a more diverse representation of everyday life. Despite immense progress many questions still remain unanswered. The goal in the final phase of the project is to develop a comparison of settlement and socio-historical aspects in order to describe the phenomenon of early roman period chieftain farms ("Fürstensitze") within germanic society. It is essential to define the unique value of this site in comparison to other contemporary settlements and to analyze the development of the settlement and its structure as well as economical and social aspects. One of the most important results will be to establish a catalog of criteria for elite farms, which goes beyond vague description and classification.

RI31 BURIAL IN MEDIEVAL EXETER: DEVELOPMENT AND CHANGES IN PRACTICE FROM THE POST-ROMAN TO THE EARLY MODERN PERIOD.

Mandy Kingdom

UNIVERSITY OF EXETER

This paper explores the development of burial in Medieval Exeter, with particular focus on Exeter's Cathedral Green cemetery. By using archaeological records, radiocarbon dating, historical sources and osteological analysis it has been possible to gain new insights concerning the development of the cemetery over almost 1000 years. The cemetery received its first burials in the fifth or sixth century after the Roman administration had ceased, but before the founding of the first known Christian monastery/minster. However, the vast majority of burials date from the middle Saxon period through to 1636 when the cemetery was closed due to overcrowding. Over this time there are a range of burial practices evident which provide an indication of how people viewed the body and treated the dead. Alterations in the alignment of inhumations, and in the later periods different treatment of charnel material suggests, that not only the administration of the cemetery, but the attitude to its occupants changed on a number of occasions during its use. Through an examination of the archaeological record it is clear that the burial practices present in Exeter, do not always reflect the changes in religious teachings, or historical views on death and the afterlife during this period.

RH13 A LATE BRONZE AGE MORTUARY COMPLEX ON THE MORAY FIRTH: THE COVESEA CAVES, NE SCOTLAND
Lindsey Büster, Ian Armit, Laura Castells Navarro, Jo Buckberry

UNIVERSITY OF BRADFORD

The Sculptor's Cave in NE Scotland is known for its Late Bronze Age and Roman Iron Age human remains, which were unearthed during excavations in 1928-30 and 1979; the former suggest the curation and display of (possibly fleshed and adorned) juvenile heads, while the latter indicate the practice of decapitation of (predominantly adult) individuals inside the cave. These remains are being analysed as part of a project at the University of Bradford to reanalyse and publish the excavation archive. In addition, recent fieldwork at an adjacent cave (Covesea Cave 2) is beginning to reveal similar evidence to that from the Sculptor's Cave, suggesting that the latter was not unique but part of a larger mortuary landscape along this stretch of the Moray coastline. This paper will examine preliminary findings from the Covesea Cave assemblage, with evidence for excarnation, trauma, selective redeposition and processing of skeletal elements, in what could be considered a 'chaîne opératoire' of later prehistoric mortuary practice, and will compare this from what is already known from the Sculptor's Cave and elsewhere in Britain and Europe.

RH28 THE CREATION AND RECREATION OF THE GOVAN HOGBACKED TOMBS

Victoria Whitworth

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The funerary landscape of southern Scotland and northern England in the later first millennium AD is distinguished by an unusual genre of monument, the asymmetrical, coped, ridged and tegulated recumbents known as 'hogbacks'. This paper is a case study of the five hogbacked stones from Govan Old Church on the Clyde, which are the largest and most imposing examples anywhere, setting them within a revised paradigm of symbolism and influence, and considering them in the wider context of the large assemblage of other funerary and monumental sculpture at the site, which includes an ornate sarcophagus and numerous cross-slabs. It has been argued hitherto that the Govan stones are derivative from earlier English models, but this paper makes the case that they are earlier in the series, and considerably more influential than has previously been understood. At least two of the Govan stones have been re-cut: the evidence for this is re-evaluated, leading to the conclusion that the re-cutting is much less drastic than previously thought, leading to a re-emphasis rather than a re-invention of the stones' identity.

RH1 DIVERSITY IN FARMING PRACTICE: CROP ISOTOPES REVEAL HOUSEHOLD LEVEL DECISION-MAKING AT THE LATE NEOLITHIC SITE OF HORNSTAAD-HÖRNLE IA, GERMANY

Amy Styring¹, Ursula Maier², Helmut Schlichtherle², Amy Bogaard¹

¹UNIVERSITY OF OXFORD, ²LANDESAMT FÜR DENKMALPFLEGE

Hornstaad Hörnle IA is a Late Neolithic lakeshore settlement in southwest Germany. In 3910 cal B.C. a fire destroyed almost the entire village, carbonising crop stores within a series of houses. This presents a remarkable opportunity to explore variability in nitrogen isotope ($\delta^{15}\text{N}$) values of cereal grains originating from a single year's harvest, as a means of assessing whether cereal cultivation took place at a household or community-wide level.

Clustering of similar naked wheat and einkorn wheat grain $\delta^{15}\text{N}$ values in certain households at Hornstaad excludes the possibility that the harvest was pooled prior to storage, providing support for the autonomy of these households at the level of production and subsistence. In contrast, there is little clustering of barley $\delta^{15}\text{N}$ values, implying that, if households were growing barley in their own distinct plots, any differences in soil $\delta^{15}\text{N}$ were not consistent. These results reveal how arable land management varied within a community, providing independent evidence for household-level cultivation, already implied by indirect artefactual evidence. Moreover, since manuring is a major influence on crop $\delta^{15}\text{N}$ values in agricultural systems, the differences in crop $\delta^{15}\text{N}$ values between households and between crop species could reflect strategic decisions regarding manure use, and potentially reflect differential access to this important resource.

RH18 ON THE EDGE OF TOWN: 'WASTELANDS' AND MEGA EVENTS

Jonathan Gardner

UCL INSTITUTE OF ARCHAEOLOGY

So-called mega events, such as Olympic Games or International Exhibitions, have historically been situated in locations in their host cities that could be considered marginal zones. This can be in a spatial/environmental sense such as the site's distance from the centre of a city or the quality of the land, or in more discursive terms, places considered useless or 'wasted'. Even the supposed *ur*-mega event, the Great Exhibition of 1851, was held in Hyde Park, then close to London's western periphery, and in 1852 its building, the Crystal Palace, was moved to the city's southern edge at Sydenham. More recently, the London 2012 Olympics were constructed on what its organisers described as 'wasteland'. This polluted, supposedly unproductive, 'empty space' was not at the edge of the city but a geographically isolated site in the Lower Lea Valley, 'cut off' from the city by pylons, motorways, waterways and railways. Given the fame that such large-scale spectacles garner and the vast investment they require, I am interested in why they are situated on sites so frequently considered marginal, the validity of this categorisation, and whether such a stigma, accurate or not, ever fully dissipates when they are redeveloped for these events.

Focussing on the Great Exhibition and the London 2012 Olympics, I will consider the ideas of 'wasteland' and 'the edge of town' as both marginal archaeological landscapes and cultural tropes, and discuss the significance of such terminology in the hosting of mega events and their aftermath.

RI1 BETWEEN CULTIC FEAR AND LACK OF WOOD

Eric Biermann

FREELANCE ARCHAEOLOGIST / INDEPENDENT

In addition to last year's topic „longhouses“ the focus will be laid on the changes of architecture between LBK and the classic trapezoid Rössen houses. How can we explain the changes, is there a transitional phase (e.g. "Hinkelstein" – "Großgartach" – "Stichbandkeramik"/Stroked Pottery) and what did this mean in case of the number of inhabitants of single households? The lecture will start with the differences in the appearance of the houses, technological aspects, the choice of settlement areas and possible and probable reconstructions. In conclusion there will be given an interpretation of the development, not just according to the houses itself, but even concerning the social structure of the communities.

RI28 COMMEMORATION AND THE POWER OF PLACE: GRAVE MONUMENTS AND SOCIAL IDENTITIES IN LATE MEDIEVAL ENGLAND

Aleksandra McClain

UNIVERSITY OF YORK

Although stone commemoration was in use in parts of England throughout the Anglo-Saxon and Anglo-Scandinavian periods, the later Middle Ages saw the proliferation of carved grave monuments on a much wider scale, particularly in parish churches across the country. Yet despite this national trend, commemorative practice was still profoundly regional and even local in form, style, and meaning. Stone monuments evoked historical legacies, political and cultural allegiances, and individual and group identities—all of which were closely tied to the spatial and temporal contexts in which they were erected. The north of England is an ideal locale in which to explore these complex relationships between memory, identity and place, given how the region was defined by both its legacy of early medieval stone sculpture, and the unique persistence throughout the late Middle Ages of a thriving cross slab tradition. Through an examination of a range of case studies spanning the twelfth to the fifteenth centuries, this paper will explore how stone commemoration was used by patrons to negotiate social relationships and changes in their local and regional milieu, and how people tied themselves to specific places in the landscape and community through grave monuments. It will also consider how the cumulative commemorative choices of patrons over centuries contributed to the formation and expression of a northern English identity, which was at least partially conceptualized and materialized in stone.

RI3 USAGE OF TEXTILES IN POTTERY FORMING TECHNIQUES IN THE EARLY NEOLITHIC OF THE CENTRAL BALKANS: EXPERIMENTATION OR WELL-ESTABLISHED ROUTINE?

Jasna Vukovic

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Forming sequence of the Early Neolithic (Starčevo) pottery is still unknown. Traces of manufacture are difficult to determine, since they are "erased" during the stages of surface finishing (smoothing and burnishing) and applying of the slip. Considerations about the shaping of the vessels are therefore very scarce and are often based on the assumptions that simple shaping techniques were applied. Recent find of a bowl fragment from the site of Kovačke Njive (southern Serbia) may shed some new light on the shaping methods of the earliest pottery in the Central Balkans. This unique find exhibits deep impressions of some kind of textile on the whole interior surface of the sherd. The possibility of cloth-lined molds, usage of textile as a parting agent in pottery mold-making and paddle-and-anvil technique must be taken into consideration. The connection between basketry, cordage and woven fabrics and early pottery is not a new idea in archaeology. However, bearing in mind the uniqueness of our find, these possible interpretations must be taken with caution. Was the usage of textile just experimentation with a new technology, thus suggesting innovation of an individual, or was it a widely accepted practice which involves socially accepted patterns of knowledge transmission and well-established learning frameworks are the crucial questions in the interpretation of pottery technology and the its role in social relations during the Early Neolithic of the Central Balkans.

RI3 SOME RESULTS OF THE HISTORICAL-AND-CULTURAL ANALYSIS OF CERAMIC MATERIAL OF THE UFA II – MEDIEVAL URBAN SITE OF THE SOUTHERN TRANSURALS

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The Southern Transurals lie at the border of the great empires – the Hun Empire, Volga Bulgaria, the Mongol Empire and Jochi Ulus. As there are no reliable documentary records, archaeological investigations of early trade, production and settlement in the territory of Bashkortostan (as the area was known before the formation of the Russian state) are of great importance. In the centre of the urban site of Ufa – II a rich collection of artefacts, including pottery, metalwork and bone items were found

along with jewellery including amber beads with incised decoration, typical of Central Europe, Scandinavia and the Black Sea region. It is unclear how these beads reached the site, perhaps through commerce, as gifts (perhaps alongside swords and suits of armour), or as the result of migration (R. R. Rulanova). Ceramic analysis, following the framework established by A. A. Bobrinsky, was undertaken. Some types may be considered cultural or chronological markers (L. A. Kraeva). Analysis of the ceramics from the site shows there to have been a complex mixed population of Turkic and Finno-Ugric peoples. Judging from the excavated evidence we can conclude that its population were a border community, situated at the boundary of the medieval Turkic and Mongol empires, who had stable and multi-faceted relationships with one another.

RI38 EVERY-BODY'S BUDDY. FIGURINES AS A SUPPOSEDLY EASY TOOL FOR GENDER RECONSTRUCTION.

Arnica Keßeler

FREIE UNIVERSITÄT BERLIN

My talk will discuss the importance of body concepts as a basis for analyzing figurines. Anthropomorphic figurines are objects commonly found in excavation in every field of archaeology. Within the gender studies in archaeology the diverse representations of humans are a welcome and often used example for sex as well as gender determination. This assignment, which is often based on primary and secondary sexual characteristics, ignores the constructive character of the body in given times and settings. Given the foregoing an examination of the body concepts and the body itself with its modifications should be considered. The assumption that the modern body can be seen as a universal and static construct cannot be retained. The body and therefore also its representation can be influenced in many different ways. Physical modification is just one example within the full spectrum. The social notion what is a body, how is it constructed and who constructs it in society should be equally studied and of concern. Beginning from this stance many questions arise concerning figurines as well as the people who made them including their living conditions:

Are there repressing practices within a given society that shape the social body? Does a dichotomous division in male and female humans based on biological characteristics exist? If not are there other divisions that mark the body or is gender not relevant at all? What are the ontological body perceptions of that society and can figurines be seen as representations of them or something else?

RI7 "CHILDREN IN A RAGGED STATE": SEEKING A BIOARCHAEOLOGICAL NARRATIVE OF CHILDHOOD IN IRELAND DURING THE GREAT FAMINE (1845–52)

Jonny Geber

UNIVERSITY COLLEGE CORK

Between 1845 and 1852, Ireland was experiencing one of the most devastating and tragic periods in its history. The Great Famine was a subsistence crisis that followed a fungal destruction of the potato crop which wiped out the virtually only source of food for a vast proportion of the population. About one million people are estimated to have died, and more than half of these victims were children.

In 2006, an archaeological excavation adjacent to the former union workhouse in Kilkenny City revealed an unknown Famine period intramural mass burial ground for near 1,000 individuals. The majority of these were children, and they would initially have entered the institution as orphans, foundlings or with families that were desperate to evade death by starvation.

The workhouse system was based on Bethamian principles as a form of social reform that through hard labour, discipline and degrading institutionalisation would "improve the moral character" and industry of the poor. For the workhouse children, this meant being separated from their parents, poor food rations and a forced existence in overcrowded wards with deaths constantly occurring around them.

Through a broad and holistic biocultural approach, a narrative of how poverty and institutionalisation was experienced by children during the height of the Famine in Ireland is discussed. The plight and physical pain of disease, parental loss, and psychosocial stress and trauma are all realities that can potentially be discerned from the human remains from the Kilkenny workhouse mass burials.

RI20 TARRADALE. AN UNDOCUMENTED PICTISH ROYAL CENTRE AND ITS LANDSCAPE.

Daniel MacLean

UNIVERSITY OF GLASGOW

This paper examines the Early Historic archaeology of Tarradale and its wider landscape at the head of the Moray and Beaulieu Firths. Utilising existing research and an in-depth interdisciplinary study it has been suggested that the two primary features of Tarradale; the enclosure and barrow cemetery constitute a previously undiscovered royal centre associated with the Picts.

The evidence from Tarradale has been compared against sites associated with kingship in Britain and Ireland. Many of the aspects that make up Tarradale constitute the same attributes as sites such as Forteviot, Rhynie and Yeavinger.

The wider landscape has provided clear examples of sites which are directly associated with Early Historic settlement in Scotland. Artefacts, aerial photographs, place-names, stone sculpture have all contributed to create a full picture of Early

Historic settlement. This highlights the potential of Tarradale and its wider landscape to further illuminate the study of kingship in Early Historic Scotland.

RI31 FORCED FUNERARY LANDSCAPES: INSTITUTIONALISED BURIAL PRACTICES AND SOCIAL TRAUMA IN IRELAND DURING THE GREAT FAMINE (1845–52)

Jonny Geber

UNIVERSITY COLLEGE CORK

The Irish Famine of 1845–52 is one of the worst subsistence crises in human history. It resulted in an estimated one million deaths of which about 200,000 took place in the notorious and much hated union workhouses. The workhouse was intended as the only available form of government relief for the poor and destitute. During the Famine, these institutions became severely overcrowded with starving and critically ill people, and mass deaths due to infectious disease occurred as a result.

Archaeological excavations of Famine-period burial grounds in Ireland have revealed practical solutions to a period of mass death crisis and logistic difficulties leading to the creation of forced funerary practices. The considerable ethical concerns relating to how these individuals were buried can also be discerned from the historical evidence, ordnance survey maps, folklore, as well as the archaeology of the burial grounds themselves.

Using the Kilkenny workhouse intramural mass burial ground as an example, a reconstruction of how institutionalised burials during the height of the Famine were undertaken can be made. Before its discovery, the local knowledge of the Kilkenny burials (for near 1,000 individuals) had been lost. Inmates are likely to have dug these graves themselves, and a workhouse burial in an un-consecrated ground would have been considered a social disgrace and insult. These facts would undoubtedly have contributed to the population trauma which affected post-Famine Ireland. In Kilkenny, the archaeology seems to suggest that people had intentionally chosen to forget the horrors that took place in the workhouse.

RI13 HEALING THE RIFT WITH SHELLS: NEW RESULTS FROM OFNET CAVE

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The Mesolithic site of Ofnet (Bavaria) has long courted controversy because of the deposition of at least 28 human skulls in two concentrations just within the cave entrance. The presence of traumata on some of the heads, which were cut from the body when still fleshed, have encouraged interpretations of a catastrophic mortality event, during which most or even all of a community was violently wiped out in the course of warfare or raiding. On the other hand, the vast quantities of shell and deer teeth deposited with the heads and the existence of similar (albeit much smaller) collections from around southern central Europe have led others to postulate a special funerary treatment. So far, it has been difficult to evaluate these competing claims, as anthropological results were contradictory and the dating of the Ofnet skulls was not fully understood, problems a recent project by the authors is beginning to address. Yet whatever the outcome of the new analyses, the ritual nature of the deposition is beyond doubt. Based on the preliminary results of our project, we will situate the Ofnet heads in their wider context: How prevalent are injuries? Is the interpretation as a reverent funerary rite still tenable, or should we connect the ritual investment with 'paying off' the spirits of the (enemy) deceased? Finally, what role did the setting of the cave play and why was it considered an appropriate place for this depositional event?

RI34 URBANISATION PROCESSES IN EARLY MEDIEVAL CENTRAL EUROPE

Hajnalka Herold

UNIVERSITY OF EXETER

This paper will explore urbanisation processes in early medieval central Europe, concentrating on the territory of present-day Austria, Hungary, the Czech Republic and Slovakia. Main sites to be considered include Gars-Thunau, Zalavar, Mikulcice, Breclav-Pohansko and Stare-Mesto, which have all been investigated by decades-long fieldwork campaigns. How far were sites, architecture and spatial concepts in early medieval central Europe similar to the well-known sites in the North Sea region and elsewhere in Europe? How does the amount and nature of data available on these aspects from central Europe compare to other regions of Europe? Were there 'emporium' in early medieval central Europe? What do we mean by urban and 'proto-urban' sites in this period and region? How does this differ from other areas in Europe? How can we characterise the economy of early medieval central Europe based on the archaeology of (proto)-urban sites? How far can supra-regional connections between these sites and other areas of Europe (and beyond) be demonstrated based on the archaeological record? What was the fate of early medieval (proto)-urban sites in central Europe? In what ways did they contribute to high and late medieval urban identities and to the emergence of the settlement landscape that we know today? How does this compare with other areas in Europe?

RI11 BEYOND HIERARCHY: LANDSCAPES OF COLLECTIVE GOVERNANCE AND IDENTITY

Susan Oosthuizen

UNIVERSITY OF CAMBRIDGE

The paper proposes that formal structures for the collective governance of natural and agricultural resources can be identified in archaeological landscapes of past, non-literate communities. It suggests that interpretations of social relations and political structures based solely on hierarchical governance of past societies may be too simplistic.

The first part of the paper describes the *lacunae* surrounding property rights in archaeological research, and the rationale for and implications of using common property rights as an interpretative lens for archaeological analysis.

The second part of the paper discusses implications of an approach based on common property rights through the example of the emergence of early the Anglo-Saxon kingdoms. It argues that early medieval regional identity was based on kinship and status expressed through collective rights and practices relating to non-arable resources rather than on lordship or kingship. It goes on to suggest, first, that such rights and practices had evolved from long-standing prehistoric and/or Romano-British traditions of collective governance that offered both a secure foundation and second, that such frameworks offered an attractive legitimacy for the emergent polities and kingdoms of early Anglo-Saxon England.

The third part of the paper briefly outlines for discussion and further development an initial, practical methodology for identifying diagnostic features of collective governance in archaeological landscapes.

RI31 GRAVE CONCERNS: CONSIDERING THE ROLE, PLACE AND REFLECTIONS OF THE GRAVEDIGGER IN DISPOSAL OF THE DEAD

Stuart Prior

UNIVERSITY OF BRISTOL

Funerary Archaeology has consistently overlooked the importance of gravediggers, which is surprising considering that their activities mediate and shape many aspects of funerary history and archaeology. Full-body burial was the preferred mode of disposal of the dead in the British Isles from at least the introduction of Christianity in the seventh century AD to the mid-twentieth century. Yet we know virtually nothing about gravedigging practice. Since the 1980s, the process of gravedigging has become increasingly mechanized, with the result that traditional tools and techniques are fast disappearing and gravediggers are being pensioned off and replaced by machine-drivers. Gravediggers influence virtually every aspect of burial of the dead, and continue to do so long after the deceased have been interred and forgotten by family and community. This paper examines traditional gravedigging techniques, the role of the gravedigger in the control and management of burial practice, the conventional tools and techniques employed in locating, cutting, backfilling and reopening graves, exhumation practice, the role of the gravedigger as caretaker of funerary space and associated occupational folklore. Data is drawn from an ongoing oral history research project in South-West England, entitled 'Grave Communications: an oral history of gravedigging', which is capturing surviving historical knowledge concerning the gravedigging profession in order to better understand underlying social and cultural processes. The paper is presented by Dr Stuart Prior, who has a unique insight into burial practice, as he is an ex-gravedigger and now Senior Teaching Fellow in Archaeological Practice at University of Bristol.

RI16 INTANGIBLE HERITAGE AND ARCHAEOLOGY IN MONGOLIA

Gerry Wait

NEXUS HERITAGE

In 2010-11 the author participated in a project in the Gobi Desert of Mongolia. The Mongolian International Heritage Team brought together international consultants paired with members from the various departments of the Mongolian Academy of Sciences, jointly directed by Jeff Altschul from SRI and Byambaa Gunchinsuren from the MAS-Institute of Archaeology. The project started off as an extremely large and holistic management plan for a copper-gold mine, but eventually grew to encompass new national legislation and a structure for managing heritage impacts arising from mining in the South Gobi. The author's remit was the Intangible heritage of the Gobi, partnering with the Institute of History MAS – where ethnography had been placed. Our investigations focussed among other forms on the Mongolian long-songs – the *urtyn duu* – and the *uvt gazruud* or sacred places. The Mongolian peoples of the Gobi, perhaps because of their strong nomadic heritage, are far more attuned to the variety and importance of the intangible aspects of their culture and, as will be described, the resulting study was phenomenally rich and sets very high expectations for future environmental impact studies and conservation plans.

RI32 A SHATTERED FARM: CHANGES IN MAKING SPACE FROM PAGAN TO CHRISTIAN NORWAY

Kristin Armstrong Oma

UNIVERSITY OF STAVANGER

The three-aisled Scandinavian longhouse holds great time depth, and was the common way of constructing houses from the Early Bronze Age (1800 BCE) until the end of the Viking period (1000 CE). Throughout this period, longhouses functioned as the anchoring point of the farm and its inhabitants – humans and domestic animals both. Such houses are manifestations of an architectural choice that created a framework for the social practice of the members of the farm. The way of building was surprisingly consistent and the longhouse was an enduring structure that probably reflects an enduring ontological framework that enveloped its inhabitants.

With the transition from the Viking period to medieval times, the traditional longhouse was shattered. Instead of one, large building that housed all members of the farm, the farm was constructed as a collection of several small buildings, positioned around a central courtyard. This changed the use of space in that it compartmentalised and segmented groups of farm members.

Drawing upon structural changes in society brought on by the transition from a pagan, tribal society to a fledgling Christian state, this paper discusses possible underlying reasons for the fragmentation of the farm as well as its implications for the farm as a social arena.

RI25 REVIVING ANTIQUITIES: ROMAN OBJECTS AND IDENTITY IN EARLY ANGLO-SAXON ENGLAND

Indra Werthmann

DURHAM UNIVERSITY

The formation of identities through prestige items in early Anglo-Saxon England has been the focus of attention in previous studies, however, the abundant evidence of reusing Roman objects as vehicle for constructing identities has been largely neglected. My PhD study is addressing this issue through an examination of the use and role of Roman items in early medieval society. My focus is on objects from funerary and settlement contexts, with close attention to the types of recycled or reused items and their context. The results of my research so far suggest that Roman objects were used within graves as expressions of identity. Their purposes may have varied. My evidence, based on an assessment of cemeteries from eastern England, suggests they were used to signal political and cultural affiliations and define social divisions: several Roman objects appear as intentional items in special assemblages associated with buried individuals with pathology indicating physical impairment or illness. Similar practices are also evident on the continent in Merovingian and Frisian regions.

This paper discusses evidence for the use and circulation of Roman objects in funerary and settlement contexts in England, namely East Anglia and Kent. Using a variety of case studies, the role of Roman artefacts in early medieval society is examined and their value is questioned in terms of their antiquity and their reused purposes and contexts. Evidence of Roman items from settlement contexts is also discussed to highlight the distinctive use of such material in the environments of the living and the dead.

RI3 FROM SHERDS TO POTTERS. CONTRIBUTION OF TECHNO-MORPHOLOGICAL APPROACH TO THE UNDERSTANDING OF BRITAIN NEOLITHIC

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The British Neolithic transition, occurring c. 4000 BC, i.e. at least one millennium after the continental part of Northwest Europe, is still subject to vivid debates these days. The research lead through various studies allows to think that the Neolithic start involved farming immigrants from various parts of the Continent. Thereafter, the ceramic wares of Neolithic Britain and Ireland became increasingly distinct from their Continental roots, particularly in the Southwest and Southeast England (Smith, 1974; Whittle, 1977).

It is from the Southeastern Style that the earliest form of a widespread tradition, called *Peterborough Ware*, emerged, characterized by Isobel Smith (1956; 1974). This tradition includes three styles of decorated pottery, initially considered as successive in their definition in the fifties: *Ebbsfleet style*, *Mortlake style* and *Fengate style* (Piggott, 1954; Smith, 1956, 1974).

We recently achieved two important projects, one on Early Neolithic British and Irish pottery (Pioffet, 2014) and the other on Peterborough Ware (Ard, 2012), integrating an underestimated and underexploited approach for these early productions: technological approach, studying the *cha  ne op  ratoire* various steps. Our point, is to submit results from these two studies in order to shed a new light on the evolution of ceramic wares during the fourth millennium BC in Southern Britain and on the implications on Neolithic groups.

RI36 FORGOTTEN CHILDREN - A COMPARATIVE ASSESSMENT OF SUBADULT HEALTH IN EARLY MEDIEVAL IRELAND AND CROATIA

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In our attempt to reconstruct the quality of life of past populations subadult skeletal remains are often neglected. However, children are susceptible to various metabolic stresses caused by different factors such as infectious diseases and inadequate nutrition, and are an excellent indicator of general health in archaeological samples. The aim of this study is to carry out a comparative assessment of child health in two early medieval populations from different parts of Europe - Ireland and Croatia - based on conventional bioarchaeological approach in combination with stable isotopes studies.

The analysed series include five Irish and eight Croatian early medieval (5th-12th c. AD) rural sites with a total of more than 700 skeletons. The bioarchaeological analysis focuses on the study of the frequency and distribution of subadult stress indicators (cribra orbitalia and linear enamel hypoplasia) in adults and subadults, and the indicators of non-specific infectious

diseases (periostitis) in children. In addition, stable isotopes studies (nitrogen and carbon) will provide information about nutrition of these individuals.

The presented results will be discussed within two frameworks: a) on a level of the studied population, especially in regard to possible differences between males and females (adult individuals only), and b) between the two populations taking into consideration their different geographic locations and climate settings. The analysed series will be incorporated into a wider geographic context through comparison with data from other parts of Europe, providing new insights into subadult health in the past.

RI29 COLONIAL INCARCERATION IN NINETEENTH-CENTURY MALTA

Russell Palmer

GHENT UNIVERSITY

Today, incarceration in Malta is characterised by discreet 21st-century correctional facilities and immigration detention centres. In 1800, however, the British took control of a more overt landscape of religious and civil institutions dedicated to incarceration and punishment, which included civil and military prisons, lock hospitals, houses of industry, asylums for the aged and destitute, and quarantine lazarettos. Over the course of the 19th century, many of these institutions were modified and moved in order to accommodate the needs of a burgeoning military base and Victorian ideas of urban planning. However, it was not until the second half of the century that a "modern" prison was built (Corradino Prison). While several scholars have explored the carceral landscape in terms of criminology and punishment, in Malta there remains a want for an understanding of the lives lived by inmates and staff. Through archaeological and documentary evidence, this paper will chart the changing spatial and material conditions of daily life within the detention facilities attached to the law courts and Corradino Prison. These two sites offer a useful comparison of reused and purpose-built facilities, and demonstrate developing colonial anxieties regarding the classification and separation of inmates based on crime committed, sex, age, and civil or military status. They show how the colonial authorities attempted to transplant reformatory ideas regarding physical and social welfare, whilst responding to challenges specific to Malta; namely high numbers of military personnel, and the hot and humid Maltese climate.

RI32 ARCHITECTURE AND SOCIAL INTERACTION.

Helge Sørheim

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About 1000 AD a several thousand years old building tradition was broken in Norway. Log-timbered small houses, one for each function, replaced the stave-built multifunctional longhouses. This was first seen in the new towns, but spread soon into the rural districts. The first question is "why did the Norwegians hesitate so long to take into use a building technique and architecture that had been used for many thousand years in the pine forest areas of Europe?" The log-timbering houses should serve very well for Norwegian conditions. Can this be explained by social behaviour?

The change in architecture and building technique also influenced on the social interaction between the inhabitants of the farm. This split up groups of people. Now they had to sleep and work in different buildings. The movements between the houses and among people were changed. We got a more segregated society and supposedly new social borders between people of different ranks and different tasks in the daily life. What we select from nature to serve our purposes, we also call architecture. I will finally short discuss the change of the religious landscape that found place at the same time and see how this changed the social interactions.

RI20 TÂRGȘORU VECHI, ONE OF THE ROYAL COURTS OF WALLACHIA

Alin Anton

MUZEUL JUDEȚEAN DE ISTORIE ȘI ARHEOLOGIE PRAHOVA

The archaeological site of Târgșoru Vechi[1] came to the attention of historians and archaeologists in the first half of the 20th century, primarily due medieval buildings, visible from the surface.

The multitude of vestiges researched remembers us the importance of the royal town, in the economic and political life of Wallachia. Even if the buildings remained standing are churches, that buildings marks the neighborhoods of the medieval town of Târgșor. In the archaeological diggings there have been discovered the ruins of the voievodal court. The archaeological excavations carried out here recovered some important information about the way of life of city residents.

Medieval fair at Târgșoru Vechi first appears in documents in the 6 august 1413 in a commercial privilege granted by Mircea cel Bătrân (1386-1418) to the merchants from Brașov. At the beginning of the 15th century Târgșoru Vechi is mentioned in documents under the name Novum Forum, which indicates its origin is relatively new, maybe even during the reign of Mircea cel Bătrân.

From the administrative point of view, the fair used the royal title and in his grounds there has been located a royal court which served as residence for the ruler.

[1] Work funded by the "MINERVA - Cooperation elite career in doctoral and postdoctoral research" Contract Code: POSDRU / 159 / 1.5 / S / 137832, financed from the European Social Fund through Sectoral Operational Programme Human Resources Development 2007-2013.

RI2 FATHER, FATHER, TELL ME, WHY DO THE HORSEMEN RIDE: LANDSCAPE RECONSTRUCTION AND PREDICTIVE MODELLING OF SCOTTISH BATTLEFIELDS FROM THE WAR OF THE THREE KINGDOMS IN GIS, AD 1645-1650

Ryan McNutt

UNIVERSITY OF GLASGOW

17thC battlefields in Scotland represent a thorny problem for conflict archaeologists. Despite records from increasing bureaucracy, landscape modifications, and lack of terrain descriptions complicate locating battlesites within modern landscapes. For Scotland this is an imminent concern, as locating battlefields on modern maps is a key requirement for inclusion on the Scottish Inventory of Battlefields, and thus for planning consideration. Presented here is an applied theoretical framework, allowing for a conscious agency of choice in the selection of terrain through a mental 'grammar' of conflict and tactical knowledge: a military lifeway distinct from, yet intertwining with, the overarching culture. Rather than assuming environmental determinism chooses where conflict occurred, this theory asserts battles transpired through an agency of culturally forged, tacit knowledge of the advantageous use of terrain. Mediated by a praxis of temporally distinct tactics, armies were deployed advantageously in conflict contexts. This theoretical and methodological approach drives the digital reconstruction, analyses and modelling of battlescapes within GIS.

Applying this to two War of the Three Kingdoms battlefields—Philliphaugh (1645) and Dunbar (1650)—that have generally known locations, demonstrates this GIS approach highlights the most probable combinations of terrain for conflict within a battlescape. The modelling is verified by crosschecking the location of terrain features highlighted by GIS against the spatial distribution of battle related artefacts from a multitude of sources. These correlations demonstrate that this model can be utilized for battlescapes with unknown or uncertain locations, as modelling prioritizes high probability areas within potential battlescapes, which can be targeted with archaeological fieldwork.

RI34 THE RISE OF URBANISM IN THE EAST-CENTRAL EUROPE. THE SACRAL AND PROFANE CONCEPT OF THE SPACE WITHIN EARLY MEDIAEVAL CENTRAL PLACES.

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This paper focuses on early mediaeval urbanism of the East-Central Europe, in particular in the area of so-called Great Moravia, which was, during the 9th century AD, an important (pre-)state polity on the eastern periphery of the Frankish Empire. Research carried out over the past 50 years in the Czech Republic, Slovakia or Hungary explored the early medieval settlement hierarchy. Today we know that it was topped by vast agglomerations (60-120 ha) which were not mere strongholds with limited military functions but very complex central places. The most important ones are Mikulčice, Staré Město, Pohansko near Břeclav or Zalavár. Large-scale excavations and the geophysical survey brought the detail view into spatial structure of these sites. Their inner space was defined by several basic principles. The most important was the social division of the agglomerations and their sacrality, expressed by Christian and pagan sanctuaries. For the organization of the space were significant also the economic activities of inhabitants (handicraft, trade etc.) as well as their military protection. We present the current state of the research, which is in many aspects different from the previous knowledge, by dint of the application of efficient methods like GIS or geophysics.

RI24 PHRYGIAN OR PHRYGIANIZED: A VIEW FROM KERKENES DAĞ, A LATE PHRYGIAN CAPITAL EAST OF THE HALYS RIVER.

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UNIVERSITY OF MAURITIUS

Kerkenes Dağ was a new founded mountaintop capital in highland Anatolia, at the centre of modern Turkey. It was established on a virgin site in the late 7th century, seemingly by newcomers from Phrygia. The city was looted, burnt and abandoned in the 540s BC during the conflict between Lydia, under its King Croesus and Cyrus the Great of Persia. Thus the capital and the petty kingdom, probably to be identified with the Pteria of Herodotus, was crushed between the superpowers of the day. Seven km of stone defences, pierced by seven gates, enclose a crowded urban space with acropolis, palatial area, temples, and urban blocks crammed with houses and other structures. There is evidence of urban planning. Twenty years of remote sensing and excavation under my direction have revealed a complete plan in remarkable detail. Excavations have produced inscription in Paleo-Phrygian, iconography in the form of large stone semi-iconic idols and statuary set up in gates, sculptural style, the design and construction of defences, architectural tradition of megaron-type buildings, tumulus burial, pottery and objects, seem all to be entirely Phrygian in character. Exceptions are western imports of gold and sumptuous ivory. This paper discusses the cultural origins of the urban inhabitants and investigates the background to the foundation of the city.

A single large migration from the west or southwest of Anatolia is proposed as an explanation. In a final section the "Phrygian-ness" of this extraordinary and unexpected capital is discussed.

RI20 POWER IN THE LAND: REGIONAL ROYAL ASSEMBLY SITES IN EARLY MEDIEVAL WALES

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This paper will examine the landscape settings for the regional assemblies of early medieval Welsh rulers. Its focus will be on several recently identified sites that they and their representatives used on their circuits around their territories, and which are linked to lower-level royal centres that were foci of both regional and local power.

Using a wide range of evidence, it will examine how, at these places, the expression and function of ruling authority was shaped within the interaction of two key elements: the shared social memory of past power, and the seasonal practices that structured lives in the surrounding terrain. These two elements can be seen to characterise these sites, firstly as loci that reference the authority of the past through the material presence of prehistoric burials and through landscape-embedded myths and histories; and secondly as focal sites for interlocking seasonal patterns in key contemporary social and economic practices like agriculture, transhumance, hunting, legal process, the giving of food renders, and religious festivals.

These seasonally-used sites are outdoor and effectively invisible, defined by patterns of practice and social memory rather than by built constructions, yet they were central to the social and economic functioning of the surrounding landscape of dispersed settlement. Their identification allows us to glimpse the relationship of small-scale structures with large-scale regional systems, and see how the social and economic agency of different social groups – from unfree animal herders to aristocratic hunters – invested the landscape with significance and sustained the exercise of royal power.

RI9 HOUSES OF THE DEAD? A COMPARATIVE APPROACH TO HUT AND HOUSE URNS IN CENTRAL ITALY AND NORTHERN POLAND.

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Funerary urns in the shape of huts/houses occur in a number of cultural assemblages of the Late Bronze Age and Early Iron Age of North-Central Europe and West-Central Italy. From the time of discovery, these artifacts have drawn considerable scholarly attention. This has led to the identification of few more or less clustered groupings in which they occur: West Central Italy, Middle and Northern Germany, Jutland, Southern Scandinavia, and Northern Poland (Eastern Pomerania). Although these urns have experienced considerable scholarly discussion, an isolative comparative investigation has not been executed. In this study, we examine a number of house urns from the Eastern Pomerania as well as from the Etruscan/Latial cultures.

In the Italian cases, the hut urn is not a common item in the funerary ritual. In some instances, the hut seems to add depth to an already elaborated social position occupied by the deceased. In the Pomeranian cases, house urns are also a part of funeral rite and they did not appear frequently. What is more, according to wider archaeological context, it seems that their emergence in Eastern Pomerania was connected with broader cultural, social and settlement transformations in this region.

The aim of this paper is to begin a comparative dialogue between the Central Italian and Pomeranian funerary assemblages, focusing on the hut/house urn burials and the larger funerary context in which these objects were created. We hope that this examination will contribute to the anthropological understanding of both these urns and the contemporary cultures which they represent.

RI7 THE EARLIEST CHRISTIAN CHILDREN GRAVES IN WESTERN POMERANIA

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During the archaeological research in Lubin (Wolin Island) there was found one of the first Christian churches in Western Pomerania. It was founded there by the Pomeranians Christianizer St. Otto, Bishop from Bamberg, at the beginning of the 12th Century. Around the church, as usual, there was situated cemetery. In the number of found 41 graves, 15 belonged to the children and youth. They were the first young members of the new Christian community in these Region. The aim of this paper is to set this youngest part of the community on the social and cultural background. This will be done by presenting the finds from the children graves as well as the results of the anthropological analysis and compare them with the other known in this Region graves from the Christianization period.

RI32 "WITH ONE FOOT DOWNSTAIRS AND THE OTHER UPSTAIRS" - PRODUCTION OF IDENTITIES IN THE HOUSEHOLD OF THE PRIESTHOOD AND OTHER OFFICE-HOLDERS IN NORTH NORWAY BEFORE AD 1750

Birgitta Berglund

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Most people feel they have one or perhaps several identities. A difficult question is how these identities are produced and maintained? Which role do the material culture, the environments, the traditions and the ideas have? An even more difficult problem is how to identify these identities in the past.

Here producing and maintaining the identity for the priesthood and other office-holders in North-European coastal societies is highlighted. How did they present themselves and for whom? What do their presentations tell about the identities they wanted to have and what does the material culture they have left say about the same? Does this differ from the identity of other people in the area? How you arrange your household and daily life is an important part of the identity you want to have. It is not accidental which food you eat, how the food is cooked and served, how the table is laid and which clothes and other personal equipment you use. The material culture of the household and daily life is in this way important in production and maintaining of identities.

The questions are primarily discussed in a household perspective of the archaeological record in the farm mound of the rich vicarage of Alstahaug in North-Norway, situated close to the North Sea and just beneath the Polar circle. Contemporary written sources concerning the household, both administrative and literary are also used. In addition environments, traditions and ideas are brought into the discussion.

RI15 BEAKERS ON THE EDGE: ORKNEY AND THE 'BEAKER PHENOMENON'

Owain Mason

UNIVERSITY OF EDINBURGH

Views of the Beaker phenomenon have in recent years given way to regional based outlooks. Within these perspectives the capacity of regions to selectively employ new material forms and ideas has increasingly been acknowledged. Rather than a universal Beaker ideal, regions selectively adopted new material forms and social practices, creating unique forms and ideas, which expressed difference on the one hand and similarity on the other. In light of this view I wish to re-examine the evidence from the Orkney Isles and the impact of new developments, notably changes in society and material culture, in the later 3rd millennium in this region.

Orkney has traditionally been seen as peripheral to the wider processes of the late 3rd millennium, often being viewed as entering a 'recession'. This particular interpretation is born out of attempting to fit the Orkney Isles into an outdated national model, which views the 'Beaker phenomenon' as a unified cultural phenomenon that was either adopted wholly or rejected. I aim to situate changes in material culture and society in the late 3rd millennium within the wider Orcadian narrative. This includes a consideration of Grooved Ware and the limited but growing evidence for social changes in Orkney preceding the arrival of the 'Beaker phenomenon'. The impact of this on subsequent developments needs to be examined in further detail. By adopting a contextual view will allow for a more detailed understanding of the nature of the Orkney Isles and its position in wider networks of the late 3rd millennium.

RI22 IDENTITY TRANSFORMATION AMONG LATE IRON AGE INDIGENOUS SICILIAN POPULATIONS

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During the Late Iron Age, indigenous populations in western Sicily became socially entangled with Greek colonists and Phoenician merchants. Through the process of hybridization, these cultures transformed their social, political, and economic behaviors to navigate the developing social middle ground. Concomitant to this social change was a material transformation in which foreign elements were incorporated alongside local ones, synthesizing mixed-style material culture. This material transformation affected a diverse array of pottery vessels, but is perhaps best exemplified through commensal vessels. The limited introduction of imported commensal vessels stimulated the local production of vessels mixing indigenous and foreign styles together. As the styles of these vessels changed, so too did the expressions of power, prestige, and wealth. As a result, indigenous Sicilians navigated the social middle ground, redefining their social identities through visible displays of vessels that appeared to be foreign. This paper employs a postcolonial approach to examine the uses of these vessels as status symbols among indigenous Late Iron Age Sicilian populations.

RI13 CUTMARKS OF HUMAN REMAINS FROM THE SHIRE OF CUEVA DEL SAPO (VALENCIA, SPAIN): EXAMPLE OF THE DIVERSITY OF FUNERARY RITUALS IN IBERIAN IRON AGE

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The chronological and material diversity recovered in Cueva del Sapo (Chiva, Valencia) reveals an occupation between the 5th and 2nd centuries BC. It also indicates the existence of several intermittent ritual activities in the cave. Highlighted among the material remains recuperated in the cave is the presence of the disarticulated and commingled human remains of two individual adults, one female and one male. One fragment of mandible has been directly AMS 14C-dated to 2340-2150 cal BP

(390-200 cal BC). The skeletal remains exhibited peri-mortem modification in the form of cutting, which involves at least skinning and fleshing.

The caves have been considered to be symbolic places over the centuries. Some of these caves, situated in liminal territories, became ritualized places in the Iberian Iron Age (VI-I BC). A few of them contain human remains, but as incineration was the traditional funerary ritual in the Iberian Iron Age, the evidence of human bones in these contexts is usually related with prehistoric evidence. Results obtained in this study reveal unique evidence regarding funerary rituals in the Iberian Iron Age, which involved manipulation, deposition and a non-normative performance associated with human remains. Since the Iberian necropolis does not represent the whole population, proof like this would reveal another Iberian treatment or maybe a special activity, such as an ancestor ritual.

RI22 OVERCOMING COLONIAL PERSPECTIVES: CULTURAL ENCOUNTERS IN THE ARCHAIC CYRENAICA

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As a result of the foundation of new Greek settlements in Cyrenaica during the seventh century BC a new society evolved influenced by both Greek and Libyan traditions and customs. In the research history, this Cyrenaican society was analysed by the approach of dividing this community into two cultural and ethnic blocks ('Libyans' and 'Greeks'). These blocks were interpreted as holistic units without mutual exchange but with hierarchical gradations. An asymmetrical balance of power dominated by the 'Greeks' was assumed.

To widen the perspective on this society a contrary approach will be introduced by the presentation. As opposed to this colonial model the assumption of cultural blocks will be dissolved by focussing more on actors. Material culture as well as written sources show that different social dynamics formed a mixed society with both 'Libyan' and 'Greek' elements leading to the assumption of a mutual cultural exchange. Phenomenons such as the Silphion-plant or the cultural relevance of sanctuaries will be discussed. These indications demonstrate the transfer and circulation of objects as well as knowledge strongly influencing the economic and social spheres of all actors in Cyrenaica.

In a further step the hermeneutical opportunities of such an actors-specific perspective will be discussed. The example 'archaic Cyrenaica' with its colonial and postcolonial perspective shows that not only ancient actors, but also all actors involved in the research process must be considered as discursive elements. Consequently, a critical as well as self-critical analytical perspective results.

RI22 DETECTING THE STRUCTURE OF MULTICULTURAL SOCIETIES THROUGH THE ANALYSIS OF HYBRIDIZATION PROCESS

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My personal experience within the study of multicultural communities in Nuragic and Phoenician region of Sulcis (SW Sardinia, end of VIIth/first half of VIth centuries BC) brings me to consider the hybridization process as the key to reading the economic and social structure of a multifaceted society.

About the method: assuming the existence of a dialectic relationship between TRADITION (if I may consider it as a conservative core of material culture) and the construction of IDENTITY (through new foundations as well as creating architectures, markers of power or representative objects), we can use the archaeological analysis in order to find the actors of each step in the operative chain as in practices and attribution of meaning in material culture.

Since the different fragments of communities are involved in different dynamics but yet connected, then a process (e.g. hybridization process) has to be analysed to find the actors of the following practices: 1) purchasing activities 2) production 3) use 4) representation/communication.

For instance, hybrid amphorae made at the fortress of nuraghe Sirai of Carbonia (625-550 BC), actually original by the region, show an horizontal exchange between production agents (Nuragic and Phoenician craftsmen), even though the product of this exchange has been intercepted, handled, and maybe also ordered by *elite* subjects to achieve a certain self-representation.

The paper investigates how this method could become operational through some case studies in hybrid pottery, architecture and markers of power.

RI17 INTERPRETING THE CLOTHES AND THE IDENTITIES OF THE MESOLITHIC FAMILY

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The so-called Mesolithic Family is an engraving in an aurochs bone found in a Danish bog 1940 and dated to the early Maglemose phase in Denmark (c. 6000 BC), see photo in Therkel Mathiassen, 1941, p. 27 or at the website of the Danish National Museum in Copenhagen. How do we read this engraving today? Is it really representing a family with male and

females? Are the clearly depicted humans wearing clothes and if so are they gender-specific? In the poster for the conference the interpretations from the 1940s will be compared with how we today, 75 years later, understand identities and clothes in the engravings. Several questions around the interpretation can be asked in the light of newer research on the role of ornaments on objects and thinking in the Mesolithic societies. The two figures on the outskirts seem to have different cloths than the three in the middle. Does it signify a gender and/or status representation? Three alternative interpretations of their clothes (material and techniques) will also be elaborated: a) clothes of glued bark from e.g. birch b) clothes of sewn animal hides c) clothes of knotted or needle-bound plant fibres. And finally how do we understand the engraved lines on the outer sides as well as on the back of the bone?

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Kozłowski, S. K. (2009). Thinking Mesolithic. Oxbow Books, Oxford, UK.

RI34 THE CASE FOR EASTERN EUROPE: AN INTER-REGIONAL APPROACH TO EARLY MEDIEVAL URBANITY

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For more than two millennia the unique geographical characteristics of the Baltic Sea have made it a nexus of trade and exchange. The emergence of a large number of trade settlements in the early medieval period cemented its place as a hub for the diffusion of goods and ideas on a scale not seen before, in part because of the opening up of the eastern trade routes - those that negotiated rivers such as the Dnieper, the Bug and the Vistula. Parts of Europe previously inhabited by relatively insular tribes were then integrated into the wider community which existed outside of the consolidating powers of the Carolingian and Byzantine Empires. Within this region, which broadly consists of Scandinavia, the Baltic, the lands of the Rus', modern-day Poland and the Baltic states, a variety of different forms of settlement became increasingly visible in the landscape, indicating that the increased interconnectivity related to the formalising of trade networks must be intricately connected to their growth and development.

While these sites all have their own distinct, regional characteristics, their contemporaneity, analogous circumstances, and rapid development links them in a significant way, suggesting the additional value of a cross-regional comparative study. This paper will present the background research and preliminary observations of a PhD thesis which aims to analyse the relationship between regionally unique trajectories and broader inter-regional patterns in this remarkable community of settlements.

RI29 GUESTS OF HIS MAJESTY, GUESTS OF THE LUFTWAFFE: COMPARING CAMP 21 AND STALAG LUFT III

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Two camps separated by 1200 miles, one in the British Empire and the other in the German Reich, show a series of similarities that can help us to understand the reactions and behaviour of men in the artificial environment of a prison camp. These sites are also sites of pilgrimage and of memory, helping individuals and their families understand the experiences of captivity in WWII. Comparison of the sites can help with reconciliation, revealing the common experiences between the two camps, and the human interactions between guards and prisoners. However, the PoW camps of WWII are a vanishing resource, often lost without any attempt at recording the physical remains. This paper will consider the potential of such sites for understanding confinement; as a resource for tourism; and as a means to promote the European project of reconciliation and conflict reduction.

RI6 AGRICULTURAL CHOICES AND CONSUMPTION PREFERENCES IN CHALCOLITHIC AND BRONZE AGE SOUTH-EASTERN SPAIN

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In prehistoric agrarian societies of semi-arid south-western Spain, land-use management depends on the different landscapes under cultivation primarily being influenced by the amount of precipitation and water availability. Furthermore, societal organisation and hierarchical structures might have been factors for the choices of the applied subsistence strategies. Preferences in consumption and the formation of the social groups sharing food in households could have influenced the spectrum of the main crops. Temporally as well as spatially, there is a shift in plant cultivation detectable but it remains difficult to understand the multi-causal reasons for the applied strategies. Own archaeobotanical results of the Bronze Age sites of La Bastida, Tira del Lienzo, San Cayetano and Gatas are compared with corresponding data from literature.

RI3 CERAMIC RAW MATERIALS CHOICE: CONVENIENCE OR TECHNOLOGICAL IDEA. A CASE STUDY OF LINEAR BAND POTTERY CULTURE (LBK) IN THE CARPATHIAN REGION, POLAND.

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A technological analysis was carried out on pottery and raw material samples - almost 400 thin sections. Different features were examined including sourcing and selection of materials, preparation and composition of the pottery paste, manufacturing methods, and firing. The results revealed that there were subtle changes in technology between successive phases of LbK evolution. In the early and classic phase, the potters willingly used heavy clay as starting material. The presence of plankton relics (like diatoms) is evident in Miocene clay. A substantial change was observed for the last Želiezovce phase. Heavy and greasy clay was replaced by fine grained silty clay of alluvial origin – chosen especially for fine vessels. This modification was probably the result of frequent contact with the Eastern Linear Pottery Culture. The analysis of pottery from the Eastern Linear Circle shows that such clay was widely used in pottery production. In the light of this data, we can infer that intercultural contacts also resulted in the transfer of new technological ideas and brought a new approach to pottery production. An additional explanation of use of different raw materials was their accessibility in the local outcrops.

RI2 SACRIFICES OF MILITARY EQUIPMENT IN THE “THORSBERGER MOOR”

Ruth Blankenfeldt

ZENTRUM FÜR BALTISCHE UND SKANDINAVISCHES ARCHÄOLOGIE

The Scandinavian offering places with sacrifices of military equipment have to be interpreted as localities in which just a few but very extensive depositions of war booty from Germanic tribes have been carried out. On one hand, several traces of destruction of the objects testify preceding hostilities. On the other hand, certain patterns also show destruction occurred in a systematic manner, indicating a ritual treatment of some artefacts before deposition.

Geographically, the offering places stretch from Schleswig Holstein in northern Germany via mainland Denmark (Jutland) and the Danish islands to mainland Sweden and the Swedish island of Öland. They encompass a chronological frame of the Middle Pre Roman Iron Age to the end of the migration period.

The artefacts from these places are interpreted as non-local objects not belonging to the people that sacrificed. They rather seem to have been captured from warriors from other geographical areas. Due to the interpretation as equipment of Germanic warriors the assemblages are characterized as exclusive male-military find groups.

Overall these places provide a valuable insight into the living culture of the northern Barbaricum. This refers to the battles as well as to the deposition process and associated ceremonies.

The Thorsberger Moor is located in Süderbrarup, Schleswig-Holstein, close to the Danish border and has been excavated between 1858 and 1861. A recent international research project had the aim of assimilating the more than 2500 artifacts from the Thorsberger Moor into a present state of research.

RI7 CHILDHOOD IDENTITY IN MEDIEVAL IRELAND: BURIAL PRACTICE AT BALLYHANNA, CO. DONEGAL

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Excavations at the Medieval cemetery of Ballyhanna, Co. Donegal, Ireland, uncovered the skeletons of some 1300 individuals, 427 of which were those of juveniles. Children of all ages were present from premature babies to older teenagers and the assemblage represents one of the largest collections of juvenile remains to have been discovered in a consecrated burial ground in Ireland. Numerous palaeopathological lesions were identified, including developmental defects, infections and trauma as well as signs of malnutrition and physiological stress during childhood in the form of cribra orbitalia, enamel hypoplasia, stunted growth and possible rickets. The majority of individuals at Ballyhanna were buried in an extended supine position with a west-east orientation – as is typical for a Christian burial – although some subtle differences were apparent. Details of the body position and orientation for the sufficiently well preserved juveniles will be compared to the information derived from the osteological analysis to see if age and/or health may account for any of the subtle differences apparent in the burial ritual. It is hoped that this approach might enable insights to be gained concerning childhood identity at Medieval Ballyhanna.

RI30 THE PRESERVATION OF LITHUANIA'S MEDIEVAL ARCHAEOLOGICAL HERITAGE IN SITU: LOCAL EXPERIENCE IN GLOBAL CONTEXTS

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Changes that occurred in Lithuania in recent decades - the fall of Soviet Union, the creation of a market economy, ICT development and the formation of network society – influenced greatly the change of heritage conservation and communication contexts and technical capabilities.

The object of this paper is the conservation of Lithuanian medieval archaeological heritage and communication *in situ* in UNESCO protected sites: Kernavė and Vilnius, where the main EEA conference events will take place in 2016. The purpose of this report – to understand the tendencies of heritage and communication in the second half of the 20 century - the beginning of the 21 century while analyzing the Lithuanian case.

Medieval archeology in Lithuania involves 13-16 centuries. Therefore, the main archaeological heritage objects stored and communicated *in situ* are interdisciplinary according to their contents (also attributable to the historic, urban, memorial, art, architectural, religious and technical heritage). The places of former wooden medieval castles, castles, churches and old towns are most important of them.

In the second half of the 20 century - the beginning of the 21 century the most important contexts of heritage are formed by the historical research paradigms, and dominant historical narratives have the biggest influence on communication together with the growing importance of historical identity in networking society.

The paper also includes discussion about the possibility of application of new technologies in conservation of medieval archaeological heritage *in situ* – the automatic monitoring of urbanized areas in the old town of Vilnius using 3D laser technologies.

RI35 WHOLE WORLDS: CENTRING IDENTITY ON THE MARGINS

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A burial landscape recently discovered in the region of Županjska Posavina in Eastern Croatia owes both its unique appearance and its pristine state of preservation to its historical marginality. At the beginning of the Late Bronze Age, fifteen cemeteries with over a thousand burial mounds marked the borders of the Belegiš II complex in this area. Today, these sites attest as to how cultural marginality may give rise to bold, landscape-transforming manifestations of local identity in Prehistory. On one of these sites, Purić-Ljubanj, excavations were conducted in order to probe into the nature of ritual practices which created this landscape. In this paper we shall present the results of an examination of this site's stratigraphy and its spatial relations with other sites in the area. These results help us assess how the people of Purić-Ljubanj and related sites employed their landscape knowledge to communicate their local identity by turning their living space on the edge into impressive places of remembrance.

RI34 REASSESSING THE TOPOGRAPHY AND LAYOUT OF 8. C. RIBE

Morten Søvstø

SYDVESTJYSKE MUSEER

Before discussing urban identities and how the physical layout of Ribe influenced the minds of the town dwellers we need to make sure that our reconstruction of the Early Medieval town is as correct as possible and based on all the available data. Recent studies into the natural environment around Ribe using historical maps and LIDAR scans suggest a rather different reconstruction of the river Ribe in Early Medieval times with great impact on the question: Where was Ribe's harbour facilities?

Since the 1970's it has been noted, that layers from the 9. and 10. C. were absent in Ribe's stratigraphy giving room to discussions about a possible collapse or disappearance of the *vic* in this period. Recent excavations suggest that this is more a matter of taphonomy and understanding what happened when a wooden castle and town fortifications were constructed in the area in the 12. and 13. C. When using these new insights and combining them with earlier excavations a somewhat different picture of Ribe in the 8. C. emerges.

RI24 KINGDOM, EMPIRE OR POLITY? REASSESSING THE NATURE OF POLITICAL AUTHORITY IN THE EARLY-MIDDLE IRON AGE OF CENTRAL ANATOLIA

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The socio-political entity constituting Phrygia has frequently been portrayed as a kingdom, empire, or state in discussions of the Middle Iron Age. These perspectives largely stem from historical information, and, coupled with culture-historical frameworks for analyzing material culture, have contributed towards a picture of Phrygia as a centralized, seemingly stable entity controlling a wide geography.

Past approaches to kingdoms, empires and states in archaeology have often examined evidence in terms of a check-list that gratifies preconceived typologies on such socio-political entities. This paper considers recent theoretical approaches to political authority in order to analyze Phrygia's emergence, character and extent in central Anatolia during the Middle-Early Iron Age. Thus, I shall treat political authority as an ongoing process subject to continuous negotiation using material and symbolic resources, which assume particular forms visible in the archaeological record.

By focusing on the material aspects of political authority, I shall discuss the extent to which activities involving storage of staple goods were a key component in the development of more elaborate/formalized forms of political authority. Shifting patterns of storage are arguably demonstrative of different levels of control of resources. I shall examine the degree to which this may be related to changes in the character of political authority in the Early-Middle Iron Age, and the implications this has for the conception of Phrygia as a socio-political entity.

RI22 SCARAB IN A JAR: EGYPTIAN AND HYBRISED AMULETS IN EARLY IRON AGE KNOSSIAN AND TYRIAN FUNERARY CONTEXT.

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One of the many functions of scarab amulets in Bronze Age Egypt was their placement in burials. Scarab amulets have been also found in Early Iron Age funerary deposits in the Levant and the Aegean, in a period where there is strong evidence of contact but not colonisation between the Eastern Mediterranean people. The role of Egyptians as active agents in these encounters that took place in the Aegean has been largely downplayed in favour of the Phoenicians and the Cypriots.

This paper attempts to investigate whether scarab amulets discovered in the North cemetery of Knossos and Al-Bass cemetery of Tyre indicate hybridisation practices between Cretans, Phoenicians and Egyptians and examines the Egyptian involvement in these interactive processes. This paper is primarily a contextual and typological analysis of Egyptian and possibly hybridised scarab amulets found at Knossos and Tyre, and of their association with other (ivory, faience) objects within the same funerary deposits. Anthropological evidence will also be considered in relation to their associated objects. The use of the scarab amulets can reflect religious affinities and/or common beliefs between the different social groups of Knossians, Tyrians and the wider Eastern Mediterranean.

RI5 FROM THE BRONZE TO THE IRON AGE IN THE SOUTHERN BALTIC ZONE.

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The transition from the Bronze Age to the Iron Age in the southern Baltic zone is associated with fairly radical change in many aspects of human existence. The most obvious for archaeological perspective is the change in burial rituals that brought to transition from burial mound over a grave to a flat, cist grave architecture, from single to collective graves and, most of all, the redefinition of a "proper" form of the container for human remains. Simple vase-shape are replaced by house or face urns, what can be perceived as a manifestation of change in global vision of the human condition and his posthumous fate. However, this strongly manifested change in funeral rites is not an isolated phenomenon. It is accompanied or preceded by, more discrete for archaeological observation, changes in settlement pattern and subsistence strategies along with the global climate and environmental changes in the first half of the 1st millennium BC. Change observed in archaeological record are rarely a single-factor effect usually they are the final result of different, sometimes small scale, changes evoked by diverse and often not related stimuli.

The main aim of the paper is to discuss the nature of Bronze/Iron age turning point in the southern Baltic zone from different perspectives including environmental, social, technological and cultural changes.

RI19 THE "BURGUNDIAN" HAT FROM HERJOLFSNES, GREENLAND: NEW DISCOVERIES, NEW DATA

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In 1921, during Poul Nørlund's excavation at the Norse farm Herjolfsnes, Greenland, a tall hat was recovered from the burial grounds surrounding the farm's church, where a substantial collection of medieval garments had been recovered. This unusual hat came to symbolize not only the end of the Greenland Norse colony but also its enduring cultural links with continental European fashions, following a comment to this effect published by Nørlund himself. More recently, the hat was dated to the 14th century by Arneborg (1996), a century earlier than Nørlund's dating which was based solely on his comparisons with examples from Europe. Recent research on North Atlantic textiles led to a reexamination of the hat, with different sections sampled and re-submitted for AMS dating. The results suggest that the body of the hat and its crown are of different periods with 150-200 years between them. This re-analysis of Herjolfsnes's "tall brimless hat" or "Burgundian hat" suggests that a considerable amount of cloth recycling took place in these North Atlantic colonies, that cloth was a valued and cherished commodity, and raises questions about its role in discussions of enduring links between Greenland and the continent.

RI25 A TURN TOWARDS MESOLITHIC ON THE LAKESHORES OF BRONZE AGE FINLAND?

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Large areas of Finland are topographically dominated by lakes. During the Finnish Middle and Late Neolithic (c. 4000–1900 BCE), the archaeological record of lake-rich areas of inland Finland are characterised by semi-sedentary or sedentary dwelling sites on lakeshores. Subsistence was based on lake fishing and hunting, supplemented by small-scale swidden cultivation.

At the end of the Late Neolithic, the archaeological signal at the lake-rich areas weakens considerably, suggesting substantial depopulation. At the beginning of the local Early Metal Period (corresponding to Bronze Age and Early Iron Age, c. 1900 BCE–300 CE), there appears to be a rapid shift towards a more mobile settlement pattern. Cultural layers become thinner, dwelling site areas contract and pit houses are mostly replaced by archaeologically less discernible dwellings. Besides, many exotic materials figuring prominently in Neolithic contexts disappear from the archaeological record or become considerably rarer.

Cultivation appears to have remained on a very low level in inland Finland until the Iron Age. The Early Metal Period settlement model in inland lake areas generally seems to have more in common with the local Mesolithic than the local high Neolithic.

However, the above-mentioned developments are accompanied by phenomena traditionally taken as indications of growing social complexity. There are bronze artefacts from far-away areas (albeit few), traces of local bronze casting and burial cairns. Is the dwelling site material somehow distorted or were the lake fishers of Early Metal Period Finland able to reconcile Mesolithic and Bronze Age way of life?

RI27 TOWNS IN THE WILDERNESS: MATERIAL CULTURE, IDENTITY AND URBANISATION IN MEDIEVAL SOUTHERN ENGLAND.

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Archaeologists are naturally drawn to questions of materiality. Our challenge is to understand the minute engagements between people and their material surroundings in relation to larger, so called 'social', phenomena; that is to traverse the gap between individual and global experiences. Urbanism is one such phenomenon. On the one hand we are able to write general narratives which homogenise the urban experience, on the other we are able to write specific archaeologies of places or households. In this paper I utilise material culture to traverse this gap by seeing towns not as stable social entities, but as assemblages of people, things and spaces which are constantly going through a process of becoming urban. I argue that one reason why scholars still debate the term 'town' is because we are seeking to define heterogeneous places which are constantly developing by identifying stable, homogeneous characteristics. Through using the example of the colonisation of the Weald of Sussex, an area which was largely unsettled until the Norman Conquest, I argue that by studying the relationships between people and material culture we can explore multiple narratives and experiences of urbanism, which capture the variety of urban life. These new towns, which developed in the 13th century will be contrasted with the established ports in the south of the county to consider similarities and differences in what it meant to be urban in medieval England.

RI4 POTS FROM PORTS: WHAT IS A COSMOPOLITAN COMMUNITY?

Ben Jervis

CARDIFF UNIVERSITY

Ports function as conduits for the movement of people, goods, ideas and influences across national and regional borders. They are typically considered as cultural melting pots, consisting of cosmopolitan communities of people with varied social, economic and ethnic backgrounds. Imported material culture may be used as a proxy for these people, and as reflections of cosmopolitan identities. Here I seek to go beyond a concept of reflection, to see pottery as a mediator within social relationships. Ports, I argue can be seen as communities of people and objects, with people defining themselves in relation to each other and to the objects that they use. From this standpoint I critique the concept of the cosmopolitan community, which is a term which embodies a certain tension, between the 'togetherness' of community and the difference indicated by the term cosmopolitan. Through exploring the role of pottery in social relationships in port towns in southern England I argue that communities develop particular forms of identity through localised relationships between people and materials. Rather than reflecting a myriad of identities, trade, pottery consumption and, even, production, mediate the emergence of new relationships as people come to exist in relation to ports as vibrant assemblages of social practice, in which senses of place, identity and the meaning of things develop together.

RI31 NEW INSIGHTS INTO THE CONTROL AND MANAGEMENT OF CHRISTIAN BURIAL IN ENGLAND C. A.D. 650-1100

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In recent years a more sophisticated and nuanced understanding of the conversion of early medieval England to Christianity has developed. Whilst it is acknowledged that the influx of Christianity coincided with significant changes to funerary practice that impacted upon the use of grave inclusions, cemetery topography and burial location, the issue of what (or who) was driving, articulating and disseminating these changes has remained problematic. Martin Carver has describes the arrival of Christianity in the forms of "chunks of imported metaphor", a phrase that cautions us to consider a mix of continuity and change within a climate of experimentation and selective adoption in response to local intellectual positions, social conditions and political agendas.

Within this context, this paper examines funerary rites of the 7th to 12th centuries in England to investigate the extent to which the authority and management behind such practices can be illuminated. In doing so, it draws upon the work of Helen Geake concerning the control of burial, but also on three case studies applied in a novel fashion. The rite of chest burial in northern England is employed to consider the modes of transmission of ideas concerning burial. Contrasting the *ad hoc* management of disturbed charnel and the development of a coherent charnelling and relic-taking practice is used to examine the issue of control. And the extent to which potential acts of dissent in the burial of infants might help us understand the personal, practical and emotional context of decisions behind funerary practices are also considered.

RI9 BRONZE AGE FUNERARY PRACTICES IN SOUTH-EASTERN ITALY: LOCAL TRADITIONS AND EXTERNAL CONNECTIONS

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Between the late third – mid-second millennium BC funerary practices in south-eastern Italy appears to be varied, including different types of funerary structures that range from burial tumuli to burials in hypogea and caves. While some of these would be rooted in a local long-lasting tradition, such as collective burials in hypogea, others would reflect foreign customs, as is the case of burial tumuli. Moreover, in several cases grave goods, independently from the type of tombs, comprise ceramic vessels and/or metal objects akin to transadriatic models as well as, in some cases, artefacts of probable Aegean import.

Cultural contacts between south-eastern Italy, north east Adriatic and the Balkan peninsula appear to have become intense from the late third millennium BC. Later on exchanges with the Mycenaean were established, these particularly involving the southern part of Apulia. When it comes to funerary customs, nonetheless, adopting foreign models calls into question the subject of cultural identity and ideological entrapment.

Given this framework, the paper is aimed at discussing the different pieces of evidence related to funerary practices trying to point out both local and external elements on a diachronic perspective. The possible origin of foreign models will be taken into account, in order to evaluate to what extent relations with transmarine cultures affected the socio-economic development of local communities.

RI22 ON POSTCOLONIAL HYBRIDITY: LIMITS AND CONTRIBUTIONS TO THE WESTERN MEDITERRANEAN EARLY IRON AGE

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Over the last decade, archaeologists have applied the term *hybridity* to interpret contexts of mixed material culture, and it has become a ubiquitous buzzword in the study of colonial situations. But do postcolonial hybridity (*sensu* Bhabha) differ from traditional explanations of cultural blend? Or is it simply (another) trendy lingo? Besides, the very notion of hybridity in postcolonial studies means politics in its most pure sense, but archaeologists have focused instead on social identities and cultural change, that have been at the forefront of the debate. In this paper I consider the implications of this concept to operationalize an 'archaeology of hybridity', testing its viability in two different milieus. In so doing, I compare the Phoenician impact in South Iberia and the Greek influence in South Etruria between the 9th-6th centuries BC through the analysis of funerary rituals and architecture.

RI24 PHRYGIANS VS. NEO-HITTITES: RECONSIDERING THE POLITICAL HISTORY OF CENTRAL ANATOLIA IN THE MIDDLE IRON AGE

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Even though the formation of both the kingdom of Phrygia and the Neo-Hittite kingdoms in Central Anatolia derive from the new political situation created after the fall of the Hittite empire, their history and dynamics have rarely been treated jointly. This is due from the one hand on the lack of an overall archaeological study of Anatolia in the Iron Ages, but on the other hand by the need of specific linguistic competences: Phrygian and old-Greek, from the one side; Hieroglyphic Luwian, and possibly Phoenician and Assyrian from the other.

While Phrygia and the Neo-Hittite kingdoms result from different socio-political contexts, the paper aims to show that the formation of new regional kingdoms correspond to a coherent, new period in the history of post-Hittite Anatolia; moreover, written sources and archaeological remains provide interesting clues to reconstruct traces of interaction and confrontation among these MIA new polities.

RI4 LATE MEDIEVAL AND POST-MEDIEVAL PAINTED POTTERY IN EUROPE AS A PHENOMENON: PAINTED POTTERY IN BOHEMIA

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Painted pottery began to spread around Europe under the influence of Italian maiolica in the Late Middle Ages. Painted pottery production hit its peak in the Post-Medieval; it was produced in the France, Germany, Central Europe and the Balkans as well as in Scandinavia. Several regions saw the rise of their own production centres, often with a specific style. A comparison between archaeological and written sources helps to map not only the pottery workshops but also the rivalry between individual centres.

An individual painted pottery style also developed – in accordance with European trends – in Bohemia. The Bohemian painted pottery production has traditionally been related to the town of Beroun, which is situated west of Prague. The aim of this contribution is to present the morphology, decorative elements and the correlation between vessel shape and decorative motif

of Bohemian painted pottery. We will further focus on a comparison between the Bohemian and the European productions and mutual influences.

RI3 PRACTICE, IDENTITY AND SOCIAL COHESION: POTTERY PRODUCTION IN THE BALEARIC ISLANDS (1400-500 BC)

Daniel Albero Santacreu

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The practices that potters carry out go beyond the mere technical gestures and the achievement of vessels in order to meet certain biological needs. In this presentation, we will approach - by means of several archaeometrical methods - the technological choices regarding paste recipes and firing procedures undertaken by potters from Mallorca and Menorca with the aim to characterise the technological traditions existing in these islands during the Middle/Late Bronze Age and the Early Iron Age. The existence of shared technological choices allows us to propose the existence of certain communities of practice within the islands related to specific learning strategies, potters' expertise, perception of the vessels and social dynamics. In addition, these practices and technological traditions can be associated with the emergence of a common identity among the potters, both within the same community and between the different communities of the archipelago. The maintenance of identity ties and technological traditions throughout several centuries has to be explained by a shared habitus among the individuals and the existence of social strategies aimed for community cohesion. Finally, it will be highlighted how these cohesion strategies can be also seen in other dimensions of material culture on the basis of fractal-like models that operate at different scales.

RI2 THE SECOND PUNIC WAR BATTLEFIELD OF BAECULA

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Since 2006 at the Institute for Iberian Archaeology Research Center we have been undertaking the '*Baecula*' project, which focuses on the analysis of the preserved remains of the Battle of Baecula fought between the armies under the command of Scipio the African and Hasdrubal Barca (208 BC). It is in that setting that we have to organise an analysis of the settlements that cover an extensive sequence, including structures used within a range of days. Nevertheless, the most innovative aspect of our project impacts particularly on the corroboration of a battlefield (weapons, impedimenta, coins, etc.), the remains of various encampments and the route taken by the Roman army during their attack, which is very clearly revealed by *clavii caligari* (the remains of Roman *caligae*).

Our battlefield is an archaeological laboratory. Our methodology combines surface surveying, metal detecting and excavation at specific points. These are coordinated within a GIS that allows the whole record to be integrated using two types of entity: areas and points. The former corresponds to the record of surface finds, while the latter records those elements (mainly metallic) linked to the battle, which possess their own information. The distribution analysis of the latter is key to interpreting how the battle unfolded.

The distribution of specific items on the battlefield leads us to the conclusion that we are analysing an event that lasted several days, but that within it there were changes and shorter periods: hours or perhaps even minutes.

RI3 CONTINUITY AND CHANGE IN POTTERY TECHNOLOGY. FROM EARLY TO MIDDLE ENEOLITHIC AT SULTANA, SOUTHEAST ROMANIA

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The site at Sultana is located on the high terrace of the Mostistea Lake, Southeast Romania, and it belongs to Eneolithic period (ca. 5000-3900 cal. BC). The site consists of a flat settlement (Early Eneolithic), the tell settlement (Middle Eneolithic), and a cemetery used by both communities.

The aim of this paper is to explore the technological choices of the potters from both settlements/communities and how these choices can reconstruct the socio-economic evolution in time (about 1000 years). There are several significant differences between the pottery from both settlements (e.g. particular shapes and decorations), but when we take a closer look at the fabrics there are many similarities that can indicate the evolution process. The use of the same funerary space may be a proof that there are direct links between those communities. Apparently, the fabrics of the pottery also indicate the continuity hypothesis, which can reflect that the changes in material culture may be a consequence of a new socio-economical context. We will explore the pottery technology in order to identify the particular (socio-economical) identity of those past people. The methods used to achieve the goals consist of macroscopic studies for complete assemblages and microscopic, mineralogical and chemical analysis for various samples.

Acknowledgements

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RI17 LOCALS OR FOREIGNERS - WHO WERE THE PEOPLE BURIED IN THE CHAMBER GRAVES IN EARLY MEDIEVAL POLAND?

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In early medieval Europe, the time of religion shift, shaping of social divisions, forming of elites and creating of states, a specific type of burial known as a chamber grave appears. Its character indicates distinctive and extraordinary funeral rite. In a form, the chamber grave is characterised by the presence of a non-portable wooden construction and often may contain numerous and luxury grave goods.

Starting with discussing the phenomenon of chamber graves in early medieval Poland - their origins, location in the landscape and within cemeteries, chronology, construction and furnishing - the paper aims to answer the question who was buried in such monumental graves? What was the identity of the deceased considering ethnic, social and religious aspects? Were they elites or commoners, Christians or pagans, foreigners or locals? It is also going to be raised whether the use of new developments in bioarchaeology such as stress markers, DNA and stable isotopes analyses, besides traditional anthropological and archaeological analyses of skeletons and material culture, could help in investigating biological condition as well as social and ethnic affiliation of individuals buried in chamber graves.

RI4 MORE THAN MEETS THE EYE – NEW INSIGHTS INTO A LARGE POTTERY COLLECTION FROM LÖDÖSE, A MEDIEVAL TOWN IN WESTERN SWEDEN.

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Since a group of MPRG members visited Lödöse Museum in 2013 and the subsequent creation of a reference collection, a project has been started to classify the c. 50 000 medieval sherds from excavations in the town. We are now in the second year of a three year project and this paper aims to present some interim results concerning social differences within the town, the relationship between imported and local pottery and changes in consumption patterns over time.

Inductively Coupled Plasma Mass Spectroscopy (ICP-MS) has been used to provenance pottery, providing interesting results. Things are not always what they seem and we have noticed that Scandinavian potters were greatly influenced by their colleagues in England and mainland Europe in relation to the production of redwares. Are we talking about imports or migratory potters or both? There are also a great number of Baltic wares and other types of black/greywares in Lödöse, which we have studied closely to find out more about their origins.

By studying the ceramics from Lödöse we have found that the collection has a variation and quality which is unparalleled in other Swedish towns, so far. We aim to use this in a discussion of cultural exchange and trade between Scandinavia and other parts of Europe during in the medieval period.

RI13 THE FUNERARY USE OF CAVES IN PREHISTORIC AND PROTOHISTORIC CALABRIA (ITALY). FROM ISOLATED BURIALS TO HYPOGEAN GRAVEYARDS

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Calabria is a region of southern Italy rich in caves especially in the northern area where the major outcrops of carbonate rocks are concentrated. Since the Nineteenth century scholars and enthusiasts have been interested in many of them looking for traces of the most ancient inhabitants of this region. Nevertheless, accurate research and excavations carried out with modern methods have started only in the 1960s, when several karst caves were explored with regular digging fields, often lasting many years. This research activities often highlighted the burial use of several underground systems, frequented in a time range that spreads from the Upper Palaeolithic to the Bronze Age. Caves such as Grotta del Romito in Papisidero, Grotta della Madonna in Praia a Mare, Grotta Pavolella in Cassano allo Ionio and Grotta della Monaca in Sant'Agata di Esaro are some of the cavities where the burial feature represent one of the major reasons of human presence. This paper aims to offer a general overview of the ways in which underground Calabrian spaces were used for funerary purposes during prehistory and protohistory, displaying for the first time a synthesis of the knowledge acquired on this important function of the underground in the past.

RI14 CAVALIER ATTITUDES: THE ROYALIST IDENTITY DURING THE ENGLISH CIVIL WARS

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UNIVERSITY OF SHEFFIELD

During the mid-17th century, England and its neighbouring countries of Wales, Ireland and Scotland were riven by a civil conflict that came to be known as the English Civil Wars. As Parliamentarians clashed with King Charles I's Royalist supporters,

the two sides became colloquially known as the Roundheads and Cavaliers; epithets that have lasted to the present day. Whilst acknowledging that it may be impossible to distinguish the two sides through archaeological means alone, the paper will demonstrate how a combination of material remains and historical documentation can shed new light on social discourse during this period. In particular, it will explore how buildings and material culture were utilised by the Royalists during and after the conflict and how the term 'Cavalier', originally intended as an insult, was adopted and cultivated by a particular group to stand for a series of social values and traditions that epitomised everything they were fighting for.

RI29 LAGER WICK AND THE ARCHITECTURE OF FORCED LABOUR IN THE CHANNEL ISLANDS

Gilly Carr

UNIVERSITY OF CAMBRIDGE

The forced labour camp of Lager Wick in Jersey, built during the German occupation of the Channel Islands in 1942, is the first Nazi camp to be excavated on British soil. This paper presents the findings from the first two seasons of fieldwork (2014-15) whilst also asking why, in an island where all other aspects of the German occupation are proudly presented as heritage, forced and slave labour camps have been long since destroyed, neglected, or otherwise overgrown. This paper also explores the author's attempts to encourage the landowners to acknowledge and publicise the wartime use of the site, and their resulting sanitisation and minimisation of this dark heritage.

RI23 ELITE TERRITORIALITY AND THE DEVELOPMENT OF EARLY MEDIEVAL STATES: A COMPARATIVE APPROACH TO IRELAND AND NW IBERIA

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The emergence of early medieval polities was linked to the development of different patterns of elite domination. Elite power could be materialized in a variety of ways, of which halls, hillforts, and enclosures, but also churches and monasteries are some of its most visible expression in both the archaeological and the written sources. These centres were important in as much as they represented the foci of different networks of relationships that could, in themselves, find other material expressions. Even though it was constrained by the conditions at the local level, the imposition of elite power and the dynamics it generated could affect the patterns of land management and the appropriation of natural resources, as well as the circulation of produce, the distribution of goods, the settlement patterns, and the configuration of local spaces of sociability, to mention but some. Thus, elite centres can be said to represent elite territoriality at large, that is, the particular way in which space was articulated as a result of the dialectical relationship between elite agency and the local spatial conditions and social, economic, and political micro-dynamics. The aim of this paper is to propose a comparative approach to the construction of elite territoriality in early medieval states. In order to do so, it will focus on two case studies, Ireland and NW Iberia.

RI35 CENTERING SOUTH ANDEAN EARLY VILLAGE SETTLEMENTS: A POLITICAL APPROACH BETWEEN COMMUNITY AND DOMESTICITY

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Even more than in other regions, there is a tendency to observe towards Andean Prehistory throughout a markedly evolutionistic paradigm. In those interpretations could be noticed a final spectre which attempts to foresee everywhere the ethos and social-political character of the 16th century core formations contacted by europeans –i. e. the *ayllu*-based chieftainships, and on a greater extent, the Inka State logic-. In addition, this aim also blocks any effort to bring forth social analysis in terms of the own political logic of the societies unearthed by Archaeology, ignoring or dismissing the agency of their individuals.

During the so-called Formative Period groups of food producers, characterized by a combined use of agriculture and camelid herding, settled at Tafi Valley as in its nearby zones (Tucuman Province, Argentina). By almost a millennium (250 BC-850 AD), they built and inhabited a landscape consisting of hundreds of isolated multicellular courtyard houses highly scattered all over the valley. The early discovery of a ceremonial mound associated with menhir-like carved stones at valley's bottom, in turn, allowed a traditional interpretation of the whole society as a kind of emerging ritualistic chieftainship, both symbolically and physically centered in such a spot. However, new discoveries as well as a reevaluation of the current data from the point of view of Clastrean and Poststructural Theories, point out a quite complex social scene. In this paper, those latest archaeological works concerning the political logic underlying Tafi 'centrifugal landscape' will be presented.

RI34 MEET THE PLOT DWELLERS. USE OF SPACE AND SENSE OF PLACE IN 8TH CENTURY RIBE.

Sarah Croix

SYDVESTJYSKE MUSEER / AARHUS UNIVERSITY

Despite often elusive traces in the archaeological record, the physical setting of the early medieval towns is one of the most original and defining aspects of this form of urbanism. In this paper I will discuss the use of space in 8th century Ribe, from the general layout of the market place to the internal organization of the plots. As eminent agents in the expression and

organization of social identities and interactions, houses will be discussed in greater detail. Focus will be put on a comparison of the practical functions and symbolic values of urban and rural houses in Jutland in order to highlight the specificity of urban mentalities. It will be suggested that similarities in use and organization of space between the early medieval towns would have created a sense of familiarity and reinforced the feeling of belonging to a community among the actors of the early medieval trading network in North-Western Europe. Despite its regulated space, hinting at social constraints, the dense urban fabric of Ribe's market place created proximity between "strangers", then unknown to the essentially rural Jutish communities. This unprecedented and clearly alien way of living, particularly visible and enacted through the physical setting, potentially supported the plot dwellers' sense of place.

RI37 EARLIEST CHRISTIAN BURIALS IN ESTONIA

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This paper explores burial rites of the earliest semi-Christian cemeteries in Estonia. It is very likely that prior the official Christianisation at the beginning of 13th century some of the nobility identified themselves as Christians. They expressed their identity through Christian symbolism wearing locally produced cross pendants and using the cross motif extensively in material culture. Thus it is intriguing to ask how the nobility comprehended death and how their worldview influenced the management of burials.

As a case in point Pada cemetery in the north-eastern Estonia is examined in detail. Together with the layout and planning of the cemetery grave goods and different rites, e.g. reopening of the graves and post-burial manipulation of human remains, are analysed. In order to highlight the similarities and differences of the semi-Christian rituals from the Christian ones the material is juxtaposed to the first "definite" Christian burials from Estonia.

RI8 GENDER, IDENTITY AND SOCIAL INTERACTION IN PREHISTORIC CYPRUS: A MULTI-SCALAR APPROACH

Diane Bolger

UNIVERSITY OF EDINBURGH

In this paper I look at the dynamics of gender and social identity in Mediterranean prehistory by tracing the development of anthropomorphic figurines and pendants during the Chalcolithic period in Cyprus. The manufacture and use of these iconic artefacts during the 4th millennium, as well as their sudden demise during the early centuries of the 3rd millennium, can be linked to changes in personal and social identities, particularly those of gender. These developments are best understood within a larger framework of engagement between the island and the outside world when—for the first time since the early Neolithic period—Cypriot communities began to interact with those of the surrounding mainland. While a macro-scale approach is important for observing these social transformations over the *longue durée* of the 4th-3rd millennia, it is equally important to acknowledge contemporaneous differences between sites, even those within the same region. By focusing on some of the differences in ritual practice and material culture at several Chalcolithic sites in western Cyprus, we can begin to appreciate the varying degrees to which local communities were receptive to new forms of material culture from other regions of the eastern Mediterranean. This in turn allows for a more agent-based understanding of the ways in which key aspects of gender and social identity were constructed—and deconstructed—during this critical phase of the island's prehistory.

RI20 RE-PRESENTING YEAVINGER

David Petts, Brian Buchanan

DURHAM UNIVERSITY

The Anglo-Saxon royal palace at Yeavinger (Northumberland) holds a key place in the study of early medieval Northern Britain. The site of ground breaking archaeological excavation by Brian Hope-Taylor in the 1950s, it has a central position in the history of British field archaeology. This paper explores how the debates about this unique site have developed over the last fifty years. Initially seen through the lens of a culture-historical paradigm, this became increasingly subject to critique in the 1980s and early 1990s. As early medieval archaeology took a landscape turn in the mid-1990s, Yeavinger became a type-site for the Anglo-Saxon re-use of complex prehistoric sites. Now in the 2000s the site is increasingly seen in a wider international context, and its significance is now compared with Scottish and Scandinavian power centres. Technological advances have offered new insights of the site and its vicinity. Recent geophysical surveys combined with LiDAR data have demonstrated the complexity of the site and its environs. These results have prompted a new phase of research. By tracing how each generation of scholars has re-worked and re-imagined Yeavinger, this paper will explore how the site came to reach such a position in the archaeological imagination, and consider how new perspectives and approaches to the site are being developed and used. The paper will conclude by exploring how these developing perceptions of the site have been reflected in its interpretation for the public, and address the practical issues of interpreting and displaying that consist entirely of sub-surface stratigraphy.

RI19 BETWEEN MARGINALIZATION AND DYNAMICS ON THE RURAL EDGE. AN EXAMPLE FROM WESTERN SWEDEN

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Today, there is a growing rift between eventful cities and marginalized rural, especially sparsely populated forested and montane areas. The widening of the rift is supported by asymmetrical development processes in society and enlarging rural marginalization. Paradoxically, history stands in sharp contrast to the present. Research has demonstrated that marginalization is not a historically permanent condition, as evidence have been produced for dynamic and innovative communities in the preindustrial past. But also in the past, periods of dynamic development were replaced by stagnation, and vice versa.

This paper will present a local society with a vibrant development in the Viking Age – Early Middle Ages, with stagnation in the High and Late Middle Ages, a new period of dynamic development in Early Modern Times and complete marginalization in the time of the well fare state. During the dynamic periods, the local society was acting on markets, producing goods for sale, and managed contacts with the outside world. During periods of stagnation self subsistence economy was dominating.

The aim of this paper is to identify historical processes and conditions promoting innovation, trade and resilience or causing marginalization, both in the investigated local society and for rural landscapes on the edge in general.

RI16 RECONFIGURING IDENTITIES - INTANGIBLE CULTURAL HERITAGE AND ARCHAEOLOGICAL STUDIES OF SOCIAL IDENTITY

Leonora O'Brien

AECOM

Connecting archaeological identities to ethnic and social identity is a contentious area of archaeological and anthropological theory and practice. This session explores debates through the lens of Intangible Cultural Heritage. The UNESCO Convention for the Safeguarding of the Intangible Cultural Heritage came into force in 2006. It defines Intangible Cultural Heritage (ICH) as the practices, representations, expressions, knowledge, skills – as well as the associated instruments, objects, artefacts and cultural spaces – that communities, groups or individuals recognise as part of their cultural heritage.

ICH practices are an important component of contemporary cultures, transmitted from generation to generation and providing communities with a sense of identity and continuity. ICH raises questions of authenticity, as practices evolve in the face of globalisation, cultural transformation, conflict and displacement. The ownership of ICH may be contentious. In Scotland the practices of non-indigenous groups are considered equal to those of indigenous groups. Elsewhere ICH has been linked to exclusive ethno-nationalist or 'authorised heritage' narratives. Emphasis on ICH by state authorities attracts international prestige and tourist income, but may encourage the commodification of culture.

This session focuses on policy and practice concerned with the identification and safeguarding of ICH: the role of experts, community involvement and participatory approaches to ICH in the context of public value and social inclusion, practical challenges in the implementation and valorisation of intangible heritage studies, conflicting expressions of the past, multivocality and the role of ICH in intercultural dialogue and community integration, and studies exploring the overlap between tangible and intangible heritage.

RI28 STONE AND IDENTITY IN EARLY MEDIEVAL NORTHUMBRIA

David Petts

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Standing stones, whether elaborately carved or in their natural state, were an important element of the monumental repertoire in early medieval Northumbria. The sheer physicality and robustness of large blocks of stones meant that they had the potential to act as long-lived foci of monumentality, often acting as just one element of wider landscapes of ritual and symbolism.

This paper takes three case studies to explore the diverse ways in which the biographies of stone monuments might be played out, comparing and contrasting the trajectories of the monuments in question. The first case study will consider the so-called Yarrow Stone, an early Christian inscribed stone, sitting within a complex ritualised landscape which shows use from the Bronze Age to the early medieval period. The second case study will look at the use of stone monuments in the Milfield basin (Northumberland) exploring how they related to the complex pattern of early medieval activity in the area. Finally, I will look at the destruction and deposition of an Anglo-Saxon stone cross from Frosterley (County Durham) which was found smashed with parts placed over a late Anglo-Saxon deviant burial.

RI4 CROSSING BORDERS, MEETING PEOPLE. PRELIMINARY CONSIDERATIONS ON CERAMIC AND CONTACTS IN TWO OF THE LARGEST IMMIGRANT CITIES IN EARLY MODERN DENMARK

Jette Linaa

MOESGAARD MUSEUM

Early modern Denmark was far larger than today and thus our present national borders lie far away from those of the past, but the different territories that constituted the kingdom, are still visible in the archaeological record of present Denmark. The

paper will take its starting point in preliminary results from the ongoing Urban Diaspora project, concentrated on two of the largest cities in Early Modern Denmark: Elsinore and Aalborg. Elsinore at the Sound was a major shipping center, and Aalborg in North Jutland was as center of large-scale export of oxen and herrings. This presentation will touch examples of what can be seen as traces of border-crossing on different ends of the geographical scale: on the large scale on the materiality of people crossing borders between states and territories, and on the small scale on the crossing of borders between town and countryside. The paper will also touch upon pottery as trace of transfer of immigrant cuisine and food culture to the locals, and give examples on the transfer of pottery types and technology between local and immigrant potters.

RI23 ANIMALS AND THE RISE OF KINGSHIP IN NORTHERN EUROPE. SACRAL KINGSHIP AND THE ROLE OF ANIMALS IN EARLY MEDIEVAL POWER RELATIONS

Gordon Noble

UNIVERSITY OF ABERDEEN

Written evidence and increasingly archaeological evidence suggest animal (*blót*) sacrifices were central to notions of leadership in a pre-Christian context in first millennium AD northern Europe (e.g. Sundqvist 2002). Indeed, Hedeager (1999: 151) has argued that new types of political authority in the fifth and sixth centuries in Scandinavia were rooted in a new religious authority where practices such as animal sacrifice were increasingly prominent in settlements of this period. This paper will examine the evidence for similar practices and trends in the regions of Britain and Ireland that remained beyond the edges of the Roman Empire. In particular, it will draw on new evidence from Pictland in eastern Scotland for the importance of animal sacrifice in the emergence of early royal centres and pre-Christian forms of kingship. It will draw on the debate over the definition and identification of sacral kingship and outline the archaeological, iconographic and scant written evidence for the forms of practice that bound animals into the emergent hierarchies of power in the early medieval period.

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RI2 THE BRONZE AGE BATTLEFIELD IN THE TOLLENS VALLEY, MECKLENBURG-WESTERN POMERANIA, NORTHEAST GERMANY – CONFLICT SCENARIO RESEARCH

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Introduction: The Tollense Valley has come into the focus of interdisciplinary research following the discoveries of human skeletal remains of up to now more than 120 individuals, mostly young males, often with traumatic lesions, as well as horse remains and various weapons as well as other metal finds, dating to about 1.300-1.250 calBC. The remarkable material is interpreted as the remains of a Bronze Age group conflict on a so far unexpected scale.

Material and Methods: Find material comes from a stretch of river more than 2.5 km long. It is detected in situ under water in riverbanks as well as on land. Besides the human remains weapon finds, partly found in close relation to the bones, play an important role. Analyses of ancient DNA as well as of various isotopes are conducted to understand the population group(s) involved. Archaeological experiments are carried out to investigate possible fighting techniques; geo-scientific analyses aim at reconstructing the palaeo-landscape.

Results: Dating results place skeletal remains and weapons in a narrow time span at about 1300-1250 calBC. Weaponry includes long range, but also close-combat weapons. Find material as well as skeletal remains point to a heterogeneous group of at least hundreds of combatants.

Conclusions: The find assemblage from the Tollense Valley indicates violent conflict in the Bronze Age on an exceptionally high level. A possible conflict scenario, involving hundreds of participants in a greater stretch of the river valley, is put forward.

RI10 A PERMEABLE FRONTIER. PIONEER AGENCY AND THE LONG-TERM TRANSITION TO AGRICULTURE IN THE LOWER RHINE AREA WETLANDS

Luc Amkreutz

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The transition to agriculture in the wetlands of the Lower Rhine Area developed gradually. While the distinctive elements of a farming existence, including ceramic production, agriculture (crop cultivation and stock-herding) and sedentism, were quickly introduced as a complete package with the arrival of the LBK around 5300 cal BC, the subsequent uptake of these elements in the wetland areas to the northwest, was characterised by a very slow and diverse process. This attributes an important role to

the “receiving” hunter-gatherers that occupied this territory. These decided when and to what extent new elements were added and integrated into existing lifeways.

In this contribution the different elements that crossed the farming-foraging frontier will be discussed in the light of the pioneering processes of the hunter-gatherers living in this wetland landscape: How were these elements encountered and implemented and what defined the character and gradual nature of their uptake? The importance of the long-term interaction between people and their environment and the differences in the ecological characteristics of the frontier situation are argued to be crucial factors for understanding the developments taking place in this particular case-study. Furthermore the conservative while adaptive nature of the communities involved will be taken into account.

RI5 THE RE-ORGANIZATION OF THE CULTURAL LANDSCAPE C. 1200 BC. A CASE STUDY FROM SCANIA, SOUTH SWEDEN AND ITS WIDER EUROPEAN CONTEXT.

Peter Skoglund

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Cultural landscape history unfolds as a process involving both continuity and change. However, in some periods the landscape may be subject to rather dramatic reorganizations, which present a challenge to archaeologists: how are these changes to be understood in a broader social context? In south Scandinavia an interesting turning point appeared around 1200 BC when the tradition of building mounds came to an end and was replaced by burials in grave-fields. In this paper I will discuss this shift in burial tradition using new data from large-scale excavations in Scania. It will be argued that it was just one aspect of a larger landscape change, which also involved a new way of organizing farms and associated lands. These changes took place contemporaneously with the expansion of the Urnfields in central Europe. Thus, the 13th century BC stands out as a period of major change, not only in Scandinavia, but also in other parts of Europe.

RI26 FORTIFYING SYMBOLISM IN EARLY MEDIEVAL IRELAND: EXPLORING COSMOLOGY WITHIN HILLFORTS AND ROYAL CENTRES

Patrick Gleeson

NUI, GALWAY

This paper explores the evidence for religious, collective and cosmological concerns evident in the architecture, landscape setting and material culture of royal centres in early medieval Ireland. Although the major royal landscapes of early medieval Ireland, like the Hill of Tara or Rock of Cashel, have traditionally been understood as primarily ceremonial centres, new research has increasingly highlighted an integral fortified element, a grammar of defence that parallels developments in other regions of Northwest Europe. Utilising the results of recent survey work, this paper explores this aspect of Irish royal centres within the context of their wider ceremonial and cosmological imperatives. By examining the mythology, symbolism and rituals of such landscapes, it examines issues of belief, collective concern and religious conversion, as well as the wider role of such centres in early medieval society and political discourse.

RI23 MAKING KINGDOMS AND CREATING COMMUNITIES IN THE 1ST MILLENNIUM AD: RE-FRAMING RULERSHIP AND GOVERNANCE IN THE IRISH SEA REGION.

Patrick Gleeson

NUI, GALWAY

This paper explores the emergence of kingdoms in the Irish Sea region during the first millennium AD. While scholarship has largely moved beyond anachronistic Celtic and Insular paradigms for this region, many aspects of the study of kingdoms are still hamstrung by their legacy, particularly, a perception of power as small-scale, transitory and lacking the type of developed governmental apparatus which characterise Anglo-Saxon or Continental polities. To develop more nuanced analysis of the genesis and evolution of kingdoms in the Irish Sea, this paper frames analysis around evidence for expressions of power, and the practices which facilitated the manufacturing and challenging of authority. Focusing particularly on the 4th-9th centuries, it explores the how different scales of polity and community came about, were negotiated and moreover, articulated as kingdoms. Analysing evidence for inter-polity relationships, the evolution of assembly structures, collective identities and royal governance, it will suggest that the trajectory of different, interwoven kingdoms describes important similarities with the emergence of regional kingdoms in other areas of late- and post-Roman northwestern Europe, and suggests a much more complex, dynamic political landscape than is often allowed.

RI14 MEDIEVAL FORTIFIED SETTLEMENTS. SOCIAL IDENTITY AND CONFLICT. THE CASE STUDY FROM LOWER SILESIA REGION, POLAND

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Medieval strongholds are often considered by archaeologists as primarily military structures. In my presentation I intend to argue that their military function was only one of many. The history of medieval fortified settlements can be also told as the history of the group identity emerging from the social dynamics and conflicts. To express this idea I will discuss the changes in the perception of selected 'defensive' settlements over three main periods.

During the early medieval tribal period (from 8/9th to 10th century), beside military purposes, strongholds served also as cultural and ritual centers. Due to the expansion of the early Piast Monarchy (since the end of 10th century) most tribal strongholds were abandoned and new fortified settlements of judicial and administrative purposes were build. Their spatial location reflected the new territorial organization enforced by Piast's Monarchy.

Together with the introduction of new socio-economical order and development of towns most of the state strongholds were abandoned until the end of 13th century. Since that time, mainly in the countryside, the motte castles started to be build, marking the property of gentry and symbolizing the new means of power. My presentation will be based on the analysis of historical sources, historic and modern aerial photographs, airborne laser scanning, results of magnetometry and fieldwalking. I will attempt to integrate those data sources with some artistic reconstructions of discussed structures to build the background for my narration.

RI31 VÄSTERHUS - A PRIVATELY OWNED EARLY MEDIEVAL CHURCH AND THE SOCIAL CONTROL OF THE BURIALS OF THE INHABITANTS OF THE MANOR'S HOUSEHOLD

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DEPT. OF ARCHAEOLOGY AND ANCIENT HISTORY

The church of Västerhus (Jämtland, Sweden) was in use during the period AD 1073-1356. Västerhus is situated in an area, which sometimes was a Norwegian and sometimes was a Swedish county. From a clerical point of view the county was always linked to the archbishopric of Uppsala, Sweden.

The church was located close to a manor, where the owner, possibly a woman, initiated the construction of the church and the owner family managed church and churchyard. The individuals buried at Västerhus were members of a community separated from the larger society. It consisted of the owners' family and the workers of the farm. Both male and female workers were present. These might even have been thralls (un-free labour). Many display a bad health including traces of accidents and diseases as severe as lepra. A social difference can further be recorded from the diet.

There are tendencies to a social stratification in the cemetery. A gender division, north and south of the church, is evident among adults and adolescents. We have evidence for a similar division among children. Thus, gender seems to have been assigned to individuals early in life. A great number of infants and even foetuses have been buried. This enlightens general church regulations as well as the social control by the owner family.

It is evident that the society was a patriarchy and that the brides were moving in. The owner family can be traced over generations. So a social and economical stability has existed here for centuries.

RI2 AT THE EDGE OF THE EMPIRE: THE OPPIDUM OF MONTE BERNORIO AND THE AUGUSTAN CONQUEST OF CANTABRIAN SPAIN

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The Cantabrian and Asturian Wars (29-19 BC), led by the emperor Octavian Augustus against the communities of the northern fringe of Iberia, have traditionally remained relatively unknown, despite their great political prominence at the time. In fact, it was the only large-scale war of Augustus to succeed. In recent years, an increasing amount of archaeological data related to the conquest is coming to light. The Monte Bernorio oppidum, in particular, staged a crucial victory for the military campaign, as recent archaeological excavations have revealed. This paper presents new data on the assault of the Roman legions, including weapon remains found during excavations, especially artillery projectiles used during the attack. Evidence for small-calibre artillery projectiles could prove the use of this kind of machine in the Early Roman Empire. Moreover, near the oppidum, at the plateau known as 'El Castillejo', a large Roman military camp has been identified; it was probably directly related to the attack and destruction of the settlement at Monte Bernorio.

RI12 DISTURBING THE DEAD – RE-OPENING OF STONE CISTS IN MACEDONIAN EARLY IRON AGE

Daniela Heilmann

LMU MÜNCHEN

Early Iron Age burial rituals in the necropolis of Dedeli are relatively uniform. Generally, the deceased body was laid down in a stretched position in a stone cist, which was erected for the single burial and closed with stone plates. Usually, the cists were not re-opened.

Against the background of this ritual behaviour regarding the intercourse with the deceased, it seems noteworthy to stress another practice from the same necropolis. In seven cases the stone cists included more than one individual, arranged in a certain manner: one individual follows the general rule and is laid down in a stretched position, whereas one or two more individuals are deposited at one side of the cist with associated grave goods. Most probably, these cists were re-opened, and the individuals were moved to one side in order to prepare the cist for another burial. Since this practice occurs several times within the necropolis, the phenomenon can be considered a cultural ritual practice.

The aim of the paper will be to examine the practice of manipulating the initial burial and re-opening of the grave. The question will be approached anthropologically by asking what this disturbance means in contrast to the usual rite. Furthermore it will be asked if the differences in ritual are mirrored by the selection of the grave goods and if social distinctions can be the reason for re-using the grave. Finally, the rituals can be localized in a cultural context through comparison with other cemeteries in the region.

RI15 FUSING BURIAL TRADITIONS: IRELAND FROM THE CHALCOLITHIC TO THE EARLY BRONZE AGE

Kerri Cleary

CENTRE FOR ADVANCED WELSH & CELTIC STUDIES

This paper will explore how Ireland absorbed or adapted the changing burial traditions in other parts of Atlantic Europe during the 3rd millennium BC. While there is evidence for the widespread adoption of Beaker pottery there is far less proof that these individuals felt it necessary to incorporate such vessels into their burial practices or adopt the single crouched burial rite fashionable elsewhere. Where Beaker burial has been identified, the use of well-defined space above ground, in various stone-lined compartments placed on but not in the earth, predominated. Collective rather than individual burial continued, but also the 'individualization' of burial deposits, which along with the reuse of older monuments, has linked Ireland to an Atlantic tradition.

From c. 2200 BC, as Beaker pottery use was diminishing, Food Vessels emerged as an innovation that deliberately replaced Beakers, however, single crouched inhumation burial was simultaneously adopted, some of which incorporated aspects of the suite of grave goods indicative of Beaker use elsewhere. In reality, the accompanying burial rites actually continued to be more complex. Collective but also 'individualized' burials appear to have continued and both cremation and inhumation remained popular, including individuals subject to different mortuary treatments buried together. While some burials continued to be inserted into older monuments, the majority were now being placed directly in the earth, in cists and pits.

By mapping these mortuary practices can we better understand their associated expressions of identity through different adoptions or local adaptations of burial ideologies and possibly even competing beliefs?

RI15 SOLAR SYMBOLISM IN EARLY BRONZE AGE IRELAND

Mary Cahill

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This paper presents some ideas about the nature and function of the gold objects that are most commonly encountered in the earliest goldwork from Ireland and Britain—discs and lunulae. There is clearly a close concordance between the various decorative elements that make up gold discs and (Food Vessel) Bowl bases. As Bowls are current between 2200-1800 BC it is likely that the popularity of this particular manifestation of the sun cult was strongest during this time although its introduction was earlier with the earliest discs dated to c. 2400 BC. It also continued into the later stages of the Early Bronze Age as the solar images on the bases of Miniature Vessels confirm. The origin of these solar images is seen in the Bell Beaker pottery of the Iberian peninsula. Lunulae are re-interpreted as a form of wearable vessel or solar boat guiding and protecting the sun.

The paper considers how our ancestors may have responded to natural phenomena especially how they may have sought to reproduce visually extraordinary solar events. This is not an innovation in terms of how the sun was perceived as all the evidence from the preceding Neolithic period suggests that the sun was the pre-eminent and dominating force that ruled the lives of people all over the ancient world. However, with the coming of metallurgy and the influx of people and influences from the Beaker world there seems to have also been a new materialisation of solar imagery and presumably new forms of cult practice.

RI2 TRACING IULIUS CAESAR – THE LATE-REPUBLICAN MILITARY-CAMP AT HERMESKEIL AND ITS HISTORICAL CONTEXT

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In contrast to the detailed record of the Gallic War given by Iulius Caesar himself in his *Commentarii de bello Gallico* archaeological evidence connected to the events described there is still sparse. Until 2010 not a single site from his campaigns in the territory of the Treveri was known. Only then systematic landscape-archaeological research in the vicinity of Hermeskeil (35 km southeast of Trier, Rhineland-Palatinate) brought to light the remains of a late-republican military-camp which is likely to have been built under the direction of Labienus in 53 or 51 BC. After five years of excavations a more detailed understanding of this unique site and new research on the provenance of finds from Hermeskeil enables us to view the camp in a much wider context. It has to be seen not only as a relic of the Roman conquest of Gaul but also reflects the economic and political backdrop against which Caesars actions took place and also gives information on the provisioning of the Roman army. By incorporating landscape-archaeological data concerning neighbouring late La Tène sites a study of possible interactions between the Romans and the native Treveran population can help fill in the gaps of the historical record. Further

than that the localization of a Caesarian camp at Hermeskeil potentially helps identifying sites from other campaigns of the Gallic War like for example two newly discovered military-camps near Limburg (Lkr. Limburg-Weilburg, Hesse).

RI29 CONDUCTING CONTEMPORARY ARCHAEOLOGIES OF POLITICAL IMPRISONMENT: LESSONS LEARNT AND FUTURE DIRECTIONS AT LONG KESH/MAZE

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Conducting archaeologies of confinement can be rewarding and significant for both researcher and subject due the importance of the material environment in communicating both power and resistance. The role of interpreting material culture as both a conduit of power and agency in such situations means that archaeology has a primary role in understanding the effectiveness of material environment in confining and the ability of occupants to subvert. It is apparent even in the studies of the recent past the study of the material environment can add to narratives usually derived from oral and documentary sources, and even create new often unexpected ones. This is particularly apparent on studying high profile and contentious prisons, such as Long Kesh / Maze in Northern Ireland, the major holding centre of political prisoners during the Troubles (c1968-c1998).

Having researched the material culture of political imprisonment in Ireland for the last ten years I will use this paper to discuss, from my own perspective, the role archaeology can play in adding to existing narratives and creating our own narratives of confinement. In this respect I would like to divide the papers into two section: firstly discussing how far we have come in exploring institutions in archaeologies of the recent past and detailing some issues we should consider in moving forward with our studies.

RI19 MECHANISMS OF MARGINALISATION. THE NORTH ATLANTIC FROM BOOM TO BUST?

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General views of historical trajectories shape our understanding of the past; they influence the questions we ask about it and affect how we answer those questions. Such views tend to be resilient: they continue to influence even when the assumptions they are based on have been proven wrong. In the North Atlantic there is a long standing view that a Golden Age of exploration, colonisation and political and literary creativity was followed by a period of decline characterised by abandonment, economic and cultural stagnation, foreign oppression and exploitation. This paper reviews archaeological data which can provide independent measures of the long-term developments in the North Atlantic, focusing on evidence for quality of life and for conspicuous consumption, and discusses theoretical approaches to interpret such data.

RI11 NEGOTIATING SOCIAL SPACE IN DANISH IRON AGE SETTLEMENTS

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During the pre-roman and early Roman Iron Age the aggregation of single farms into larger and more densely clustered settlements leads to the earliest fencing of both individual farms and occasionally entire hamlets.

Based on an analysis of 15 Iron Age settlements from Western Jutland, Denmark, this paper will discuss how the development of plots and boundaries follows the same overall pattern, though are subject to local deviations. In time the plots of individual farms gradually develop into a more rectangular outline, and the farms in some settlements become stationary within the individual plot through several generations. Throughout the pre-roman and early roman Iron Age the ongoing negotiation of public and private space can be deciphered through restructuring of fences around these stationary farms. And the importance of the fences as social boundaries is suggested by their layout and by burials placed in close connection with the fences.

In the mid 2nd century AD the gradual development of the settlement boundaries and social space is completely replaced by a major reorganization of both the cultural landscape and the settlements themselves. With this reorganization the plot size and layout of the farmsteads is largely standardized, and the hamlets often moved into hitherto unsettled land.

This paper explore the development of the boundaries, and discuss how the negotiations of social space reflects the development of social relations in the local community.

RI28 CROSSING THE SEAS: SOURCING STONE IN EARLY MEDIEVAL IONA

Adrian Maldonado

UNIVERSITY OF CHESTER

The early medieval monastery of Iona is well-known for its contributions to art and sculpture alongside its role as a centre of learning and pilgrimage. It has the largest surviving collection of early Christian sculpture in Britain with over 100 fragments attributable to the pre-Benedictine monastery. To date, the majority of work has focused on the iconography of the four high crosses at the expense of the more numerous cross slabs. New research on these smaller crosses reveals that not only was stone sourced from surprisingly far-off places, but in some cases finished crosses could be transported as well. An archaeological approach to the Iona corpus as a whole provides new insight into the central role of material culture in creating

an early Christian sacred landscape. It is argued that a unique and influential vision of a Christian afterlife and salvation through mortuary practice was developed on Iona through the interplay of stone, earth and sea.

RI38 EROS THE MAN, EROS THE WOMAN: CONFLICTING IDENTITIES AND GENDER CONSTRUCTION IN THE CATULLAN CORPUS

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The Catullan corpus is filled with widely varying and often incompatible constructions of gender. These contradictions reveal latent tensions between the poet's masculine persona and personal pleasure, the latter of which often results in feminine modes of expression. Catullus' poetic voice frequently transgresses traditional Roman boundaries between gender spheres, emphasizing the nebulous nature of an individual's sexuality in antiquity. Through an analysis of the gendered paradigms that inform the Catullan corpus, this paper examines these tensions between traditional masculine and feminine roles and ways in which these roles are reversed, especially in Catullus' relationship with Lesbia. This paper analyzes Sapphic influences in Catullus (*carmina* 51 and 11), arguing that Catullus both embraces more feminine imagery in following with Sapphic tradition and within the same poems diverges from this tradition in favor of more masculine modes of expression. Catullus also transgresses Roman gender boundaries in *carmen* 76 by introducing the homosocial concept of *pietas* into his personal romantic relationships. Other poems exhibit more masculine traits (*carmina* 16 and 37), employing hypermasculinity and invective in order to reestablish the sexual dominance and masculine status that has been partially lost through gendered role reversals between Catullus and Lesbia in other poems. Transgressions of gender boundaries are also explored in *carmen* 63 which describes Attis' aborted transition from *ephebe* to man. Overall, Catullus' ever-changing voice emphasizes the ambiguity of sexuality in ancient Rome as well as his own tensions regarding his place in both the masculine sphere and his personal relationships.

RI26 HILLFORTS AND CHRISTIANITY IN EARLY MEDIEVAL SCOTLAND

Adrian Maldonado

UNIVERSITY OF CHESTER

There are now enough well-excavated early monastic settlements in Scotland to begin situating them in the wider social arena. We know from the writings of Patrick and Adomnán that the Church had regular dealings with secular authorities, including corresponding with and visiting rulers in hillforts. Sites like Dunadd and Traprain Law are also mentioned in early saints' lives, and the archaeological assemblages of these and other hillforts attest to their entanglements with early monasteries. It is argued here that this is more than secular patronage of the Church, or the Church insinuating itself into the halls of power. If we believe, as is so often stated, that there is no real separation between a secular and a religious centre in this period, then we must consider the implications of hillforts as sacred citadels rationalised within early Christian theology. This should not be seen as a 'pagan survival' as both hillforts and monasteries present new kinds of sacred enclosure in early medieval Scotland. Instead, this allows us to consider Christianity and the rise of kingship as part of the same discourse of power as controlled access to the supernatural.

RI18 EPHEMERA, MEMORY AND THE (NEARLY) FORGOTTEN PAST: GRAFFITI AT KILMAINHAM GAOL, DUBLIN

Laura McAtackney

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The links between material remains and commemoration have long been noted but it is not often explicitly highlighted that material remains can be used to create partial histories as much as democratize divergent pasts. At times the vagaries of what survives, what is destroyed and what partially remains can ensure the status quo is maintained or at least the most difficult aspects of the past are marginalised.

In the current 'Decade of Commemoration' in Ireland pre-existing narratives are increasingly being reinforced rather than questioned. The focus on the men of the Easter Rising (1916) has not only continued to be maintained but this has increasingly been articulated through reference to the surviving material remains such as Kilmainham Gaol in Dublin. The last holding centre of many of the executed leaders of 1916, Kilmainham clearly materializes the sacrifice of the Rising. However, this focus has allowed the marginalization of the experiences of the War of Independence (1919-1921) and especially the civil war (1922-1923), as well as gendered experiences, in both the interpretation of the site and public memory. This paper argues for a need for closer inspection of the material remains – especially the often decried surviving graffiti traces – as they allow more marginalized perspectives to emerge and a fuller appreciation of what can be commemorated at this seminal heritage site. This paper will focus on the ephemera of graffiti and its role in providing information on previously marginalized occupants held in the prison post-1916.

RI11 MEDIEVAL BOUNDARIES IN SHAPING LOCAL IDENTITIES: A COMPARISON BETWEEN ITALY AND THE UK

Sabrina Pietrobono

FORMER MARIE CURIE FELLOW

Agreement and concord contribute to building shared identity, and we can recognise them in the current landscape. Specific

boundaries established in the Middle Ages are still visible, but others only recorded in documents. This paper extends and develops the results of a previous research on their extraordinary longevity from an interdisciplinary point of view, with particular attention to the archaeological evidence, by comparing case-studies in Italy and England: in almost all medieval documents, memory acts as main reference in the nature of disputes over their preservation throughout the centuries, demonstrating the long-lasting power of some agreements in managing the landscape. This paper reconsiders boundaries, which have operated at both physical and anthropological levels, by underlining nature, physical remains, memories, changes or persistence, in order to understand when, as fixed rules in the landscape, they have sometimes deeply affected both its transformation and the development of local identities.

RI31 THE ENDURANCE OF CEMETERY MAINTENANCE PRACTICES FROM MEDIEVAL TO MODERN COPENHAGEN **Sian Anthony**

LUND UNIVERSITY

Within the restricted space of European urban churchyards and cemeteries is the pressure to ensure the functional viability of the site. As succeeding generations are buried there is a need to manage the existing three-dimensional space by adding areas, soil or removing earlier burials. Medieval practices of reusing graves and channelling connect to attitudes towards the body as less significant than the soul and thus available for fragmentation. The emergence of the modern cemetery in the late 18th century in Europe is meant to epitomise a clear break in attitudes and perceptions surrounding the dead body which is enacted through the regulatory landscape design. Bodies were to be buried individually and undisturbed to strengthen ideals of death being a journey or a peaceful sleep. Evidence from medieval St Clemens, several Reformation period cemeteries and the modern Assistens Kirkegård in Copenhagen are used to show how practices seen in the medieval period continue to be carried out through the Reformation and into the modern period. By focusing on the continued secondary manipulation of burials up to the 20th century the evidence reveals the tacit knowledge that underpins this concealed work which enables the maintenance and reuse of the modern cemetery by recycling burial space.

RI9 THE GRAVEYARD OF POZZUOLO (VEII, ROME) IN THE FRAMEWORK OF THE ITALIAN FINAL BRONZE AGE: ARCHAEOLOGICAL, ANTHROPOLOGICAL AND ARCHAEOBOTANICAL DATA

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The results of the excavation of 55 tombs datable to the early phases of Final Bronze Age (XI century BC) found at Pozzuolo (the settlement is located in the neighbouring country of Isola Farnese) will be examined.

The main element of interest is the proximity of *Veii* protourban centre, whose beginnings belong to a later phase of the Final Bronze Age.

The graveyard has yielded 44 cremated individuals (all single burials).

A subsample of 15 urns was CT scanned with a medical multi-sliced CT scanner; this procedure allowed to detect: (a) presence, consistency and location of the bone remains; (b) presence, type, exact location, shape and size of the funerary goods; (c) aspects of the ritual; (d) taphonomic post-depositional processes. The virtual images also proved to be a valid methodological tool to plan actions aimed at the recovery and preservation of the objects. The subsequent excavation were performed for micro-levels, a procedure consistently guided and monitored by the analysis of the virtual images.

Between the problems raised from this excavation we can list:

- the high number of tombs (in this period we know cemeteries composed by little groups of graves);
- the relevance of data on the ritual performed in the graveyard compared with other incineration case-studies of the same period;
- the importance to collect a really representative sample of archaeobotanical data.

RI36 EXPLORING JUVENILE FUNERARY IDENTITIES IN THE MODERN PERIOD

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A rare opportunity to investigate burials in the modern garden cemetery of Assistens Kirkegård in Copenhagen led to the excavation of c 1000 burials. Juveniles dating from the early 19th century to the 1930s represented 13.9% (119) of the inhumations. The general demography of the burial population and the burial traditions including spatial distribution, grave goods, coffins and furnishings are compared in burials of all ages to explore how different burial treatment identifies the younger age categories. Evidence from Medieval Scandinavian churchyards show that children were often grouped in specific areas and sometimes given distinctive grave goods but modern cemeteries were rarely created with specific areas for juveniles resulting in all ages being buried together. The modern funerary traditions excavated also suggest that in fact children were

treated almost identically to adults with only a few minor deviations. Further the category of 'child' and 'adult' are more likely to be blurred and less important compared to factors such as social class, wealth levels and family relationships. So can a category of a modern child burial be recognised in the archaeological evidence and how does this influence our perception of attitudes towards children in this period?

RI1 VARIABILITY OF POST-LBK LONGHOUSES GROUND-PLANS AND INTERPRETATION OF THEIR SPATIAL RELATIONSHIP IN SITE LAYOUTS IN THE CZECH REPUBLIC

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The aim of the paper is to present a large morphological and dimensional range of ground-plans of Danubian tradition longhouses in the region of Czech Republic, dated to the Stroked Pottery culture period (about 5000-4400 cal. BC). After more than a hundred years of research, dozens of different types of houses, in terms of morphology and dimensions, have been identified. They vary in numbers within one settlement, and if they appear in a higher number, it is possible to discern several spatial patterns that differ from the previous LBK period.

The next part will focus on the summary and comparison of the results from the SBK sites in Mšeno, Březno u Loun, Hostivice, Jaroměř, Plotiště nad Labem, and Kolín, in order to point out both similarities and differences in the spatial patterns identified within the Czech Republic. The paper will focus on different interpretation models of such patterns and on questions related thereto, i.e. whether the spatial patterns reflect chronological development or whether they rather reflect some form of social relationships.

RI14 THE CAMPS OF NAPOLEON. THE CAMPS OF THE ARMY FOR THE INVASION OF ENGLAND (1803-1805)

Frédéric Lemaire

INRAP INSTITUT NATIONAL DE RECHERCHES ARCHÉOLOGIQUES PRÉVENTIVES

In France, the monumental column near Boulogne-sur-Mer recalls that between 1803 and 1805 an army intended for the invasion of England was collected on the coastline of the Pas-de-Calais, around the main ports. Camps at Montreuil consisted of the three divisions of the corps. The first division camped in Carniers, the second at Etaples with the landing fleet, and the third inland at Fromesent.

Officer François Vigo-Roussillon, wrote in his memoirs about the camp of the 32nd's line, where he oversaw the construction: "our camp looked like a pretty regularly built village". Another memoirist evokes the 59th line camp less positively, describing the huts as bivouacs. This camp was the subject of extensive excavations in 2010, allowing the study of more than 200 structures divided into six rows over several hectares. Portions of another camp, for the 69th line, a brigade with the 6th regiment of light infantry, was excavated between 2004 and 2010 and symmetrically arranged. These camps were surprising for their scale and regularity, laid out according to battle order. Soldiers camped as they fought - by ranks, regiments, battalions and companies. By observing the traces of these camps, we observe the infantry on the battlefield - the 'soul of the army', said Napoleon. Analysis of the camps layout creates a better understanding of the conditions for the soldiers, as do the artefacts recovered. Numerous objects are preserved within the partly subterranean shacks described in the memoirs.

RI2 VIEWS OF THE BEREZINA NAPOLEON: RESEARCH ON THE "VICTORIOUS DISASTER" SITE

Frédéric Lemaire

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What is the "Berezina"? What is this legendary site whose name is synonymous with absolute disaster, total destruction? Berezina: river that we imagine lost at the borders of Europe and yet is on it's center. Berezina, at the ford of Stoudienka: only 44 m wide and 0.60 m deep in September 2012. Were the ford and its river so different in 1812? Why have some described it as an impassable river, when others have compared it to a small boulevard? Why such differences in the estimates of the number of victims? Why never any gruesome discovery on the site of the passage, when archives and testimonies affirm and locate the presence of mass graves of thousands of dead? Why so many contradictions in these testimonies?

Some describe the site as completely preserved, the only one of all the major battlefields of the Napoleonic Wars, but is this myth or reality? The French Institute INRAP, in partnership with the Institute of History of the Academy of Sciences of Belarus, conducted a diagnostic survey of the passage on the site and of the battles of the Berezina. Moreover, by investing in this field of study, archaeologists have also discovered a battlefield, in the figurative sense, and a more complex one to study. The trauma of the Berezina was of such important that it seems even two centuries later, only partly repressed. The denial of retirement disaster is manifested very clearly in recent historiography by requalifying the Battle of Berezina into a victory.

RI5 COLLAPSE AND CONTINUITY ON THE GREEK MAINLAND IN THE LAST PHASE OF THE BRONZE AGE

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Around 1200 BC over a period of time which may have been as long as a quarter of a century all of the major centres of power on the Greek mainland were destroyed. The palaces were not rebuilt and their destruction is therefore generally thought to

have had wide-reaching political effects in that it brought about the collapse of several centuries of palatial rule. The transition then from the thirteenth to the twelfth century can be regarded as a turning point with a definite before and after. However, as argued in the papers in *Questioning Collapse. Human Resilience, Ecological Vulnerability, and the Aftermath of Empire* (2010, edited by Patricia Ann McAnany and Norman Yoffee), although societies may suffer wide-reaching political collapses, these are rarely total in the sense that the entire social and cultural framework falls apart and there may be significant elements of continuity. On the Greek mainland the effects of the destruction of the palaces do not seem to have been the same in all regions. Messenia seems to have become largely depopulated, but in the Argolid there is evidence for the continuation of palatial culture in several areas, which may also indicate that the political collapse was not comprehensive. In this paper I will explore the meaning of the terms collapse and continuity in relation to the evidence from the Greek mainland in the period after the destruction of the palaces.

RI13 BURIED IN A CAVE – MESOLITHIC AND NEOLITHIC HUMAN REMAINS FROM THE BLÄTTERHÖHLE AT HAGEN, GERMANY

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Neolithic and Mesolithic human remains from the 9th and 4th millennium are rare for the mid-range mountains of Western Germany. The discovery of human remains in the cave of Blätterhöhle at Hagen in Westphalia, Germany in 2004 changed this. Radiocarbon dates of 9200-8600/3900-3000 cal. BC revealed a Late Neolithic age for the remains. Neolithic collective burials in caves and rock shelters are known for the 4th millennium BC in other areas (Belgium, British Isles, Ireland). The Blätterhöhle provides the first clue that this burial practice might have also occurred in the region of northwest Germany with the border to the zone of megalithic collective burials only 50km away.

The remains were found in two stratigraphically separated but bioturbated sediments without anatomical context. A-DNA sampling suggest that the Mesolithic population of the Blätterhöhle represents a typical hunter-gatherer population (mitochondrial haplogroups U5/U4), whereas the Neolithic population seems to be an admixture of hunter-gatherer (haplogroup U5) and farmer lineages (haplogroup H and others). Additionally, the analysis of stable isotopes (13C/15N/34S) shows three distinct clusters: terrestrial diet was evident both for the Mesolithic and a Neolithic group, but one Neolithic group consumed freshwater fish. This group consists of people exclusively with haplogroup U5 and demonstrates a “non-Neolithic” way of life in the 4th millennium. The remains of both “Neolithic” and “fisher-hunter-gatherer” people were found commingled, with radiocarbon dates indicating a similar time of disposal, and suggesting that both groups coexisted within the 4th millennium BC and were deliberately deposited together in the same cave.

RI34 AALST (FLANDERS, BELGIUM): THE PRE-URBAN SETTLEMENT AND ITS URBAN FORMATION IN THE 11TH CENTURY

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The small town of Aalst was located on the border of the county of Flanders and is a typical example of the second urbanization phase in the Low Countries. Recent interdisciplinary research has resulted in new insights in the urban formation process of Aalst. The oldest early-medieval roots could be established: the Carolingian domain and its Merovingian predecessor as original development area, as well as their relics in the present urban structure and their influence on further evolution. Another main issue are the different elements and processes in the actual urban formation process of Aalst. The political and military events from the 11th century played a major role, resulting in the important position of the town as border settlement and administrative center of the annexed territory east of the river Scheldt, known as Imperial Flanders (the part of the Flemish County belonging to the Holy Roman Empire). The urban formation phase was accomplished by the construction of a D-shaped defense structure in the second half of the 11th century. The study of the urban formation of Aalst is an example how joining archaeological, historical and cartographic data enables to form an image of the creation and early development of a town and indicate the role small cities have been playing in the earliest stages of urbanization of the county of Flanders.

RI6 THE EXOTIC OR THE EVERYDAY? THE CEREAL CROP PREFERENCES OF IRON AGE SOCIETIES IN SW SCOTLAND

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AOC ARCHAEOLOGY

Recent work undertaken on wetland sites in SW Scotland as part of the Scottish Wetland Archaeology Programme has led to new insights into the agricultural economy of Iron Age southern Scotland. In large parts of Scotland agricultural choices were strongly dictated by climate and soil conditions but in the SW there appears to have been more favourable growing conditions which allowed for greater choice in the cereal species cultivated. This gave the population the opportunity to deliberately select foodstuffs for cultural reasons. Both the wetland and terrestrial sites have produced similar crop assemblages which contrast with those from other Scottish Iron Age sites and suggest that cultural preferences were a driving force in choosing which

species were grown. This has led to the re-examination of the status of some crops which were previously viewed as exotic or high status when found in Scotland. The identity and agricultural development of southern Scotland may have more in common with northern England than more northerly regions in Scotland and this paper aims to explore these issues further.

RI6 A NEW SPIN ON FIBRE REVOLUTION: PLANTS, TEXTILES AND TECHNOLOGY IN THE ANCIENT MEDITERRANEAN

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Textile production and consumption defined the development of productive and commercial activities of ancient societies at least since the Neolithic. Plants such as flax, lime, willow and nettle were among the resources for making textiles in Europe and their transformation into usable fibre was complex and influenced the economy of textile production. Agricultural choices concern which fibres to grow or collect, when to harvest and how to process the plants. This paper questions the relationship between identity connected to processing fibres for textiles and the changing demands of textile consumption in early urban Italy from 1000-500 BC. Recent research into Neolithic fibre technology points to a long tradition of working plant fibers by splicing, rather than draft spinning. Splicing can be identified by microscopic examination of plant fibres used to make thread and relationship between techniques and fibres or, very rarely, from iconography. Previously this technique was only recognised in ancient Egypt. This paper presents new results that identify splicing of plant fibres in Iron Age Italy. These results demonstrate that techniques of splicing plant fibres into yarn extend from the Neolithic to Iron Age, and continued alongside the adaptation of draft spinning, a technology related to wool. Since the Bronze Age, wool was the preferred fibre for textiles, showing consumer preferences in textile consumption. The question then is why did spinners (men or women) move to draft spinning plant fibres in the Iron Age? What are the implications of this change in technology for spinner's role and hence identity?

RI32 SYMBOLS, POWER AND IDEOLOGIES DISPLAYED ON IRON AGE FARMS IN WESTERN NORWAY

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Burials and grave mounds have been conspicuous elements of West Norwegian farms from the Roman Age onwards, bearing witness to the fact that at least some of the inhabitants were buried on the farm infields.

Death is as much a public concern as a private one. Ceremonies involving numerous people, rich funeral equipment and large memorials are generally seen as displays of power and influence. By performing burials and placing monuments close to the farm houses, the farm courtyard was made into an arena for power display, and, at least for a while, converted from private to public space.

Definitions of power will normally refer to the ability to make decisions and put them into effect. *Authority* is associated with recognized, or legitimate, power *over* (people) or *to* (do things). Legitimate use of power tends to be justified by *ideologies*.

In order to understand the farm as a social arena, the lower ranking people of the household must also be understood as social agents with their own views, needs and skills. Special skills may endow the holder with *influence* that does in fact make her or him powerful in spite of social low standing.

Two farms in the agricultural settlement of Vik on the Sognefjord in Western Norway will serve as case studies for negotiations of power and influence, discussing the changing(?) meanings of monuments as well as possible influences from inside or outside the farm itself.

RI13 HUMAN REMAINS AND ARTEFACTS FROM CAVES IN THE LOWER MOUNTAIN RANGE OF UPPER FRANCONIA IN NORTHERN BAVARIA, GERMANY.

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The origin of cave archaeology in Northern Bavaria dates back to the 15th century. This was the initiation of more or less continuous but primarily not scientific investigations up to the 1950s and 1960s. Recent archaeological excavations didn't take place for years; therefore most of the artefacts in northern Bavaria came from speleological measures without detailed information about the stratigraphy in the caves.

Archaeological artefacts and human remains were recovered from more than 300 caves in the Northern Bavarian karst regions. Especially the latter are very frequent in vertical caves, which are interpreted as sacrifice sites in the most European areas. These dumping processes and deposits of other artefacts had their climax in the urn field culture and the early Iron Age although many caves were frequented since the Neolithic (after the Pleistocene). Only a few caves were maybe used as temporary settlement sites or hunting camps. In the Middle Ages and the post-medieval periods their function sometimes shifts to hide outs, cellars, stock enclosures or touristic sights.

The recent PhD project at the University of Bamberg tries to assemble artefacts from different cave types in Northern Bavaria for a local comparison not only because the interpretation of vertical caves as a sacrifice site is still omnipresent. But how can we interpret the remaining artefacts? Are they grave goods, sacrifices or even part of the dressing? Is it possible to distinguish these vertical cave finds from other cave types?

RI32 SYMBOLS, POWER AND IDEOLOGIES DISPLAYED II: EARLY MEDIVAL FARMS IN NORWAY

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Sidaskipti, the transition from Norse heathendom to Christianity in Norway in the decades before and after AD 1000, must have led to extensive changes in farms as religious and social arenas. The Iron Age tradition of grave mounds and burials as symbolic markers on the farm's infield was broken and the burials concentrated to fewer grave yards on selected farms, idealistic connected to a church building.

This paper addresses the post Viking Age symbols of power in general terms and exemplified in the two farms Hove and Hopperstad in Vik, also discussed in the previous paper given. The relation between the farm's court yards ("tun") and the first generations of churches is discussed. To what extent was the new type of cult buildings placed on the tun? What do we really know about the first churches and their appearance and function? Did the churches from the beginning visually function in the landscape more or less like the grave mounds in earlier times, as symbols of belongings and ideology?

The theoretical approach towards this discussion of the *Sidaskipti* is "a perspective from below", based in everyday practices and perspectives of lower ranking people of the farm's household. To what extent were for instance Christian slaves able to influence the religious life and practice on the farm? To what extent did the personal beliefs of lower ranking people prepare the ground for the formal Christianization that was to come "from above"?

RI32 SOCIAL AND RITUAL PRACTICES AND RE-USE AT BUTTLE ÄNGE, AN IRON AGE FARMSTEAD ON GOTLAND, SWEDEN

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Buttle Änge, a farmstead on the island of Gotland, Sweden, is a case study for discussion about social and ritual practices and re-use over time from Roman Iron Age until Early Medieval Period. The site displays a strong continuation in land use from ca AD 200 up to present day and comprises of an extremely interesting narrow cultural landscape with an abundance of pre-historic and historic remains and features such as stone house foundations, Celtic fields, furnaces and monuments including picture stones and grave cairns. Several depositions have been found in the area adjacent to the picture stones which contained cremated human and animal bones as well as artefacts of bronze and iron demonstrating the repeated ritual re-use of the site. Remains of extensive iron production were also found indicating a nearly industrial level of production. This paper will highlight the entanglement of the domestic life, production and ritual life at a Late Iron Age farm. The spatial dispersion of activities that can bear witness about social life on the farm will be explored and discussed.

RI25 NODES AND MODES OF IDENTITY IN EARLY MODERN IRELAND: MATERIAL CULTURE & CULTURAL ENTANGLEMENTS IN 17TH CENTURY CARRICKFERGUS.

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Prior to being supplanted by Belfast in the mid-18th century, the Ulster port town of Carrickfergus (County Antrim) had served as the cultural, commercial and civic hub of the north of Ireland. Established in the 12th century as an Anglo-Norman stronghold amongst Gaelic lordships, the town successively functioned as a 16th century English garrison and a thriving 17th century entrepôt engaging in the transatlantic trading world, home to a multifarious population of rival cultural identities, practices and political allegiances, notably English, Highland Scots and native Gaelic Irish. Collective archaeological investigations throughout the town has generated a wealth of post-medieval material culture that proffers an opportunity to delve into the character of cultural relations in a plantation-era settlement in Ireland. Pluralist readings of identity can emerge, as can insights into the complicated modes and nodes of identity construction, continuity and creolization. Insofar as present sectarian divides in Northern Ireland are still perceived to originate from the colonial expansion of British control into Ireland, that of 'Native versus Newcomer', an examination of the material legacy of a 17th century Ulster town such as Carrickfergus can aid in challenging and ultimately renegotiating our past, reconciliation and reconfiguring our contemporary public perceptions of this tumultuous period of Irish history.

RI17 BURIAL PRACTICES OF THE GETO-DACIAN CHILDREN DURING THE SECOND IRON AGE – NECROPOLISES AND SACRED AREA OF THE FIELD-OF-PITS TYPE

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The predominant funerary rite used by the Geto-Dacians between the 5th c. BC and the 1st c. AD was cremation, but they also practiced inhumation. From the Second Iron Age, one has identified, in 14 Geto-Dacian sites, only about 70 children graves, of both the cremation and the inhumation type. Therefore, the number of children is very small compared to that of adults (which totals about 2400 graves). The graves are both flat and tumular. The funerary inventory includes adornments, clothing accessories, tools and household items.

When we say "sacred area of the field-of-pits type", we are referring to clusters of pits, which occasionally include fireplaces, altars, platforms, agglomerations and deposits of items, located outside of other types of sites. The inventory contains a wide range of items: vessels, tools and utensils, the rarer weapons, adornments and clothing accessories, toiletries and anthropomorphic or zoomorphic figurines. Of the 19 sites analysed, 14 contained skeletons or parts of human skeletons, from about 103 individuals, 32 of which were children. We are dealing with whole skeletons, some in non-anatomical positions, with parts of skeletons or isolated human bones, sometimes with traces of violence on them. Furthermore, they are not necropolises and neither are they associated with temples.

Finally, we aim to show both the features of the children graves, by comparing them to those of adults, and the elements of continuity and discontinuity of the funerary habits regarding children.

RI1 HOUSES, HOUSEHOLDS, ACTIVITY ZONES IN THE POST-LBK WORLD. RESULTS OF THE RAW MATERIAL ANALYSIS OF THE CHIPPED STONE TOOLS OF POLGÁR-CSŐSZHALOM, NORTHEAST HUNGARY

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In the last few decades the scope of the archaeological research slowly moved closer to the inner structure of the societies of the past. The reasons made these changes possible are from different sources. On one part the advances on the field of non-destructive investigating techniques made possible to choose more precisely what to excavate. On other part we witnessed an outstanding career of the information technologies in the field of the evaluation of the gained data. We would like to pay more attention to this last component in this paper. Our project started 2012 in order to evaluate the enormous amount of the archaeological material of Polgár-Csőszhalom, the most significant site of the post-LBK period in North-East Hungary. Our main motive was to reconstruct the late society of this complex site with the usage of multilevel statistic methods and spatial information technologies (GIS). Of course the taphonomic and symbolic aspect of the finds always has to be kept in mind. The first results, which came from the focused investigation of the raw material of the chipped stone industry yielded sixteen different activity zones on the flat settlement. The differentiation of these zones was possible through the recognition of the repeated pattern of the used stones. According to this the building blocks of the society were self-sufficient in tool making, but the procurement of the raw materials was communal. It seems that the identity was homogenous at the level of households, or it was not expressed through raw material selection.

RI1 SHELTERED AND ENCLOSED - LIVING IN NEOLITHIC ITALY

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Our knowledge of settlement activity during the second half of the 6th millennium BC in Central Europe is formed by the large long-houses and monumental ditch systems of the Linear Pottery Culture. Such large ditch systems are also known from the Neolithic in south Italy at the same time. They enclose vast areas, and within them, people enclosed their own houses – considerably smaller than the large LBK houses – with semicircular ditches. Obviously, private space and the household community as well as a separation of each household from the next played an important role. The semicircular ditches emphasize the importance of the family and might have served as markers for property as well as identity. Then again, a village community separated itself against the outside world with a larger ditch. Thus, a division was created between the inside, a group of people sharing common interests and beliefs and a common identity, and the yet untamed landscape, maybe the last Mesolithic hunter-gatherers, or else other early farming communities. The dead which were sometimes buried in the ditches might allude to their function as a physical as well as a symbolical frontier.

RI23 EARLY MEDIEVAL LORDSHIP, HIERARCHIES AND FIELD-SYSTEMS

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In this paper I'll discuss how different kinds of lordship, in Scandinavia and on the British Isles, created different kinds of settlement patterns and how different lordship created different layouts of the farmlands during the Early Medieval period in Scandinavia and on the British Isles. Differences in the settlement hierarchies between those regions are proposed in the paper to be explained by various forms of lordship operating.

Lordship based on tributes with modest food-rent and hospitality from clients created a quite different layout of farmland and settlement than lordships based on fixed obligations, taxation and feudal rent.

Connected to the changes and the intensification of lordship – the emergence of a more stratified aristocracy – is the qualitative changes of the royal power and the spread of the Catholic Church with its firmer administration and economic organisation during the early medieval period in some of the regions presented in this paper.

RI28 STONES AND PEOPLE: VIKING AGE PICTURE STONES FROM THE ISLAND OF GOTLAND, SWEDEN

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Over the past few decades, an awareness of the importance of archaeological excavations of sites with images and inscriptions as rock carvings, runestones and picture stones has emerged. Archaeological excavations can provide clues as to what different activities people have engaged in at the sites throughout the centuries, and in some cases, even the millennia. These studies may even help to date when the images and inscriptions were created and increase knowledge of their function in their contemporaneous societies. Andreeff's PhD-thesis about the Viking-Age picture stones from the island of Gotland reveals that the different types vary in shape and content, even if there would seem to be a cursory similarity. The picture stones from different periods have been found in disparate find contexts and can be associated with varying activities. There are distinct interruptions in time between the different types, when the erection of picture stones has been replaced by the reuse of picture stones from earlier periods in different ways. At first sight, picture stones would seem to be monolithic, large and heavy, but we must remember that they are moveable objects, which have been manipulated in various ways throughout the centuries. They have been reused in pre-Christian graves and they were incorporated in the walls or floors of the medieval stone churches. They were taken up in legends written down in the folklore of the 18th and 19th centuries. This shows that the picture stones have influenced and been influenced by people ever since they were erected.

RI13 MORTUARY CHOICES AND TAPHONOMIC PROCESSES IN THE SEULO CAVES, SARDINIA

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This paper compares and contrasts the diverse ritual practices and taphonomic processes leading to the formation of mortuary deposits in four recently excavated caves in the territory of Seulo in Sardinia, Italy. At Middle Neolithic Longu Fresu cave, the taphonomy points to a disturbed inhumation with robbing and caching of bones in niches. At Middle Bronze Age Is Bittuleris cave, the representation of bones corresponds with cemetery style burial of complete skeletons and successive depositions. At the nearby and more-or-less contemporary Su Cannisoni rock-shelter, the representation of bones suggests secondary burial of selected body parts, perhaps derived from Is Bittuleris cave. And at Final Bronze Age Su Asedazzu cave, cemetery style burials also occurred, but involving a relatively high proportion of sub-adults. Contrasts can also be drawn with mortuary deposits found in a recently excavated Giant's Tomb, located on the adjacent Taccu de Ticci plateau, which may have been reserved as a place for elite burial. Above all, this study shows that, despite the maintenance of a long-term tradition of cave burial, there were many socially- and ritually-conditioned choices in where and how to bury the dead in prehistoric Sardinia.

RI22 EGYPTIAN JEWELRY IN THE SOUTHERN LEVANT: TRACES OF 'HYBRIDIZATION' AT DEIR EL-BALAH?

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The archaeological finds from Deir el-Balah, one of the southernmost Egyptian outposts in Southern Levant, indicate a stable Egyptian presence over that region during the Late Bronze Age II (14th-13th centuries B.C.). The funerary assemblage from this period associated with the Deir el-Balah's Cemetery, include a rich jewelry collection, nowadays housed in the Israel Museum of Jerusalem. Among them two necklaces are of particular interest, being an example of a mutual exchange that shows an Egyptian fashion mixed with local elements. The raw materials of the assemblage, primarily carnelian stone and gold, as well as the style and the production techniques, point to an Egyptian commitment. How does the Egyptian culture reshape itself in the foreign environment of South Palestine? In order to answer this question, other examples of Egyptian jewelry discovered in Southern Levantine sites will be illustrated, alongside the collection of Deir el-Balah, taking into account Egyptian artifacts as well as Egyptian-style or Egyptianizing locally crafted objects. The analysis of these collections could help understanding the degree of hybridization between Egyptian communities and Southern Levant, as exemplified by jewelry, during the Late Bronze Age.

RI27 CERAMICS AND EUROPEANISATION IN THE WESTERN BALTIC SEA AREA C. 1000-1400 – A CASE STUDY FROM THE ISLAND OF FUNEN, DENMARK

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From the end of the Viking Age in the 11th century to the High Medieval period in the 13th-14th century the western Baltic Sea area saw fundamental socio-economic and cultural changes, e.g. urbanisation and professionalisation of crafts and trade, reflected in a new material culture. Thus, in Denmark ceramic production and consumption saw a radical change from household production of handmade, low-fired, coarse pottery of apparently limited functional and social significance, along

with only few imported wares, in the 11th century, to mass production of kiln-fired, wheel-thrown and glazed earthenwares, along with the presence of more imports, i.e. earthen- and stonewares from western Europe, in the 13th and 14th centuries. The emergence of this new ceramic culture has been associated with the cultural impact of Hanseatic mercantile dominance in the Baltic, in recent years leading to a discussion of the meaning of "Hanseatic culture". In Denmark, however, these aspects of interpretation have been almost absent in the ceramic research, which has been dominated by typo-chronological presentations of assemblages from individual sites. On the basis of finds from urban and rural sites on the island of Funen, Denmark, including new results from ICP-AES-analysis of the provenance of medieval grey- and redwares, the dating and social context of the transfer of western European ceramic technology and culture to Denmark will be discussed in this paper.

RI5 A RADICAL CULTURAL CHANGE IN THE NURAGIC SOCIETY BETWEEN THE FINAL BRONZE AGE AND THE FIRST IRON AGE (1000 CAL BC)

Giacomo Paglietti

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During the Middle-Late Bronze Age in the island of sardinia (western Mediterranean sea), an important civilization characterized by the building of stone towers called *nuraghi* is developed. From these 7000 about buildings, the nuragic culture is named. To this magnificence constructive a sobriety culture material opposes. Although the archaeological data shows the evidence of commercial contacts with the mycenaean/levantine traders, the local handicraft is poor and characterized by an absolute absence of figurative themes. For about 600 years this aniconic style accompanies the nuragic people life. In the last centuries of the 2nd millennium BC the constructive impetus ends and at the beginning of the first millennium - in the first Iron age - a radical cultural change happens. Many novelties about spirituality, technology are reflected by the architecture and the material culture. Several human and animal bronze figurines as *ex-voto*, jewelers and ships representation are made and all of these are found at the water sacred buildings. However, the persistence of some local productions, pottery in particular, shows us the probably slight introduction of these ideas in a local substratum. In this paper we are interested to investigate the possible origin of this different identity by comparing some sardinian handicraft with those of other parts of Europe.

RI7 CHILDREN IN THE NEOLITHIC: FROM FUNERARY CONTEXT TO SOCIO CULTURAL INTERPRETATION IN FRANCE FROM 5700 TO 2100 BC.

Melie Le Roy

PACEA

In France, during the Neolithic time period (5700-2100 BC), several cultural groups have been identified. They are mostly defined according to their set of artefacts. Funerary practices show major changes during this period. In the beginning of Neolithic burials were simple and gathered, following with monumentalisation and collectivization at the middle Neolithic, before becoming exclusive at the end of the Neolithic. The aim of this research is to focus on immature individuals within these various contexts (funerary practices, age distribution and spatial analysis) and to discuss the social status of young individuals within the society through the collected data.

A multi-scalar study, based on an inventory of 8124 settlements in France combines biological and archaeological data and includes a GIS analysis. This elaborated data base is designed to become an online collaborative platform.

Special attention is given to eight funerary sites dated respectively to middle Neolithic and to the end of Neolithic before their integration in the whole sample. Results document a specific spatial distribution of the immature individuals inside the funerary sites. Various funerary treatments are also identified on a larger scale, allowing the grouping of some sites both geographically and spatially. These differences seem to reflect breaking age at death linked to the social consideration of the immature deceased, from birth to adulthood.

RI5 COLLAPSE OR SOMETHING ELSE? SETTLEMENT PATTERNS IN THE EARLY BRONZE AGE IN SOUTH-WESTERN SLOVAKIA

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Settlement strategy and settlement structure belongs to hot topics in contemporary archaeological research. It is very much reflected by many regional projects and by the necessity of processing and evaluation of archaeological records via formalized methods using the computer technology.

This trend is also reflected in the presented contribution, which aims at studying the settlement patterns with the use of geographical information systems and statistical methods. The area of interest lies in south-western Slovakia and is bounded by the drainage basins of four main water flows – river Nitra, Hron, Ipel' and adjacent left bank of the Danube. Time frame of the paper is defined by the Early Bronze Age (ca 2300-1450 BC), in which we observe a presence of seven archaeological cultures in the studied territory.

The given spatial-temporal setting represents a laboratory, where it is possible to observe different interaction of man and its natural environment. Starting point of our analysis is a detailed knowledge of the settlement strategies in all four river basins.

Surprisingly, the differences do not appear among particular drainage basins (which are characterized by different natural conditions), but rather among individual site types – open settlements, fortified settlements and burial grounds. These findings were confronted with social-economical development and macrophysical climate model. This enabled us to state a collapse of the society at the end of the Early Bronze Age.

RI3 MULTI-RELATIONAL NETWORKS ACROSS SOUTHERN APPALACHIA, A.D. 700-1300: A COMMUNITY PERSPECTIVE

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Between A.D. 700 and 1300 across the Southern Appalachian region of North America, major social transformations were enacted including the centralization of political authority, the emergence of marked social inequality, and the establishment of an agriculturally based political economy and ceremonial complex. This paper explores the historical roots of these regional-scale transformations through the investigation of small-scale community dynamics and the relational networks within which community members were both embedded and through which wider social transformations were enacted on the ground. I focus on the multi-dimensional nature of social identity through analytical methods aimed at parsing out the varying forms of social identification engrained in pottery manufacture. I am concerned primarily with two dimensions of social identity: the interpersonal community of practice and networks of wider relational affiliations. Using methods rooted in metric and non-metric attribute analyses, thin-section petrography, and bulk-chemical analyses, the social composition and network dynamics at play within communities situated temporally at the cusp of large-scale social transformations are investigated. The identification and characterization of communities of practice are gleaned from technological attributes associated with the sharing of manufacturing skills between closely interacting potters. Stylistic characteristics, including more conspicuous design choices, are used here to track social signaling behaviors related to the expression of identities associated with participation in wider networks of political and economic affiliation across the region. In this way, the multi-dimensional nature of social identity is explored and the articulation between multi-relational networks, community composition, and large-scale social transformation is investigated.

RI31 DIFFERENT APPROACHES TO MANAGEMENT AND CONTROL OF BURIAL IN EARLY MIDDLE AGES (ILLUSTRATED BY THE EXAMPLE OF STRONGHOLD BŘECLAV-POHANSKO).

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Early medieval stronghold Břeclav-Pohansko with its two suburbs is situated in the southeastern part of Czech Republic. Between years 1958-2014 there were uncovered 1081 graves, which occurred in several funeral areas including two Christian church cemeteries. The first stone church in Břeclav-Pohansko was discovered inside the stronghold fortification. Around this church were explored 407 graves. The second church was situated at the northeastern suburb. In the surrounding of this church have been discovered 152 graves. Inside the stronghold and also at the both suburbs were uncovered small burial grounds belonging to the settlement areas. Another type of funeral zones are small groups of graves or just solitary graves dispersed between the settlement objects. Graves belonging to the church cemeteries and from burial grounds kept the same basic burial customs - stretched out position on backs, orientation SW-NE. The fundamental difference can be observed in their space organization. The space of churchyards was evidently systematic developed. There are defined areas for elite-burials, for children's burials and evidence of reverential manipulation with the disturbed skeleton relicts. For burial grounds we miss clear signs of such space structuring. It is clear, that in the same time here were applied two different burial strategies. The space organization and also the burial rites at the churchyards were arranged by persons authorized by the local elite supervised by Christian missionaries. Burial grounds evinced another kind of burial management. It was probably arranged under the auspices of „elders of the families“ from concrete settlement unit.

RI28 CHRISTIAN CARVED STONES FROM NORTH-WESTERN EUROPE: COMPARING SCOTLAND, IRELAND AND SWEDEN

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The early medieval period witnessed one of the deepest and most significant transformations in European societies with the spread of Christianity across north-western Europe. The emergence and establishment of Christianity not only altered the beliefs of people, but also facilitated shifts in power between secular and ecclesiastical elites. The use of carved stone as a medium is an important characteristic in northern societies; from the 5th century onwards, these monuments became prominent in the landscape, as objects of devotion and marks of political power. The use of stone monuments did not die out when Christianity first appeared; on the contrary, these stones were integrated into the expression of religious and secular identities.

Recent publications have demonstrated the close relationship between monuments and the elites that commissioned them. The act of erecting a stone, whether as a personal memorial, to record a historical event or a donation to the church, is a conscious

act of political statement and the analysis of the relationship between the patron and the beneficiary enlightens our understanding of these connections.

This paper will present new insights into the adoption of Christianity by exploring essential forms of social, political and religious expression in stones, in early medieval northern societies. The meaning of these sculptured stone monuments is inextricably linked to their landscape settings and place-names; questions about the use or reuse of these monuments and their political and ritual contexts will also be central.

RI7 FROM MEROVINGIAN TO PARISH CEMETERIES: AGE AND GENDER IN FUNERARY PRACTICES OF CHILDREN IN EARLY MIDDLE AGES

Emilie Perez

CNRS UMR 7264 : CULTURES AND ENVIRONMENTS, PREHISTORY, ANTIQUITY, MIDDLE AGES

From the 6th to the 12th century A.D. in Gaul, the progressive establishment of parish cemetery, characterized by the presence of a church, reflects a profound change in the social system of death organization. Demonstrating a new will to control death, the Church changed a mortuary ritual previously supported by the family in Merovingian burial grounds. In this context, the funerary practices of children evolve significantly. Age and gender affect the grave-goods deposit or graves' organization, as in parish cemeteries where infants and juvenile cluster around the church walls.

As age is a determinant of social behaviors, it can be seen in a biological and social dimension. Indeed, children are a specific group, characterized by fast growth associated with a childhood division into stages related to biological and cognitive development, sociocultural practices as social representations. However, the usual use of quinquennial age groups (0-1, 1-4, 5-9, 10-14, 15-19 years) to represent age distribution of children in osteoarchaeological analysis limits the observations, because this division is artificial and not representative of childhood in all ancient societies. Using hagiographic and normative sources, which highlight specific ages like 7, 12 and 14-15 years, I propose to apply a new method of distribution of children in "social" age groups, adapted for the Middle Ages (0-1, 1-2, 3-7, 8-12, 13-17 years). This study shows the essential role of age and gender in the life and death of medieval children.

RI16 INTANGIBLE CULTURAL HERITAGE IN MAURITANIA: SEDENTARISATION, ADAPTATION AND ONGOING REINVENTION

Leonora O'Brien

AECOM

This paper will explore the evolution, adaptation and reinvention of Mauritanian intangible cultural heritage in the context of increasing desertification and rapidly accelerating social change.

Mauritanian intangible heritage practices include living national languages; social structures and lifeways; written and oral poetry and songs; instrumental and sung music; oral culture and education; traditional games, popular wisdom and stories; traditional science and technology including desert plant medicine and agriculture in arid environments; housing; written knowledge, calligraphy and manuscripts; Islamic cosmology, theology, popular beliefs, liturgical and symbolic concepts; and knowledge systems associated with desert navigation.

The Moorish epic T'heydinn, performed by Griots accompanied by traditional instruments, was inscribed on the UNESCO List of Intangible Cultural Heritage in Need of Urgent Safeguarding in 2011. The country participates in UNESCO's 'Living Human Treasures' programme, striving to foster the transmission of skills to the next generation in the areas of traditional music and in the fishing practices of the Imraguen community.

Mauritania underwent a period of accelerated social change catalysed by the Sahelian Droughts of the early 1970s and mid-1980s, resulting in massive and ongoing cultural upheaval – extensive sedentarisation of nomadic pastoralists and sudden urbanisation. Cultural tourism initiatives supporting traditional lifeways, artisanal crafts and cultural industries established in the 1990s and 2000s are foundering due to rising militant insurgency in the Maghreb. Increasing industrialisation, regional environmental pressure and insecurity is giving rise to greater contact with other cultures, internal migrants and international workers. Intangible heritage practices are in flux, adjusting to cultural dislocation and transformation.

RI18 EASTERN CARPATHIANS DEPRESSIONS IN THE SECOND IRON AGE. THE EASTERN MARGINS OF THE CELTIC EXPANSION

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We propose to analyze the influences that Celts, coming from the Central European area, have had on the historical evolution of the northern Thracian population from the territory described, in IV-III centuries BC. The territory was maximum eastward expansion of newcomers, so that we can speak of a marginal space for them, superimposed on a background of northern Thracian culture specific materials present in the Carpathian-Danubian area.

Information about the presence (separately or in combination) of vestiges specific to the two populations is relevant in the attempt to understand the social relations between the two communities.

The research indicates that in the first half of the 4th c. BC, there were only funeral findings, whilst the discovered settlements date to the next phase. However, there were not identified yet evidence of a stage of destruction of native settlements then after coming allogeneous in the area.

The fact that sites with combined archeological material have been identified, with few exceptions, only close to the Mureş river drainage basin (river which flows West to Panonia) could indicate that valley as one of the directions of advancing eastward Latène culture bearers.

The existence of a larger number of native specific sites in depressions (especially fortress), in the same period, indicates the existence of local authorities able to keep newcomers at distance. The development of the region can be correlated to the elite involvement in the trade control through the mountain passes, with settlements in East and South of, then inhabited by Thracians.

RI9 TRADITION AND INNOVATION IN THE FUNERARY PRACTICE OF (PRE-) COLONIAL FRANCAVILLA MARITTIMA, CALABRIA

Martin Guggisberg

DEPARTEMENT ALTERTUMSWISSENSCHAFTEN

Thanks to intensive research over the last decades the Iron Age settlement of Francavilla Marittima has emerged as a site of major importance for the understanding of the pre- and early colonial exchange networks between the Eastern Mediterranean and the Italian peninsula in the early 1st millenium BC. Its huge cemetery on the Macchiabate plateau - despite being excavated only partly - underlines the important role led by the local aristocracy in this process. In the present paper attention will be drawn on various aspects of the funerary practice as well as on the grave architecture with specific regard to local traditions and external cultural influences starting from the new excavations in the necropolis by the University of Basel since 2009.

RI3 EARLY NEOLITHIC POTTERS ON THE ITALIAN MIDDLE ADRIATIC REGION

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This work presents the preliminary results of the study of the Ancient Neolithic (VI mill. a.C.) pottery production in the Marche region, Italy.

The main goal of this research is to expand the knowledge of pottery manufacturing processes associated to the typical Central Adriatic Impressed ware, at present poorly understood.

All sites under analysis are located in the piedmont hills of the Apennine Mountains, except one which is on the coast. This study aims to highlight synchronic and diachronic variability in pottery technology, to identify common traits and to investigate the raw materials selection and exploitation strategies.

The pottery assemblages are examined by means of an integrated approach which include techno-typological and archaeometric analyses. The environmental factors, the distribution of resources, the technology solutions taken by these ancient Neolithic communities will be considered.

RI37 IDENTITY & SYMBOL – THE PHENOMENON OF MINIATURE SWORDS AND WARRIOR IDENTITY IN THE YOUNGER BRONZE AGE

Jens Notroff

GERMAN ARCHAEOLOGICAL INSTITUTE

Bronze Age social stratification seems to draw massively on high ranking individuals institutionalizing force and sharing a collective identity of 'warriorhood'. During the Younger Bronze Age of Europe a major change within this social system seems to take place. The introduction of cremation burial confronts us with a differing mode of representation of this elite. With the new custom, the number of grave goods is reduced, especially metal ones like the swords characterizing the warrior elite. In Northern Central Europe and Southern Scandinavia this is accompanied by another local phenomenon: here the functional weapon is substituted by a detailed miniature version in burials. But contrary to older research opinion, these are not displacing their larger counterparts totally – more precisely both forms appear side by side in graves, the larger functional ones becoming noticeably rare, though. But when these are completely disappearing from burials in the course of Period V it also means the end of the miniature sword phenomenon. Apparently, the symbolic meaning of the sword is still present to create identity, but now not every warrior seems to have the power of control over his real weapon. While some still have the right to carry their weapon into the afterlife, others are buried with a symbolic sword only. Whether this does imply an ideological constituted differentiation of status should be examined in this paper.

RI33 THE SOCIAL PSYCHOLOGY OF IDENTIFICATION AND THE ARCHAEOLOGY OF COMMUNITIES

Jacob Lulewicz

UNIVERSITY OF GEORGIA

While physical boundaries are often employed as archaeological evidence for violence, ritual, and less commonly, as indicators of community formation, the actual mechanisms of community formation and group identification that are actively materialized in these boundaries has remains heavily under-theorized. Drawing upon ideas and concepts from social psychology concerning social identification and processes of categorization, this paper provides an alternative perspective to the interpretation of material boundaries and in turn to the archaeology of communities. These novel perspectives are employed in the interpretation of the emergence of palisaded villages across the Southern Appalachian region of North American between A.D. 800 and 1200. This period in the U.S. Southeast represents a time of drastic social transformation and mass settlement reorganization across the landscape related to the centralization of political authority, the emergence of marked social inequality, and the foundation of an agriculturally supported political and ritual economy. By lending consideration to the identity-forming properties of material boundaries, the primary onus of interpretation shifts from one concerned with functional explanations to one concerned with the discursive relationship between small-scale social groups and the material world. In this way, the emergence of palisaded villages across Southern Appalachia represents a reconfiguration of the means by which social identities were constructed and a reinterpretation of the community as a key relational element in the identification process.

RI38 'GENDER OF POWER' – THE FIRST GENDER: ICONOGRAPHY OF FIGURINES IN THE NEOLITHIC NEAR EAST

Estelle Orrelle

UNIVERSITY OF EAST LONDON/INDEPENDENT SCHOLAR

My paper addresses the iconography of artifacts of human images from the Neolithic of the Levant, commonly regarded as 'gods' and attempts to explain their unusual traits and in particular the sexless or dual sex characteristics. I propose that their particularly strange iconography can be understood from the predictions of a New Darwinian symbolic origins model. The model assumes that symbolic behavior was driven by conflicting male and female reproductive strategies and predicts that the first supernatural symbols were signaled by female hominid coalitions in their strategy of enlisting male reproductive effort. These symbols would be fused male/female, human/animal and red colored. The fused male/ female symbols are suggested to signal the first gender, the gender of power. The model further predicts that early gods will bear these characteristic traits.

I present a brief description of the hypothesis and an analysis of the iconography of figurines which reveal genital shapes used metaphorically to portray androgynous images as well as elements of therianthrope imagery and red pigment. The analysis shows that the material images of the Natufian and Neolithic in the Levant fit the evolutionary model closely.

The model provides a blue print for recognizing the supernatural cross-culturally in archaeological remains. The survival of these traits in god images of the Neolithic bears witness to the faithful transmission and extreme longevity of religious symbols.

RI8 CROSS-DRESSING AS AMAZONS IN ROMAN MILITARY CEREMONIES? THE CONUNDRUM OF HELMETS WITH FEMALE FACE-MASKS

Tomasz Dziurdzik

UNIVERSITY OF WARSAW

Among several dozen Roman helmets with face-masks, the shape of some specimen is rather unexpected: they depict female hairstyles and facial features. Covering the whole head of a wearer, they effectively allowed a soldier to adopt the visual appearance of the opposite sex.

Such equipment found use mostly in parades, displays, tournaments and other military ceremonies. A question arises of the meaning the cross-dressing had during those occasions. The explanations offered so far were based mostly on an interpretation of the helmets as depicting Amazons. It was proposed that they were used to distinguish two teams in tournaments ("Amazons" versus "Greeks") or that wearing a female mask had an apotropaic function. It was also suggested that a temporary adoption of a feminine warrior's appearance was believed to give the male wearer courage and power.

None of these interpretations seems convincing. The theory that the helmets depict Amazons is hardly sustainable, since many iconographic features differ from Roman representations of warrior women. Secondly, the existence of a group of helmets that mix feminine and masculine features makes any dichotomous interpretations obviously invalid. It will be argued that the true meaning and purpose of the helmets with female face-masks probably lies outside of their use as head protection that also changed the gender appearance of the wearer. A closer look on other possible uses of such equipment reveals that the issue of representation of sexes on military equipment is closely intertwined with social discourses of Romanization and military/civilian relations.

RI12 BODY MANIPULATIONS IN THE ENEOLITHIC CEMETERY FROM SULTANA-MALU ROSU (ROMANIA)

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The aim of this paper is to explore the special cases of burials with skeletons without skulls and/or other parts of the body, but also the secondary burials discovered at the Eneolithic cemetery of Sultana-Malu Roșu in Romania (ca. 5000-4000 cal. BC). The cemetery in discussion includes 84 inhumation graves investigated until now, most of them being regular graves (single primary burials). The secondary burials and skeletons without skulls represent a special situation in this cemetery. They demonstrated a complex process of manipulation of the human body in this community and the special perspective of the living members of society about the funerary ritual and the death of the individuals. Also, this kind of burials may reflect shared identities between the living and the dead, especially because some human anatomical elements (e.g. skulls, long bones, etc.) were found scattered in the area of the settlement who use this cemetery.

Our analysis will address the extent to which the collective perceptions of death affect the treatment received by the dead, causing some distinct archaeological situations. Also, we will explore the aspects regarding the individual, shared, and collective identities created by the living in this cemetery, in connection with similar finds from Balkan Eneolithic.

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RI30 MAKING BYZANTIUM UNDERSTOOD: RE-INTERPRETATION, REPRESENTATION, AND VALORISATION OF BYZANTINE ARCHAEOLOGICAL HERITAGE IN TURKEY

Ufuk Serin

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Making Byzantium accessible and understood by wider audiences formed the central idea for the research undertaken within the framework of Euromed Heritage III: Byzantium-Early Islam (ByzeIs) Project (2005-2008). Some of the issues dealt with in this project are further included into a broader, long-term research by the author aiming at establishing methods and guidelines for a better interpretation and representation of Byzantium and to foster awareness of this cultural heritage within Turkey.

This research is based upon two basic premises: First, only an affective awareness, understanding, and interpretation of the past can help encourage the need to conserve cultural heritage in a wider audience. Second, Byzantium needs to be re-interpreted and represented as part of an 'all-inclusive past' for the greater recognition of its values and better protection of its heritage.

This paper thus intends to investigate several different factors affecting the perception of Byzantium and the protection of its heritage. It also aims to explore the meaning of Byzantium for the Turkish beholder and the difficulties experienced by local communities in identifying with its concept and material culture. In this context, archaeological sites deserve particular attention, as they often remain more vulnerable and have less visual impact than buildings or building groups of the same period associated with, and incorporated into, contemporary urban spaces and functions. It is also the author's intention to focus on the gap between past and present by underlining the basic factors that hamper the development of this field of archaeology.

RI8 JUST FEMALES? APPLYING INTERSECTIONALITY TO THE STUDY OF PHOENICIAN AND PUNIC TERRACOTTA FIGURINES

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When studying terracotta figurines, their initial classification is traditionally by sex. Despite this is useful for most figurines, also raises a number of questions. First, certain images remain indeterminate, as the initial binary classification itself acts to limit a possible wider range of sex and gender identities. Second, even if we concentrate in images clearly classifiable as males or females, this option does not usually take into account the diversity of males and of females, i.e. the diversity of masculinities and femininities potentially constructed.

Taking this into account, in this communication we propose to analyse, applying the idea of intersectionality, a sample of 64 Phoenician and Punic terracotta representations of female musicians from the seventh to the second centuries BCE, from selected areas of the western Mediterranean, namely Iberia, Ibiza, and Carthage. We will discuss how gender, age and rank interact to construct several stereotyped femininities, acknowledging a diversity of models, ranging from single young females to mature high rank adult ones.

Besides, as there is a clear imbalance in what regards gender of the Phoenician and Punic terracotta representations of musicians, we will discuss some probable reasons behind this choice. We will defend that males are conspicuously absent and that this absence would be also interpreted as significant in terms of the construction of stereotyped masculinities.

RI33 PARIETAL ART IN THE FORMATION OF COMMUNITY IDENTITIES: EPISTEMOLOGICAL PERSPECTIVES ON LATE NEOLITHIC CLIFF PAINTINGS AS TERRITORIAL BOUNDARIES IN FINLAND

Karen Niskanen

UNIVERSITY OF OULU

This study of the late Neolithic-early Bronze Age in Finland reports on the role of monumental art in the process of community identity and network formation. Whereas most of the cliff paintings are associated with the hunter-gatherer communities of eastern Finland, there is little evidence of parietal art found in the west, where the shift to an agriculture economy began earlier. For a broader view of the distribution of social groups and identities, both locally and regionally, spatial analysis is used to describe the territories bounded by the parietal art.

RI10 FARMING FRONTIER MODELS IN EUROPE: A TYPOLOGY AND ASSESSMENT**Maxime Brami**

AUSTRIAN ACADEMY OF SCIENCES, OREA INSTITUTE FOR ORIENTAL AND EUROPEAN ARCHAEOLOGY

Ammerman and Cavalli-Sforza's idea (1984) of a moving frontier, advancing at a steady pace from the Near East into Europe, no longer stands to scrutiny. Current studies on site and radiocarbon date distributions indicate that the spread of farming was a non-linear process, involving phases of rapid expansion across vast landscapes alternating with remarkably long periods of stasis in key frontier regions, such as the Great Hungarian Plain. Although there is a broad agreement today about the existence of such chronological frontiers for Europe, the processes by which they came into being and were eventually bridged remain poorly understood.

The literature provides several explanations for this phenomenon, ranging between internal and external: (i) farming frontiers crystallized as a result of a loss of momentum in the Neolithic core (Guilaine's "arrhythmic phases") or regional population and societal collapses (Shennan *et al.*'s "busts"); conversely, (ii) farmers were held off by foragers in actual frontier zones, where initial cooperation between the two groups gradually turned to competition (Zvelebil and Rowley-Conwy's "availability"). Concepts of "primary", "secondary" and even "tertiary" neolithisation (Schier's "stages") belong to the latter framework. This paper will outline a preliminary typology of farming frontier models in Europe. The author's own research on a hypothetical 2,000-year lag in Neolithic occupation between Central Anatolia and the Aegean Basin will provide a background for a critical assessment of these models. What were the dynamics behind the formation of farming frontier zones in Europe? Which model fits the data best?

RI33 IDENTITY FORMATION THROUGH RITUAL PRACTICE IN LATE BRONZE AGE IRELAND**Katherine Leonard**

NATIONAL UNIVERSITY OF IRELAND, GALWAY

Identity is multi-dimensional, relational and non-static, but likewise may be expressed and perceived in very different ways depending on the audience and socio-cultural context. As it is thus a highly complex archaeological concept it must be deconstructed to enable a productive discussion.

Nevertheless, categorization is a tool necessary to unravel and analyze intricate and simultaneously disjointed archaeological data. This paper will investigate whether, not instead of, but in addition to broad categorizations, archaeologists can use the archaeological record to identify social roles within communities and 'cultures'. Through an examination of the use of material culture in formalized ritual practice the evidence for distinct social roles and processes of identity formation in Late Bronze Age Ireland will be discussed. This will demonstrate that by viewing prehistoric identities as multi-layered and complex we can move beyond simple categorizations and demonstrate that people in the past were multi-faceted beings.

RI22 APPROACHING HYBRIDATION THROUGH THE IRON AGE SACRED LANDSCAPES: CULT PLACES, MATERIAL CULTURE AND SOCIO-POLITICAL PROCESSES IN THE IBERIAN SOUTHEAST**Leticia Lopez-Mondejar**

UNIVERSITY OF MURCIA

Beyond some interesting studies focused on the transition to the Roman period, theoretical and archaeological approaches to hybridation processes during the Iron Age have been scarcely developed in the Iberian Peninsula and, in particular, in the Spanish southeast. This fact is especially striking since this region constitutes an interesting territory in order to analyse these issues. Its dynamic character, which led to a continuous contact with the Mediterranean world, and its location, close to the Punic and Roman city of Cartagena, implied the convergence of traditional and new cultural elements in these territories. Those were expressed in the archaeological record of the local communities and especially in their cult places, which played a key territorial and socio-political role during this period.

The aim of this paper is to examine, through the analysis of the archaeological record of those communities, the process of appropriation and reformulation of Mediterranean elements by the Iberian societies and how the local elites took advantage of them in order to consolidate their socio-political role within the community. The cult places of this area will be key spaces to approach that process since they offer a wide and interesting archaeological record which, however, has not been examined from this perspective by the previous studies developed in this region. In order to achieve our aim different aspects will be

addressed such as the material culture of those sites, their architectural remains, the models of representation of the elite and the divinities and the rituals documented in these spaces.

RI11 NEIGHBOURLINESS: AN ARCHAEOLOGICAL APPROACH TO URBAN BONDING

Brian Durham

UNIVERSITY OF OXFORD

Whatever threat can be thrown at a human biological family by nature and by the elements, none compares with the challenges of living comfortably in ever closer proximity to our peers. Walls protect us from the elements, but 'fences' in all their guises insulate us from our neighbours.

The socialising process is ongoing - this is still not a happy world. If however the 'big bang' in co-residence was the transition from hunter gatherer to settler, the next step-change would be urbanisation. Urban life had probably started in Britain before its annexation into the Roman world, but it collapsed when that economic template was withdrawn. This paper therefore proposes that the 'civilising process' can be studied in microcosm with the appearance of 'England' from the demise of Rome.

The present study benefits from Britain's island geography, its tradition of introspection, and from a residue of primitive reference material surviving in Wales and Scotland (!). The issues are approached from the perspectives of: medieval law codes; literature; physical boundaries in medieval Oxford; and physical exchange across residential boundaries in English and Norwegian communities. Reference is also made to the London Assize of Nuisance (AD 1212) for resolving neighbour disputes, which is the foundation of party wall legislation in the UK and wider.

The paper draws tentative conclusions for the role of 'neighbourliness' in the survival of the town itself.

RI38 MEN RAISED TO THE POWER BY WOMEN. THE CASE OF THE TARQUINIUS DYNASTY

Desirè Di Giuliomaria

ITALIAN ARCHAEOLOGICAL SCHOOL OF ATHENS

Dotata animi mulier virum regit, currently translated with 'behind every great man there is a great woman'. My paper will examine the rise to the regal power in Rome of the Tarquinius dynasty, skilfully driven by their women. It will analyze in-depth the attitude of Tanquil, the Etruscan wife of Tarquinius Priscus and the actions of her granddaughter, Tullia Minor, who married illicitly Tarquinius Superbus, yearning for the power. Since the inheritance procedure in Rome did not accept the same family on the throne for two consecutive times, in order to prevent the supremacy on Rome by one *gens*, Tanaquil adopted Servius Tullius, who had servile origins, educating him as tutor of the Tarquinius power. The annalistic sources recount a mythical version, too, about the Servius' rise, according to which the goddess *Fortuna* fell in love with him and chose him as her human lover, raising him to the regal power. The bond between the *rex* and the goddess is proved by the dedication of several temples to *Fortuna* in Rome, and the major archaeological evidence is at the *Forum Boarium* in the Sant'Omobono sacred area. The target of my paper is not only to remark how the power of the last three Roman kings was directly obtained by their women, but mostly, to examine what had to be the conception of the royalty steamed from a woman, both human and goddess and the feminine value involved into the construction of the tyrannical and monarchic regimes.

RI13 BRONZE AGE CAVEMEN IN SOUTHERN BELGIUM: ABANDONED, BURIED OR SACRIFICED?

Eugene Warmenbol

UNIVERSITE LIBRE DE BRUXELLES

Several caves in Southern Belgium have produced human bones radiocarbon-dated to the Late Bronze Age. The main sites are the "Trou del Leuve" in Sinsin (Namur), the "Grotte de la Wamme" in Jemelle (Namur) and the "Roche Albéric" in Couvin (Namur). Most of the finds were made in the 19th century and/or by amateurs or speleologists, but there are obvious similarities between the different sites. We always deal with non-incinerated remains, while the normal proceeding with the dead in this area, is to burn them and put their remains in an urn. The Late Bronze Age levels in Sinsin, and to a lesser degree in Jemelle, are, according to Belgian "norms" extremely rich in metal objects, including some gold artefacts. The Sinsin finds were first interpreted as the remains of a collective elite burial (a "druid", actually, but this was 1884), but the latest (re)discoveries seem to point in another direction, at least for some of these. We will be reconfiguring the identities of these dead at least. And not miss the opportunity to discuss the Heathery Burn finds, which have produced some clues...

RI3 CAPTURING TECHNOLOGICAL VARIABILITY: A CASE OF THE NEOLITHIC SETTLEMENT AT BYLANY (CZECH REPUBLIC)

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¹INSTITUTE OF ARCHAEOLOGY CAS, PRAGUE, ²DEPARTMENT OF ARCHAEOLOGY UHK

The paper presents the development of the technological analysis of pottery on the large Neolithic settlement at Bylany (Czech Republic). The aim of the study is to identify technological chains and interpret the technological variability as a materialisation of social networks. Technological variability is studied in relation to the chronological and spatial diversity of the settlement areas. The approach is based on visual examination of macroscopic features coupled with a validation of the observed phenomena by microscopic analysis. The analysis is focused not only on defining technologically distinctive groups of pottery

but also on revealing the nature of these groups. For this reason, the emphasis is placed on the quantification of observed phenomena. Until recently, a complex quantitative analysis was not imaginable without enormous time consuming effort, so the traditional classificatory approach masking the nature of the technological variability and inhibiting the analysis of its dynamics has been at least partially dictated by the nature of analytical techniques. The development of techniques of automated image and SEM-EDS analysis brings new possibilities for understanding the nature of the technological variability. It allows us to locate pottery samples in the multidimensional space of relevant variables and to interpret where intentions and accents of potters were in terms of technological behaviour.

RI13 COLLECTIVE CAVE-BURIALS IN THE LATE NEOLITHIC OF SOUTHERN BELGIUM: A STATUS QUAECTIONIS

Eugene Warmenbol

UNIVERITE LIBRE DE BRUXELLES

Recent work on Late Neolithic cave-burials in Southern Belgium, including the reassessment of older finds such as the "Grotte de Porte Aïve" in Hotton (Luxembourg) or the Galerie de la Grande Fontaine in Han-sur-Lesse (Namur), produced a wealth of new data, including a large number on radiocarbon dates taken directly on the human bones. We can thus step down from the all too systematic description of these burials as pertaining to the "Seine-Oise-Marne culture". Matters are a lot more complex than that. We can distinguish now, following Laure Salanova, a "Néolithique récent" from a "Néolithique final", with a "Néolithique final 2" producing the first Bell Beakers. Our central questions will be, now chronology has been dealt with: "why caves?", and "when?"...

RI31 ARNOS VALE CEMETERY, SOUTH BRISTOL: A CEMETERY OF CEMETERIES. AN EXPLORATION INTO THE EXECUTION AND MANAGEMENT OF AN EVOLVING LANDSCAPE OF BURIAL AND CREMATION IN A VICTORIAN GARDEN CEMETERY.

Lindsay Udall

UNIVERSITY OF BRISTOL

Established by Act of Parliament in 1837, Arnos Vale Cemetery is the most striking of a trio of West Country cemeteries (Exeter Bristol and Bath). Its profile has risen dramatically in light of its recent restoration and remains an active cemetery today, still receiving interments regularly. Drawing on Worpole's 2003 chronology of cemetery typology, this paper intends to demonstrate how some of those later historical period styles from Arcadia to Lawn and beyond, were manifested and can be traced within the confines of this extensive Bristol Cemetery alone, and how this spatial network of burial and disposal was orchestrated and managed. This can be seen through the exploration of the Cemetery Company itself, architect Charles Underwood, the cemetery superintendents, purchasers of plots and associated mourners/visitors. This combined involvement in management of the decision making process together with the physical designation of varying types of burial and disposal distribution within the topography, creates a unique set of circumstances to each site of these original Victorian Garden Cemeteries. Transitioning through these styles and influences across 175 years of Arnos Vale's history, the paper shall also investigate issues such as the absorption of another cemetery from within the city as it redeveloped during the Industrial Revolution, to the site's later role as early form of military cemetery. Finally, its changing role over time in response to the needs of employees (live in and live out) and the local community shall be considered, showing how its roles went beyond that of a mere cemetery.

RI9 THE ADRIATIC FUNERAL PARTY. EXPLORING EARLY BRONZE AGE SHARED IDENTITIES THROUGH SEABORNE AND LANDBORNE INTERTWINING NETWORKS

Maja Gori

UNIVERSITY OF AMSTERDAM

In the Early Bronze Age Adriatic seaborne networks were intertwined to landborne ones to such an extent that it is not possible to consider them separately. Connections of the Dalmatian Cetina group with Albania, Italy and Greece are well known. In Olympia, gray Minyan ware is decorated with Cetina motives close to those present on vessels in Rutigliano (Italy) and is utilized in manufacturing shapes unknown in Greek repertoire, as e.g. the "Balkan type" kantharoi. The frequent use of Balkan Belotic Bela Crkva vessels as grave-goods principally in burials under barrows (Serbia) corroborates the existence of a system of shared values and beliefs in which prehistoric communities belonging to different cultural circles participated. Similarly, Cetina vessels are used as grave-goods in both tumuli (Croatia and Albania) and chamber graves (Italy). The diffusion of Belotic Bela Crkva and Cetina types and the hybridisation of different pottery traditions are well-recognized phenomena in the eastern Mediterranean. In this paper it is argued that these sometimes overlapping ceramic networks primarily recognized in funerary contexts but also in settlements reflect a system of shared values and practices connecting elites belonging to distant communities.

RI32 INDIVIDUAL LEWELWOLDS AND STRUCTURED SOCIETIES IN MEROVINGIAN SETTLEMENTS FROM THE MUNICH GAVEL PLAIN? – A CASE STUDY

Doris Gutmiedl-Schumann

UNIVERSITY OF BONN, PRE- AND EARLY HISTORICAL ARCHAEOLOGY

Cemeteries and graves from the Merovingian Period are for the Munich gravel plain well known as archaeological source: These graves are often richly furnished with non-organic parts of the cloth, weapons and jewelry, tools and other objects. Furthermore these respective grave goods show a close connection to the buried person, and can be connected to main aspects of the deceased's lifeworld. The analysis of many graves with and without grave goods can show aspects of a structured society in this rural area, for which we also have hints in the written sources.

Settlements in general are not as well known for Merovingian times as graves and cemeteries, but in the same area, the Munich gravel plain, also some Merovingian houses, farms and settlements had been excavated, and some of them had been recently published.

With this paper the following questions shall be addressed: Which signs of individual lifeworlds and/or structured societies can archaeologically be proved in the Merovingian settlements of the Munich gravel plain? Show settlements and graves the same aspects of individual lifeworlds and structured societies – including aspects of social agency / interaction between the small unit of the farm and the greater unit of the society? What can they tell us in comparison with the contemporary written sources?

RI38 BENE MERENTI: BEYOND A LATIN EPIGRAPHIC FORMULA SHOWING MALE AND FEMALE IDENTITY

Kori Thompson

WICHITA STATE UNIVERSITY

Conventional epigraphical theory holds that the chosen rhetoric and biographical information revealed within Latin epitaphs demonstrate the social stratification of ancient Mediterranean areas and their controlled peripheral outposts. However, contemporary scholars conclude that due to the epithet *bene merens'* frequency, it serves only to function as a generic epigraphical formula. Analysis drawn from Latin literature, popular Roman entertainment genres, and epitaphs reveal an alternative understanding that while *bene merens* is inherently masculine in nature within Latin literature, when applied to women in a funerary setting it transforms into a distinctly feminine virtue highlighting identity and social positions of Roman women.

RI14 SHARED IDENTITIES IN MEDIEVAL IBERIA: A REVISION OF THE ENMITY OF THE 'RECONQUISTA' THROUGH THE MATERIALITY OF TEXTILES AND OTHER SETS OF MATERIAL CULTURE.

Mikel Herran Subiñas

UNIVERSITY COLLEGE LONDON – QATAR

In the Iberian peninsula, during the medieval period, the so-called 'Reconquista' established a moving frontier which traditionally divided Muslims and Christians. However, an exchange of ideas and goods between both was present through shared patterns of exchange and consumption which made relations, not always of rivalry, emerge and be reflected upon material culture. What was seen as a firm boundary was permeable. Andalusian silks and other textiles, often containing inscriptions with praises to Allah, can be found in the burials of bishops and noblemen of the Christian kingdoms, and interactions and exchanges of what we may see as 'conflicting' ideologies were abundant. This has traditionally been studied as an appropriation or display of dominion over the 'Other'. However, the abundance of elements of what could be deemed as foreign culture in elite contexts and also in lower levels of the social ladder, suggests that, through consumption, these parted from being understood as exotic and became imbricated in the identity of different social groups. Conflict was a part of the relationships between the different communities in Medieval Iberia, and political and religious separation was surely present; however, shared elements of material culture that expressed a non-religious identity helped developing points of understanding, ultimately forging identities that, though they appealed to the different religious groups in the region, made them appear different to Christians or Muslims in other areas.

RI25 GREATER POLAND IN MIDDLE AGES - SOCIETY AND DYNASTY IN THE CONTEXT OF THE ORIGIN AND ETHNICITY.

Anna Burmistrz

ADAM MICKIEWICZ UNIVERSITY IN POZNAŃ

The aim of this paper is to present you new project that is currently implemented in Greater Poland. In the Middle Ages this region of Poland was the center of all country-making events, the chroniclers wrote about Poland being built from there, also the residence of the Piast Dynasty had its place in there. The main objective of that project is to answer questions important to the Polish and European history, like the origin of the Piast Dynasty and the Piast state's elites in 10th century- whether they were descended from local people or if they were outlanders. The project focuses on few different aspects but the main remains the same – where did they come from? In Poland it is still very controversial subject, therefore our studies performed within the project are going to be based not only on excavations and archaeological analysis but with the use of standard methods of physical anthropology and modern bioarchaeological techniques, including the analysis of the fossil DNA. We plan multidimensional and interdisciplinary (historical, archaeological, anthropological, genetic and genomic) studies of populations inhabiting the territory of the present – day Greater Poland.

With my paper I would like to present the wide spectrum of our objectives and talk about details of used methods and current results.

RI5 NEW TECHNOLOGIES AS TURNING POINT: THE CASE OF METALLURGY IN EASTERN SICILY

Andrea Vianello

INDEPENDENT RESEARCHER

The discovery or arrival of new technologies can reshape societies and provoke sudden changes in the organisation of any society. I shall consider briefly the impact that the introduction of new technologies have had on human society in attempt to identify some key patterns. The plough, the potter's wheel, metals and other technologies from prehistory will be reviewed along with some evidence from our own modern technological societies. The resulting conclusions should demonstrate that as technology enables people to be more productive in some tasks, it often makes possible previously unachievable activities and allows societies to grow both in size and in complexity.

Metallurgy has traditionally defined the prehistoric ages and it is still considered one of the key agents in Bronze Age exchanges. The time gap between actual introduction and the appearance or at least maturity of long distance exchange networks has often prevented the determination of any direct correlation, leaving this as an assumption rarely tested. Long distance trade networks however seem able to develop while the products exchanged vary in time, and therefore a causal relationship between technology and exchanges seems unlikely. The case of eastern Sicily is rare in Europe, because there the steady arrival of metallurgy coincides with the peak of trade networks. This presentation will focus on that case study trying to test this relationship and reveal the combined effects of new technologies and increased contacts in that society. For sure that time was a turning point for Sicily.

RI7 BURYING CHILDREN AND INFANTS AT KADRUKA 23: NEW INSIGHTS INTO JUVENILE IDENTITY AND DISPOSAL OF THE DEAD IN THE NUBIAN NEOLITHIC

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Kadruka 23 is a relatively undisturbed funerary mound located in the Northern state of Sudan, dating to approximately the mid-5th millennium, also known as the Nubian middle-Neolithic. Our project consists of a continuation of Jacques Reinold's research on burial sites between the third and fourth cataract of the Nile River, and as such seeks to improve the comprehension of these sites and the data we garner from them. Begun in 2014, our excavations have already brought to light nearly 40 burials, a majority of which belongs to juvenile subjects. A concentration and seemingly codified treatment of very young individuals has already appeared. With the knowledge that such practices have been observed elsewhere, this is a topic of inquiry we wish to develop in further detail. The demarcation of the very young deceased is underscored by several phenomena. We have remarked a preferential placement within the cemetery, at the top of the mound, the association of mortuary goods not found with older individuals (bead waistbands, ceramic and shell spoons, etc.), the placement of ceramics always slightly above the burial level, as well as a variety of positions, not seen in the significantly more codified disposal of the older deceased. Our aim is to improve comprehension of the identity of the young dead, and their place in society before and after death.

RI3 AND THE POTS THEY ARE A CHANGIN' – POTTERY TECHNOLOGY AND STYLE FROM LBK TO SBK. A CASE STUDY FROM EYTHRA/SAXONY (GERMANY)

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Excavations in Eythra, co. Leipzig/Saxony (Germany), revealed a huge settlement area of the Linear Pottery and Stroke Pottery Cultures (LBK and SBK), dating approx. from 5300 – 4500 BC. This long settlement duration is ideal for studies on cultural change, such as the questions of continuous versus discontinuous or contemporaneous versus non-contemporaneous change in different categories or attributes of material culture. The latter is connected with the notion of agency and the question of what aspects of material culture are allowed to change.

Within the Eythra-Project the typo-chronological as well as the technological changes of the ceramics are studied with special emphasis on the changes from the Oldest to the Older LBK, from the Younger LBK to the Early SBK and finally to the Late SBK. The scientific methods employed are micro-XRF to grasp the technological development (changes in temper and temper ratio) and trace element studies (ICP-MS) to establish the use of different clay recipes. Evidence for changes in the ceramic technology as well as in the clay "recipes" has been detected.

The final results of the technological analysis will be presented and discussed as well as their impact on further interpretations of continuity and change in pottery technology and style of Early Neolithic Eythra.

RI20 ARCHBISHOP'S PALACES AS ZONES OF POWER AND SOCIAL CONTROL

Sæbjørg Walaker Nordeide

UNIVERSITY OF BERGEN

The Nidaros archbishop's seat was established in Trondheim in 1152/53. From the 13th century onwards, the king's main residences moved further south, and from the end of the 14th century, the main royal residence of the Kalmar union (Norway, Denmark, Sweden) was situated in Denmark. The archbishop was from now on among the secular elite in Norway as well, eventually even chairing the national council. From the end of the 15th century, the archbishop was striving for even more power, establishing among others a mint and a marine, both with strong symbolic, national connotations. During this period he had his palace re-constructed, and towards the Reformation in 1537 he had a new castle constructed too. Large-scale excavations in a couple of the archbishop's residences at the end of 19th and the 20th century have revealed evidence that in several ways demonstrates how the residence contributed to the archbishop's social control and power. Analyses of artefacts, architecture, botanical and zoological remains, as well as location in the townscape and landscape, have proved important to understand the residences as social arenas, where status and power could be demonstrated and maintained in each part of the palace for more or less every minute of the day. This paper will present the sites as examples of national centres of power.

RI33 WHAT OTHERS CAN SEE: VARIABILITY, STYLE, AND COMMUNITY IN LATE NEOLITHIC NORTHERN GREECE

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A site's ceramic style is typically defined by its frequently recurring patterns. Within the newly dense Late Neolithic landscape, these distinctive combinations of shape, technology and decoration form a product that distinguishes settlements from one another; both to archaeologists and presumably to the inhabitants. However, the variability within those dominant patterns as well as the vessels that fall outside of those patterns also form pieces of valuable information. Given that this variability may be tied to the many ways that identity can be formed and expressed, both on the conscious and unconscious levels, the variability in ceramic assemblages may allow us to query the strength or nature of the community relations that produced and consumed them. To respect the complex interplay of processes that combine to create a style, a combination of quantitative and qualitative methods are used. Two case studies, one from the area of Thessaloniki and the other from the area of Kozani, will be presented to discuss whether we can distinguish discursive or non-discursive differentiation and identification.

RI7 UNEARTHING MEDIEVAL CHILDREN: CULTURAL AND BIOLOGICAL MARKERS OF STATUS

Heidi Dawson

UNIVERSITY OF BRISTOL

This paper attempts to explore perceptions of the status of children in late medieval England (AD 1086-1540) utilising a range of sources designed to link the cultural evidence, from historical sources and archaeological evidence to the biological aspects from the analysis of skeletal remains from the period. Although medieval burial practice is fairly homogenous there are subtle variations in location, positioning and grave inclusions that are apparent, and which will have a relationship to the status of the buried individual. Evidence from the archaeological excavation of three medieval priory cemeteries will be compared to the osteological evidence for the developmental (age at death) and health status of the buried individuals to determine how children were treated in death and whether their treatment differs to that of the adult population. The three priory cemeteries investigated (SS Peter and Paul, Taunton, Somerset, St Oswald, Gloucester, Gloucestershire, and St Gregory, Canterbury, Kent) all contain burials of the local lay community. Research has shown a difference in preference for burial positioning of children, mostly supine with arms laid by their sides, with occasional flexed burials for young infants. The burial of two individuals in the same grave is also in evidence for child but not adult individuals, and the burial of neonatal remains in communal pits is also a feature at one site. At two of the sites some children were afforded more intricate burials than some of the adults indicating that status is not necessarily attributed to age alone.

RI15 WERE THE GODS INCONSEQUENTIAL? ... A PLACE FOR THE 'DIVINE' IN THE CONSTRUCTION OF BEAKER IDENTITIES'

Thor McVeigh

NATIONAL UNIVERSITY OF IRELAND GALWAY

The possible impact of changing cosmological beliefs upon the formation of identities during the Late Neolithic to Early Bronze Age transition is often downplayed. Furthermore, conceptions of the role of deities and their relationship with the enactment of cosmological beliefs during the 3rd Millennium BC do not appear to have been heavily explored. This paper proposes that changing "cultic" roles of deities could have had a significant impact on how particular forms of identity were negotiated following the emergence of the 'Beaker Phenomenon' in Western Europe. It is argued that some aspects of the regional variance in the communication of cosmological ideas during the Neolithic and the integration of the Beaker Phenomenon into, or replacement of, pre-existing belief systems may be explained by particular deities having had greater importance within

particular regions. Additionally, elements of regional continuity and change as manifest in the “burial sphere” following the emergence of the Beaker horizon may be connected with the changing importance or relative statuses of deities in the communication of cosmological beliefs. Here it is proposed that the “cultic” role or importance of deities within a pre-existing pantheon were altered in the context of the genesis of the Beaker Phenomenon. It is argued that these changes had a close relationship with the way in which the identities of some individuals were constructed or negotiated in death. It is proposed that a particular manifestation of this connection may be apparent in the archery symbolism of the “Beaker Package”.

RI25 THE CHANGING ROLE OF THE BOYNE VALLEY IN THE FORMATION OF GROUP IDENTITIES C.3000-2000 BC

Thor McVeigh

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This paper explores the changing importance of the Boyne Valley Co. Meath, eastern Ireland, in the construction and negotiation of group identities over the course of the 3rd millennium BC. The construction of substantial passage tombs at Dowth, Knowth and Newgrange appears to single the Boyne Valley out as a particularly important arena for the conception and mediation of group identities. Profound associations appear to exist between these monuments, calendrical structures, seasonal changes, cosmology, and a combination of the daily and yearly solar cycles. In this context large-scale gatherings with a particular emphasis on the winter solstice and eternal “re-birth of the sun” appear to have been central. The continued importance of both these cosmological ideas and group aggregation within the Boyne Valley appears to have continued following the dissemination of Grooved Ware (c.2800 cal. BC). The construction of timber and earthen enclosures, and evidence for large-scale winter solstice feasting appears to signal continued significance in the formation of group identities until the mid-3rd millennium BC. At this stage the appearance of the “Beaker Phenomenon” in the Boyne Valley, appears to have impacted on the region’s role in the mediation of group identities, but its relevance continued for a period. However, the expansion and transformation of communication patterns and the rise of metal prospection in south-western Ireland may have ultimately resulted in the demise of the Boyne Valley’s influence and by the final centuries of the millennium the its role in the construction of group identities appears to have ceased.

RI37 DEFINING IDENTITIES: THE LOMBARDS’ SOCIETY IN PANNONIA.

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During their long migration from Scandinavia to Italy the Lombards established for about 40 years in Pannonia along the Danube River. Here, with Franks people at west, Gepids and Slavs at east, and many autochthonous people of roman tradition, the Lombards feel threatened in their political, cultural and social independence. Their society was still heterogeneous and various, and, to keep their political unit, they had to developed a more homogeneous material culture, through the share of different customs. This development has a reflection in the funerary practices. Since no independent Lombard’s settlement is archaeologically known before they settled in Italy, the cemeteries are the only source of knowledge of their material culture and society in that phase. The study and the analysis of burial customs of those sites are essential to understand how they developed their identity and material culture.

Here will be analysed the cemeteries of Rohrendorf (Austria), Kajdacs and Tamasi (Hungary), placed along the area where they settled, respectively in the places of first and last settlement in Pannonia before they leave for Italy. These sites, as well as illustrating the more important methodological problems of this type of approach, present the starting point and the further developments of Lombards’ culture, and allow to draw some conclusions about the development of ethnic identity of this people, that will have his peak in Italy between VI and VII century.

RI17 MULTIPLE IDENTITIES IN THE SEPULCRES DE FOSSA CULTURE (NORTH-EASTERN IBERIAN PENINSULA, 4300-3500 CAL. BC)? THE CONFRONTATION OF ARCHAEOLOGICAL AND BIOLOGICAL DATA FROM THE BÒBILA MADURELL-CAN GAMBÚS BURIAL COMPLEX

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In most cultures, one of the purposes of mortuary practices is the expression of social identity. Although this aspect has for a long time been restricted to the theoretical domain, biological analyses now help us to apprehend the different dimensions of what L. Binford defined as *social persona* (age, sex, condition of death, social position, etc.). The question of social identity is thus at the heart of the actual researches carried out on the *Sepulcres de fossa* culture (north-eastern Iberian Peninsula, 4300-3500 cal. BC). The Bòbila Madurell-Can Gambús burial complex (Vallès Occidental) gathers approximately 170 single graves divided into four clusters of variable density and roughly distributed along an axis of about 1300 m. One of the main issues concerning this site is the relationship between these clusters: were these simultaneous or successive? Did they comprise a single community, several social classes or different populations? Were they dedicated to different categories of mortuary treatments? First observations in regard to the organization of burial deposits suggest that funerary practices were homogeneous throughout the north-east of the Iberian Peninsula. By confronting the results obtained from taphonomic and anthropological analyses carried out on the case study of the Bòbila Madurell-Can Gambús burial complex, we propose to re-

examine the deceased from a biological point of view. This confrontation may allow us to test the assumed homogeneity of mortuary treatment and discuss the relationships between biological and funerary identities within this population.

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RI17 ROMANS D'ISONZO, A LOMBARD SETTLEMENT IN THE NORTH EAST ITALY: BIO-ARCHAEOLOGICAL APPROACH.

Dario Innocenti

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Discovered in 1986, the early-medieval cemetery of Romans d'Isonzo (Friuli Venezia Giulia, Italy), is composed by over 350 burials. The first area, investigated in 1986, returned some graves characterized by weapons of Germanic type. From this first finding this site has been identified as a Lombard necropolis. Despite that, the big number of graves without grave goods suggest a different interpretation for this necropolis. Using a bio-archaeological approach I tried to verify the theories proposed. The study is preliminary, focused on 90 subjects, and is based on the following methods: taphonomy, sex determination, age of death, morphometric methodologies, occupational and stress markers, paleonutritional methodologies, dental analysis and paleopathology. The obtained data show a very homogeneous population of this necropolis. From this evidence, I propose the hypothesis that the individuals here analysed belong to a group of indigenous people and not to a non-native population engaged in migration movement. The current studies on all other skeletal remains seem to support this hypothesis.

RI15 WEDGE TOMBS: A MID-3RD MILLENNIUM BUILDING BOOM?

Ros Ó Maoldúin

NUI GALWAY

Since wedge tombs were identified as a distinct class of monument, the question of their origin has been central to opposing narratives of the Irish Late Neolithic and Early Bronze Age. Some authors have argued that their origin lies in Brittany, whereas others have argued for a solely indigenous development. It is a debate that is intertwined with those on the origins of the Beaker phenomenon and metallurgy, and one that has arguably been overly influenced by shifting theoretical paradigms, but on which the standard textbooks are still largely equivocal. From the dating evidence available, the construction of wedge tombs appears to have begun during the mid-3rd millennium BC, several hundred years after the construction of other megalithic tombs, and at a time when novel artefact forms and technologies arrived in Ireland, and exchange networks were radically reorganised. This paper will consider afresh the evidence for the origin and stimulus behind wedge tombs, and asks how, and in what ways, the communities who built wedge tombs were connected with the wider mid-3rd millennium north-western Atlantic world.

RI24 THE PRACTICE OF EVERYDAY'S IDENTITY IN ROMAN PHRYGIA

Ute Kelp

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As in many parts of the Roman Empire we observe also in Roman Phrygia indications for multiple identities. Being mostly part of the Roman provinces of Asia and Galatia the former Phrygian territories display urban development and regional differentiation during the first to third century AD, and through the course of reshaping the administrative units in the third century AD Phrygia re-emerges as a province. Cities in Roman Phrygia may refer to a Greek (meaning Ionian, Dorian, etc.), occasionally Roman and sometimes Phrygian decent testified for instance by local heroes or cults. Myth and cult offered convenient categories within which to express a local identity. But how does this work in practice, especially given the limited scope of provincials and the pronounced contrast between Barbarian and Greek in ancient attitudes?

The remaining bits and pieces of evidence come very often out of context and show more the results than the actions that led to their creation. Left with the necessity to re-contextualize material culture and aiming to explain the meaning of so-called provincial art it helps to envision such actions. Benefitting from Michel De Certeau's main focus on the practice of everyday life and disadvantaged social groups a useful concept has been deduced to understand the functioning of ancient societies. In my paper I want to apply his notions of >strategies< and >tactics< to the situation in Roman Phrygia to develop an idea of how to imagine the social mechanisms leading to the integration of multiple identities.

RI29 LIBERATING THE LOCK-UP: EXCAVATIONS AT NEW BAILEY PRISON, SALFORD, GREATER MANCHESTER

Rachael Reader

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In 2013, the Centre for Applied Archaeology (CfAA) was commissioned to carry out a programme of archaeological works in advance of redevelopment in central Salford, near Manchester, England. Excavations have revealed the well preserved remains of New Bailey Prison, which stood on the banks of the River Irwell in Salford between 1787 and 1872 and was once the largest prison in England. It served as the main house of correction for the Salford Hundred during this time as well as housing the Magistrates Court for the area. This paper focuses on the results of the excavations so far, initial study into the

wider context of the site and future research directions. Further investigation carried out in conjunction with the excavations has revealed that New Bailey was constructed at a time of great social reform and was one of the first based on John Howard's principles. During the prison's c.80 year history, there were conflicting opinions on how to prevent crime and punish those who committed them. This ultimately forced changes in legislation and the discipline systems enacted in prisons, with New Bailey being no exception. The excavations have also offered a chance to examine New Bailey's role in Industrial Manchester and the people who were imprisoned within its walls. This work has highlighted the importance of this largely forgotten site and the role it played within a wider historical and social context.

RI1 THE ROLE OF SUNKEN-FLOORED BUILDINGS IN LBK FARMSTEAD.

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UNIVERSITY OF GDANSK

Research into the development of LBK villages rarely focuses on those features which can be interpreted as sunken-floored buildings. The aim of this article is to draw attention to the presence of this type of feature and to analyse its significance in the context of village development based on several examples of LBK sites excavated in Lesser Poland.

We believe that in many instances analysing the locations of sunken-floored buildings and their diversity in terms of their potential functions can lead to the identification of domestic/kitchen zones that centred around these features. Their location in the vicinity of longhouses, traces of fire, and the presence of pottery sherds and grain remains may point to the fact that sunken-floored buildings served as an important additional ancillary space for the residents of longhouses and constituted part of the farmstead. Sunken-floored buildings were usually located in close proximity to longhouses (10–15m). However, in many other instances their location makes it difficult to attribute them to only one house. It cannot be ruled out that in these cases they were used by residents of more than one house. Observations made at sites in Małopolska suggest that sunken-floored buildings within LBK farmstead appeared in later phases. The tradition of constructing these buildings may have continued into the post-LBK period (Malice culture).

RI3 TECHNICAL VARIABILITY AND SOCIAL DIVERSITY: EXPLORING POTTERY MAKING AT THE BLICQUY/VILLENEUVE-SAINT-GERMAIN SITE OF VAUX-ET-BORSET. (CENTRAL BELGIUM, 4950 TO 4650 CAL BC)

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A common issue in the study of Early Neolithic pottery from northwestern Europe, and more particularly of Blicquy/Vileneuve-Saint-Germain (BQ/VSG) pottery, is the difficulty to interpret its extreme technical variability. Whether such variability should be considered as the mirror of socio-cultural diversity is a key question. In this contribution we examine some of the possible factors responsible for this high technical variability, using as case study the ceramic of the BQ/VSG site of Vaux-et-Borset (Central Belgium). A multi-proxy approach to the *chaîne opératoire* of pottery making, combining various analytical tools (including standard Radiography, thin section petrography, SEM-EDS and LA-ICPMS), has been developed and applied to a representative set of samples.

This high-resolution technological analysis enables us to characterise the main stages of the operational sequence and to identify the way they are articulated. Contrasting patterns of variability at the clay acquisition and processing, the fashioning and the surface treatment stages are brought to light. Multiple correlative factors (such as accessibility to raw materials, functional requirements, seasonality of activities, apprenticeship networks boundaries, as well as individual and community-based identity strategies...) may explain this differential variability.

These results highlight the great potential of the *chaîne opératoire* approach to ancient ceramics. One of its chief advantages is that it allows technical objects to be addressed as complex aggregates made of heterogeneous elements: skills, gestures, materials, tools, but also various kinds of representations (i.e., ways of doing things, efficiency, aesthetics, and a wide range of cultural and social stakes).

RI18 THE BENNACHIE COLONY: CONTEXTUALIZING MARGINALITY AT A 19TH-CENTURY INFORMAL COMMUNITY IN RURAL SCOTLAND

Jeff Oliver

UNIVERSITY OF ABERDEEN

The Colony is an informal settlement located in the shadow of North-East Scotland's most iconic landmark: the hill of Bennachie. Records suggest that the Bennachie Colony was founded early in the nineteenth century, in a context of increasing itinerancy, where high rents and rationalized farming practices produced a surplus population of (often landless) wage-labourers. By the middle of the nineteenth century, an extensive community of 'squatters' had colonised the hill's lower slopes. In 1859 the settlement was controversially appropriated by a neighboring estate; onerous tenancies were imposed, which led to a number of evictions. In later years, farm work became scarce and a series of harsh winters may have made agriculture on the hill unsustainable. In time, the settlement was all but abandoned.

How might we approach the history of this place? Popular accounts of the Colony emphasize its marginal nature. At best they highlight the colonists struggle to scratch a living from the nutrient-impooverished hillside; at worst they accentuate stories of licentious and thieving behaviour. The Bennachie Landscape project, a collaborative effort between the University of Aberdeen and the Bailies of Bennachie, has been 'digging deeper' into the history of the site. An interdisciplinary approach investigating the biography of dwelling houses and family histories, alongside its unexpected environmental history reveals a fascinating and variable picture of the Colony. Our conclusions suggest that narratives of marginality must be carefully contextualized. As ever, the devil is in the detail.

RI21 ARCHAEOLOGY OF MEMORY AND FUNERARY REUSE IN SICILY BETWEEN PREHISTORIC AND CLASSICAL TIMES: THE CASE STUDY OF COZZO DEL PANTANO (SIRACUSA)

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G. Germanà, D. Tanasi, P. Trapani, C. Veca*

The anthropological phenomenon of reusing funerary spaces is very well documented in the archaeological record of ancient Sicily with particular emphasis on the reuse of the Middle Bronze Age (16th-13th century BC) tombs in several subsequent eras. The territory of Siracusa offers a wide ranges of cases studies. In some cases, tombs are emptied out before placing other burials while in other cases subsequent burials are just placed over the previous layer. With regard to the latter, the bones of the earliest individuals can be reduced in order get more space or even left untouched. There are at least four levels of interpretation of this practice, utilitarian, ritual, ethnic and political. Those four cases are clearly showcased by the Middle Bronze Age of Cozzo del Pantano. The necropolis of Cozzo del Pantano (Siracusa) counts 62 tombs with multiple burials. Several tombs show traces of subsequent reuse in the Iron Age (11th-9th century BC), Greek Protoarchaic (second half of the 8th century BC), Archaic (7th-6th century BC), Roman Middle Empire (3rd century AD) and Byzantine period (7th century AD). This makes Cozzo del Pantano the best arena case study to observe the different utilitarian, ritual, ethnic and political reasons that brought to an often conscious reuse of older and sometimes someone else's sepulcher

RI2 GALLIA CAPTA: CAESARIAN BATTLEFIELDS IN NORTHERN GAUL

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Until recently the Roman conquest by Caesar was only documented historically in the northern periphery of Gaul. In the Netherlands, Belgium and the German Lower Rhine area the Caesarian conquest was almost totally intangible in the archaeological record; direct archaeological evidence in the form of Roman army camps or battlefields was absent, this in contrast to the more central and southern areas of Gaul. However, this situation has changed substantially in the last two decades. Thanks to new archaeological, palaeobotanical and numismatic evidence, it is now possible to develop a more accurate picture of the conquest and its social and cultural impact on indigenous societies, as well as of Caesar's narrative itself. This paper will focus on two recently identified battlefields: the Late Iron Age fortification of Thuin in Belgium, and Kessel/Lith in the Dutch river area. Whereas the first site can be reasonable identified as the oppidum of the Aduatuci conquered by Caesar in 57 BC, Kessel may have been the place where Caesar massacred the Tencteri and Usipetes in 55 BC.

RI13 SHADOWS OF THE PAST: CONTEXTUALISING HUMAN REMAINS IN CAVES ACROSS THE BRITISH ISLES DURING THE 1ST MILLENNIA BC AND AD (C.800 BC-800 AD)

Sam Wilford

DURHAM UNIVERSITY

From the very beginnings of archaeology caves have been associated with the treatment of the dead. Human remains found in early excavations of British caves (i.e. Paviland Cave in 1823 and St Baldred's Cave 1831), were often dated to the 1st millennium BC and AD and thought to belong to druidic sacrifices, Roman prostitutes or Christian Saints. In contrast, during the 20th century, caves were often considered the site of early Prehistoric burial notably during the Neolithic and Bronze Age. Despite this, recent excavation and reanalysis of cave deposits have identified human remains dating to the 1st millennia BC and AD across the United Kingdom.

As part of a broader analysis of cave-use across the British Isles, this paper aims to provide an overview of human remains found within caves during the Iron Age, Roman Iron Age and Early Medieval periods (c.800 BC-800 AD). An integrated approach will be taken, contextualising such material within contemporary archaeological processes as well as cave morphology and location, in order to understand the influence caves had in the deposition of human remains. From this it will be argued that certain caves acted as part of a wider repertoire of underground and above ground spaces used for the treatment of the dead, acting as spheres of performance and community.

RI7 WHAT IT MEANS TO BE YOUNG IN BRONZE AGE CRETE

Nathalja Calliauw

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While young people are featured rather prominently in Cretan Bronze Age iconographic sources, their role in archaeological inquiries remains limited. This has been explained in the past by the limited visibility of their remains, but several recent excavations, such as those at the Sissi cemetery on the northern coast, have shown that juveniles sometimes comprise a considerable part of the funerary record. These new data have raised the potential of age identity studies for Bronze Age Crete. This presentation will show how the challenge of identifying the 'young' in Bronze Age contexts is twofold. Firstly, we need to discern them in the field, which is often problematised by poor preservation conditions resulting in relatively low visibility. Careful excavation and on-site characterisation is of primary importance at this stage. The second stage of the identification process is situated at the 'social' level: how do we differentiate between the biological 'juvenile' or 'subadult' and the social 'child'? Juvenile burials in Cretan Bronze Age contexts are often marked by a lack of distinction from 'adult' burials, which makes this second step even more challenging. Can we then differentiate between 'children' and 'adults'? And more importantly, should we make this differentiation?

RI7 THE REPRESENTATION OF CHILDHOOD IN IRON AGE CEMETERIES OF CHAMPAGNE

Chloé Belard

ENS-EPHE

The aim of this presentation is to evaluate the impact of the social age of the immature deceased through the Iron Age mortuary remains of Champagne. The first issue is related to the entrance of immature people to the cemeteries, the under-representation usually observed of children (particularly the 0-1 year age-at-death ones) being already subject to discussion.

The second issue really concerns the representation of the childhood in the general context of mortuary practices of the cemeteries. Indeed, the social age of the immature deceased can obviously determine a large number of mortuary criteria, even if children were integrated in the mortuary space. Thus, some types of grave goods were not allowed to immature people, such as functional weapons, metal belts and tools (knives, toilet tools for example). The pieces of jewels, which were deposited with them, are commonly rudimentary or made from reused and worn objects. But through many morphological aspects, it can be possible to consider them as temporary pieces of jewels and, consequently, as progressive pieces of jewels.

The representation of the childhood can be approached, therefore, as a social process in order to have a better understanding of the children's place in the context of mortuary practices.

RI15 SETTLEMENTS AND HOUSES DURING THE LATE NEOLITHIC AND EARLY BRONZE AGE TRANSITION IN CENTRAL SOUTHERN JUTLAND, DENMARK.

Scott Dollar

MUSEET PÅ SØNDERSKOV

The Late Neolithic and Early Bronze Age in southern Scandinavia has traditionally been dominated by the flint dagger producing regions of North and Mid-Jutland, eastern Denmark and Scania in Sweden. These regions have also produced numerous settlement sites with exceptional house remains. In contrast, this period in central southern Jutland has been primarily represented through burials and stray finds. However, developer led excavations over the last 20 years, and in particular during the last decade, have dramatically altered this picture. In spite of not having quality flint sources or evidence of dagger production, settlement sites from the Late Neolithic and earliest Bronze Age in this inland region have none the less produced some of the largest numbers of house remains in Scandinavia. With evidence of both Bell Beaker-inspired pottery during LN I and Únétice inspired longhouses during LN II, central southern Jutland appears to have been an influential region situated on the important communication networks between southern Scandinavia and western and central Europe.

This paper will present some of the results of the current research project "Settlement and communication – a south Jutland inland region during the Single Grave Culture, Late Neolithic and Bronze Age 2800-500 B.C." by Bo Ejstrud Ph.d, Scott Dollar, Martin Egelund Poulsen and Lars Grundvad of Museet på Sønderkov.

RI13 GOING UNDERGROUND: LIFE, DEATH AND SHIFTING PERCEPTIONS OF SUBTERRANEAN SITES IN NORTH YORKSHIRE FROM THE EARLY NEOLITHIC TO ROMAN TIMES

Stephany Leach

UNIVERSITY OF EXETER

This paper presents the results of a reanalysis of human skeletal remains excavated from more than twenty subterranean sites in North Yorkshire. The main aim of this research was to question the assumption that the skeletal remains represented Late Neolithic or Early Bronze Age primary, articulated burials. By critically defining the osteological profiles, and differentiating cultural activities from natural site formation processes and agents, a clearer understanding of the range of human behaviour within the rock shelters and deep fissure systems of this region was realized. Crucially, a radiocarbon dating programme was carried out in tandem with this research. This established a firm chronology or temporal sequence for the new activities and patterns of deposition identified. Although the focus of this research was based in one specific geographic region, it is suggested that results presented will have wider implications for our understanding of cave archaeology. Specifically, the unique site formation processes and stratigraphic interpretative challenges that subterranean sites represent, but also by

offering a more enhanced awareness of the shifting perceptions and diverse use of these subterranean locations through time. The aim of this research project was to remove the bindings of earlier preconceptions, previously overruling the skeletal evidence, to allow the bones to provide their unique, personal evidence. This may now be used to build new hypotheses and further explore the ramifications of 'going underground' in the past.

RI15 TOWARDS A NEW DEAL OF THE BEAKER CULTURE AND THE GENESIS OF THE EARLY BRONZE AGE IN BRITTANY

Stéphane Blanchet¹, Clément Nicolas², Théophile Nicolas³, Yvan Pailler³

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Stéphane Blanchet, Quentin Favrel, Muriel Fily, Clément Nicolas, Théophile Nicolas, Yvan Pailler, Julien Ripoché

The Beaker Culture and the Early Bronze Age are represented in Brittany by the many graves that have been discovered since the 19th century. Recently, preventive and programmed excavations have revealed settlements and their material wealth. This new data has generated a research dynamic (collective research projects and university doctorates) that offers a more complete vision of the cultural and social changes during the transition between the 3rd and 2nd millennia BC. More distinctive and diverse domestic pottery assemblages are now available as the basis for a regional typo-chronology. A first frame of reference of settlement types and land occupation show the potential of this new data in relation to social and territorial dynamics that were already underlined by funerary contexts. The geographic distribution of funerary sites, the architecture and grave goods suggest a prominent social hierarchy with the generalisation of individual graves. New series of radiocarbon dates also participate in building a solid chronological framework, a necessary backdrop for the debate on the appearance of the Beaker Culture and its relationship with Late Neolithic communities or on the genesis of the Early Bronze Age. Progress has been made in relation to this period, as recent research underlines the complex cultural landscape of which certain aspects still need to be defined in particular for the Early Bronze Age.

RI19 THE NORTHERN TRADE - AN ALTERNATIVE TO LOCAL IRON PRODUCTION

Roger Jørgensen

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During the Late Iron Age, the trade between North Norway and Central and Southeast Norway became crucial to the wealth and power of the northern aristocracy. From approximately AD 600, a concentration of power occurred in the Germanic settlements culminating with the Hålføyg earls becoming the supreme leaders in the North. Around AD 800 they moved from Omd in northern Hålogaland (i.e. the land of the Hålføyg) south to Trøndelag, a move probably motivated by a wish to secure the northern sea route and thus control the northern trade.

Trade with the indigenous Sami often emphasizes the exchange of prestige goods, and products only they could provide has often been considered important both in the northern aristocracy's local prestige-goods economy and in their interaction with high-ranking members of southern communities. However, trade with everyday products like iron may have been equally important. Here I will look into how the supply of iron to the northern peoples were controlled and organized and the consequences this may have had for the northern iron production as well as political development in Hålogaland.

Iron production in North Norway never became a major industry and this seems to be a consequence of the socio-political organization of the northern societies. By controlling the northern sea route and suppressing initiatives to produce iron in the north, the earls would strengthen their bargaining position with the Sami and further strengthen their position as supreme leaders of the Germanic settlements.

RI4 RECONFIGURING BORDERS: NEW APPROACHES TO UNDERSTANDING CERAMIC EXCHANGE IN THE EARLY MEDIEVAL ATLANTIC

Maria Duggan

NEWCASTLE UNIVERSITY

For over sixty years imported pottery found at early medieval sites in western Britain has been used to link this region to the East Mediterranean. A subsequent phase connects south-western France to western Britain and Ireland. The package of imported wares has been seen as distinctive of the 'Celtic/Atlantic West'. Although the boundary was not impermeable for other materials, the restricted ceramic distribution prompted Ewan Campbell to describe an 'Atlantic Curtain', whereby Mediterranean amphorae and finewares, and south-western Gaulish coarsewares were not exchanged with Anglo-Saxon regions (Campbell 2007, 140).

Recent discoveries have suggested that the Insular distribution is less distinct, while Continental research has shown that supplies were not exclusively focused on western Britain. The identification of parallel finds from sites on the Atlantic littoral – western France, north-west Spain and Portugal – reveals a more complex picture of contact and exchange along the Western Seaboard. Within a model of shorter-range interactions, the imported wares can be seen to represent social and economic connections between communities on the Atlantic fringes of Europe.

This paper will consider how the widespread circulation of these wares seems to present an exchange-network that, although focused on coastal margins, surpassed social and political borders. However, closer analysis of the ceramic distribution will be used to expose underlying variation, which is proposed to reflect differential patterns of consumption (specifically dining and drinking practices) and demand.

Reference:

Campbell, E. 2007a. *Continental and Mediterranean Imports to Atlantic Britain and Ireland, AD 400– 800*, Council for British Archaeology Research Report 157

RI15 THINGS HAVE CHANGED: THE POTTER'S PERSPECTIVE OF THE BEAKER TO FOOD VESSEL TRANSITION IN NORTHERN BRITAIN

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Prehistorians have often struggled to describe and understand the process of change between what are thought to be distinct ceramic types or traditions. How and why did people move from making pots of one type to another? In Northern Britain a transition from Beakers to Food Vessels took place in the later 3rd millennium BC and is archaeologically visible primarily in funerary contexts. There are key differences between the respective traditions in terms of their morphology, wall thickness and decoration but a small but important number of late Beakers and early Food Vessels appear to share influences from both traditions. Vessels of this type have been termed Beaker-Food Vessel 'hybrids'. Some have argued that Food Vessels even cite much older (Neolithic) ceramic traditions. Our paper reevaluates these claims by reconstructing a more detailed understanding of the potter's perspective and technological decisions and on a closer reading of the funerary contexts in which they were deposited. We suggest that ceramic and funerary practices can be studied in a more parallel, intertwined, fashion as both were constructions that drew on and played-off pre-existing and contemporary social and ritual practices within a rich and complex context rather than a vacuum. We explain how these perspectives alter our understanding of the character of the transition in Northern Britain and contrast the situation with developments in Southern Britain, contributing to our basic understanding of changes among the funerary ceramics of the British Early Bronze Age.

RI12 IRON AGE ANCESTRAL BONDS: SECONDARY BURIALS AND MANIPULATED GRAVES AT THE DÜRRNBERG CEMETERIES (AUSTRIA)

Holger Wendling

SALZBURG MUSEUM / KELTENMUSEUM HALLEIN

The burial landscape of the Dürrnberg (Austria) offers a unique dataset for research on burial practice, social relations and religious thought of an Iron Age community from c. 600 BC to 200 BC. Almost 400 graves are dispersed across the alpine hilltop area either in large groups of barrows, smaller cemeteries or as isolated tumuli. During the late Hallstatt and Early La Tène periods inhumation burials were deposited in wooden chambers which were covered by a stone packing and earthen mounds. Frequently, the initial burials were followed by one or several other inhumations which were subsequently placed into the original chamber. However, the original method of reopening or otherwise gaining repeated access to the grave has not been identified to date.

In the process of successive funerals, previously buried individuals had been rearranged, dismembered or recollected. In addition, certain grave goods were dislocated or removed, whereas other objects seem to have been deliberately left undisturbed. Recent research aims at an understanding of those secondary treatments of dead bodies and the manipulation of grave furniture. Comprehensive archaeological and anthropological analyses attempt to reveal patterns in secondary burials and funeral manipulation. Both the choice or neglect of certain categories of grave goods and the different treatment of the corpse may vary according to sex, gender, age or social status. Furthermore, the option of secondary burial in a single chamber or the subsequent addition of supplementary and directly super-imposed chambers might be related to specific cultural, social and religious conventions.

RI22 CYPRUS IN THE BRONZE AGE - A 'CULTURAL CONGLOMERATE'?

Fabian Heil

LUDWIG MAXIMILIAN UNIVERSITY OF MUNICH, GRADUATE SCHOOL DISTANT WORLDS

Bronze Age Cyprus was involved in an increasing exchange of goods and ideas throughout the Mediterranean. Recent discussions link the most influential connections to immigrating groups of different origin or their imitation by local elites. This way craftsmanship and metallurgical capabilities changed and the 'way of life' of people was altered.

To 'get a grip' on these ancient customs, terms like 'identity' or 'culture' are being used to compile comparable data of human behaviour and its expression. This approach leads to 'hybrids', which are a methodological solution to objects that 'just won't fit' into one single category. Therefore, Cypriot culture might be addressed as a form of 'hybrid' itself; a 'cultural conglomerate' by choice, as the change in material culture seems to suggest. But in the material a careful selection is recognizable and differences in details challenge an adaption of this scale and Cyprus as an outstanding melting point of 'foreign influence'.

In this attempt, objects influenced by ideas of different origins as well as the adaption of 'external elements' shall be discussed. Promising are objects in context with social gatherings, pots and vessels of particular use, as well as zoomorphic figurines. Furthermore metal idols of the Late Bronze Age are especially of interest, like the so called 'Ingot God' and a female figurine often referred to as Astarte. Both are depicted standing on an 'Oxhide-Ingot' and seemingly of Near Eastern influence, but despite their 'hybrid' arrangements, they are still deeply intertwined into the cultural background of Cypriot Bronze Age.

RI1 HOUSEHOLD SCALES: WHAT COOKING POTS CAN TELL US ABOUT HOUSEHOLDS IN THE LATE NEOLITHIC STAVROUPOLI (NORTHERN GREECE)

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Household scales: what cooking pots can tell us about households in the Late Neolithic Stavroupoli (Northern Greece)

Marianna Lympiraki¹, Dushka Urem-Kotsou¹, Kostas Kotsakis² and Stavros Kotsos³

Remains of houses in the Late Neolithic of Northern Greece, are as a rule less well preserved than in some other regions of Greece, such as Thessaly, one reason for this lack of preservation being the flimsy materials used for their construction. The site of Stavroupoli-Thessaloniki is a Late Neolithic site with a dense settlement pattern, but poorly preserved architecture. Several habitation phases have been distinguished, dating to the Middle and Late Neolithic. Radiocarbon dates place the earlier phase to 5700 B.C. As the households in Stavroupoli can barely be approached through their architecture, the ceramic wares and particularly the cooking vessels will be used as a proxy to identify households and clarify aspects of their organization. The size of domestic units is approached through capacity of cooking pots, assuming that sharing cooked food is a vital element of these units. Also, variability in cooking techniques between houses and possible changes through time are related to both shape and size of cooking vessels. Finally, Stavroupoli's cooking pots are compared with cooking vessels from other contemporaneous sites in order to approach the issue of household on a regional level.

1. Democritus University of Thrace
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RI20 PRAGUE CASTLE – SEAT OF THE DUKES AND KINGS OF BOHEMIA, EMPERORS AND PRESIDENTS OF MODERN CZECHOSLOVAK AND CZECH STATE

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The panorama of Prague Castle, the symbol of Prague, of the former Czechoslovakia and today's Czech Republic was shaped for over a thousand years. The memory and symbolism of this extraordinary place developed over the same time span. Archaeology started to contribute to its study in the course of the 19th century. Since the 10th century it has been the seat of the bishopric and later on of the archbishopric of Prague and approximately as long the main seat of the Bohemian dukes and kings. In modern times also the presidents of the Czechoslovak and later on Czech Republic were attracted by this strong tradition.

RI22 THE TRANSFORMATION OF TAWERET INTO THE MINOAN GENIUS - CONCEPTUALIZING HYBRIDITY AND ALTERITY

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The transformation of the Egyptian goddess Taweret into the Minoan Genius is a most striking and puzzling phenomenon. Recognised at first by Evans and Winter it is now a complex topic concerning 'cultural identity', 'alteration' and 'hybridity' in the Mediterranean.

Using Latours Acteur-Network-Theory, the adaption of a motive like Taweret into the Aegean can be understood as a form of *entanglement*. By following recent discussions it is possible to distinguish some levels of entanglement: the import of foreign objects on the one hand and the adaption of a foreign motive into the local context. At this moment the level of alterity lowers continuously or can fade away totally and the transformed object starts a new 'second life' with a different meaning and sometimes with a changed appearance.

By following the archaeological record, the way of Tawerets transformation may be reconstructed: magical knives, scarabs and sealings show the distribution throughout the eastern and central Mediterranean. Besides these imports various replicas can be found as well as modified depictions, mixed with local traditions. Analysing these mixed features, or hybrids, some ways of adaption and possibilities of dealing with alterity can be worked out. The earliest examples depict the 'proto' Genius with clear

similarities to Taweret. But changing his appearance and function quickly, the Minoan Genius appears monstrous and fantastic. This culminates on the Greek mainland, where another change in function seems to happen.

RI18 ARABIA DESERTA ? ARCHAEOLOGICAL RESEARCH AND HERITAGE MANAGEMENT IN THE KINGDOM OF SAUDI ARABIA

Omer Can Aksoy

UCL

The Kingdom of Saudi Arabia is relatively a new and internationally 'marginal' territory of archaeological research and heritage management. In comparison to Mesopotamia, the Levant and Anatolia, archaeological research in Saudi Arabia is very limited and has a short history. The country laid foundations for its heritage management and archaeological research strategy in 1963 and opened its doors to comprehensive international expeditions in only in the past ten years. This marginality is enrooted to the complex mixture of Salafi interpretation of Islam, fast-paced development and economic expansion as well as the stereotypical image of the landscape and its people in the ancient sources. In this paper, I will address these modern and historical factors and I will question the 'marginality' of the region with newly derived data from my PhD research in the region on Warfare and Military Doctrines in Iron Age Arabia. During this field research, various publications including brochures, magazines, academic journals, museum catalogues and local publications were collected, 33 archaeological and historical sites and four museums were recorded. In addition, SCTA officials, local people and expatriates were encountered throughout this research. To summarise, this paper presents the dynamics behind the fading perception of Saudi Arabia as a marginal and peripheral place in the discipline of Archaeology in regard to the abovementioned complex set of data.

RI3 BRONZE AGE POTTERS AND BRANCHING PROCESS OF APPRENTICESHIP NETWORKS

Sebastien Manem

CNRS

Apprenticeship to a master requires several years in which the individual will acquire motor habits that will be difficult to change over time, thus contributing to the maintenance of technical traditions inside each social group and each community of practice. This stability of apprenticeship networks can be affected by endogenous or exogenous actions as inventions within a community of practice or horizontal transmissions between two social groups. They reflect social changes. Understanding why technical traditions evolve or maintain themselves within social groups requires that we understand the mechanisms of setting-up and developing these technical traditions beforehand. However, it is particularly difficult to understand, over a long timescale, how and from which operative sequence(s) a particular invention is adopted by a society and then transmitted and modified again from generation to generation.

The aims of this study are to propose a methodology based on the phylogenetic analysis and the concept of chaîne opératoire for ceramic traditions and, to understand the mechanisms of evolution of apprenticeship networks of several societies of the European Bronze Age. This study is focused on the Centre-West of France with the "Duffaits culture" and a part of the "Channel-North Sea Complex".

RI31 THE SENTIENT DEAD: MANAGING THE MEDIEVAL CEMETERY

Jennifer Crangle

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Medieval cemetery management has been discussed extensively, by both archaeologists and historians, primarily by focussing on identifying burial zones of exclusivity, or the consecration and formalisation of churchyards. In contrast, layout, organisation, long-term planning and maintenance of medieval cemeteries have not received the same attention, despite there existing a wealth of information illustrating medieval concerns with managing and curating the dead. Contrary to general consensus that cemeteries were haphazardly filled, irrespective of who consequently may be disturbed, this paper will discuss previously unrecognised archaeological and documentary evidence for cemetery management, and will analyse contemporary attitudes towards the buried dead. Such evidence reveals that;

- 1) Methods were in place for remembering individual graves' locations, via above ground markers, cemetery plans, or retained knowledge by gravediggers.
- 2) Graves were not disturbed, unless it was entirely unavoidable.
- 3) Only burials beyond the putrefaction stage of decomposition were disturbed, signifying graves' location and length of time buried, were recorded.
- 4) Gravediggers were employed, who were specialised in preventing unnecessary disturbance of the dead.
- 5) An 'ideal' plan for cemetery management to formalise management was initiated concurrent with 10th – 12th-century Church reforms.
- 6) The dead retained elements of sentience, and interaction with the dead was justified or not, on liturgical, pragmatic and superstitious reasoning.

Medieval people, both lay and ecclesiastical, were not indifferent or irreverent, towards the buried dead. This paper will demonstrate that post-mortem and/or post-depositional disturbance was strictly regulated according to a multitude of diverse, inter-related theological doctrines, rational considerations and folkloric superstitions.

R13 CERAMIC COLLECTION OF PILE-DWELLING SERTEYA II: CULTURAL FEATURES VERSUS MASTERS' WORK **Ekaterina Dolbunova¹, Andrey Mazurkevich²**

¹THE STATE HERMITAGE MUSEUM, ²THE STATE HERMITAGE MUSEUM

Pile-dwelling Serteya II is situated in Serteysky microregion in Upper Dvina area. The remains of six constructions were found here, dated to the middle of the III mill. BC, with rich ceramic collection. We may suppose the habitation on this territory of a small group that erected and reconstructed different constructions one after another on the same places. Microchronology of this site enables determining morphological, technological and decorative features typical for definite households during the period of life of several generations. They reflect temporal, cultural and individual changes. Variability in technology, morphology and décor can be explained by different factors — natural, cultural (the appearance of bearers of new cultural traditions), appearance of new masters and beginning of copying by preceding masters new technological methods, decor and forms of vessels, changes of masters and generations of master. Copying of vessels' forms, imitation of different types of decoration is the reflection of dynamics of pottery making process. Use of different modelling techniques for the same vessel form, mixing of different types of paste recipes can be marker of contacts among ancient masters — bearers of different cultural traditions.

Similarity in decoration, technological methods and morphology typical for synchronous sites, located in other microregions of Upper Dvina area, 40–120 km remote from each other, may indicate one community lived here during this time. Local microregional peculiarities in vessels' forms, decor and technique might reflect cultural identity of society inhabited different microregions.

R13 POTTER'S WHEEL AND ORGANIZATION OF POTTERY PRODUCTION IN THE LATE IRON AGE IN CENTRAL EUROPE

Richard Ther, Tomas Mangel

UNIVERSITY OF HRADEC KRALOVE

The potter's wheel is one of the principal technological innovations of the La Tène period. Its introduction is assumed to be a consequence of the development of craft specialization. This paper is focused on the variability of pottery-forming techniques during the period as a consequence of the development of modes of pottery production. The interpretations are based on technological analysis of the Late Iron Age pottery from selected regions of the Czech Republic. The analysis has revealed substantial changes in the use of the potter's wheel. The process of production of the first pottery formed using rotational movement was a time-consuming activity. During the time, the use of the potter's wheel reached the level of a cost-effective technique that required a high level of motor skills only attainable by intensive production. The results of the analysis correspond to the idea that the introduction of the potter's wheel was channelled by the mechanisms of prestige goods economy. During the Late Iron Age, wheel thrown pottery underwent a process of inflation of its social value. Development of social complexity in the LT C–D period led to the spread of use of the potter's wheel among independent specialists.

R127 TABLE GLASS FROM MEDIEVAL SCANDINAVIA – AN INDICATION OF AN URBAN IDENTITY?

Georg Hagrén

ARCHAEOLOGY

Urbanization took place in Scandinavia in the Middle Ages. Trade routes connecting new coastal towns to Central and Western Europe made glass vessels affordable for the urban dwellers in the north. Tiny shards of broken glass found from contexts dating to the 12th and 13th century in towns like Lödöse and Nyköping in Sweden indicate this early trade. Most of the early vessels were of wood ash glass made in Central Europe while some were of lead glass made in areas close to German silver mines. Furthermore, there are some rare finds of exclusive vessels made in the Mediterranean. Before the late 14th century it seems that the trade and use of glass vessels hardly reached the peasants living around the scattered towns along the coast.

During the 14th, 15th and 16th centuries glass vessels slowly became more abundant in the inventories of the townspeople in the north. At the same time some glass made in Bohemia or Germany became affordable for some of the peasants too.

Instead of focusing castles, noble households or prosperous monasteries this paper discusses the use of glass among ordinary townspeople and wealthy peasants. Is it possible to point out any indicators of urban identities on the base of glass finds? How should we interpret the finds of vessel glass from the medieval villages? Glass has been a neglected find material when speaking about material culture in medieval Northern Europe. However, recent finds have showed the potential and importance of the glass finds.

R15 BEFORE AND AFTER THE CATASTROPHE -1200 B.C. AT MIDEA IN THE ARGOLID

Ann-Louise Schallin

UNIVERSITY OF GOTHENBURG

Every prehistoric Aegean archaeologist is aware of the period of unrest in the Eastern Mediterranean around 1200 B.C. It is reflected in the material evidence that this unstable period was a veritable turning point regarding Mycenaean internal development, at least regarding the majority of Mycenaean sites situated in and around the Argive Plain.

The Mycenaean citadel of Midea was no exception to what befell most of the neighboring sites in the Argolid. Midea has produced stratigraphic horizons with clear evidence of fire destructions at the end of LH IIIB2, after which the site was only partly reoccupied. Situated on the fringe of the Argive plain, Midea not only experienced a dramatic destruction involving fires, but also gives evidence of an unmistakable change in cultural expressions during this time. The changes may signify a reconfiguration of its social and cultural identity.

This paper aims at presenting the material remains at Midea before and after 1200 in order to bring the change into focus. The Midea situation is moreover compared with scenarios at the neighboring sites with the intention to detect patterns or expressions of common strategies.

RI18 'RECENT MONUMENTS' IN GREECE. A STUDY OF MARGINALITY

Nota Pantzou

UNIVERSITY OF PATRAS

Greek Law no 3028/2002 'On the Protection of Antiquities and Cultural Heritage In General', distinguishes between ancient and recent monuments, archaeological sites and historical sites. Recent monuments and historical sites, that is immovable monuments and areas that date post 1830, year of establishment of the modern Greek State, do not belong to the State and receive protection only if they are considered to be of 'historical, artistic and scientific' importance. So what type of monuments and sites are deemed of national importance and get eventually classified as such? What is the treatment of recent Greek built heritage which is of 'lesser' or 'no' significance for the Greek State and Greek archaeologists? By examining diverse case studies, the intention is to map the degree of marginality of recent Greek cultural heritage both in state initiatives and Greek archaeologists' undertakings, trace the role that bottom up efforts play in its maintenance and finally explore the prospects of Contemporary and Historical Archaeology's development as a distinct field of study in a country where classical antiquity dominates the public imagination and state narratives.

RI18 BORDERLAND THEORY AND HISTORIC IDENTITIES: ANALYSIS OF PORTABLE ANTIQUITIES FROM THE ANGLO-SCOTTISH BORDER, 1066-1400

Aubrey Steingraber

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In many fields, political borders have been considered as regions with unique cultural and political conditions. Despite this, the field of archaeology has been slower to develop specific theoretical methodologies particularly aimed at understanding borderlands. As the study of the cultural implications of borders and borderlands continues to become more nuanced in other fields, further development of specialised, multi-scalar archaeological approaches to borderlands must be encouraged.

This paper presents the results of a comparative analysis of portable antiquities recovered along the Anglo-Scottish border to explore cultural changes due to late medieval development of the political border between 1066 and 1400. Such changes have been widely debated by historians, but thorough analysis from an archaeological perspective is overdue. Interdisciplinary resources were used to explore patterns in the development of regional identities through theoretical, historical and archaeological perspectives but primarily focused on comparing portable antiquities between four border counties—Cumbria, Northumberland, the Scottish Borders, and Dumfries and Galloway—as well as to artefacts found elsewhere in England and Scotland. The results of this project highlight some major late medieval developments of material culture across the border region, largely mirroring wider changes present elsewhere in Great Britain and Europe. However, potential regional distinctions were also discovered. This highlights many of the complexities of archaeological border studies and allows further critical examination of useful methodologies for the development of the field. It also illustrates how both modern and historical political borders, especially when intersecting, affect the way archaeological research is conducted.

RI1 BEING AT HOME IN THE EARLY CHALCOLITHIC. THE LONGHOUSE PHENOMENON IN THE BRZEŚĆ KUJAWSKI CULTURE IN THE POLISH LOWLANDS

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The Brześć Kujawski culture took shape in the Polish Lowlands in the second half of the 5th millennium cal BC. It shares many characteristic features with the Chalcolithic culture (strong emphasis of the separate identity of males and females; long-distance exchange of exotic goods, such as weapons and copper ornaments, Spondylus shells, calcite ornaments, jade axes and amber; the emergence of hunter-gatherer symbolism) evidencing that BKC communities functioned as part of the wider 'late Lengyel interaction sphere'. Conversely, there are very striking regional distinctions in the material culture of these communities. This appears to reflect a conscious attempt to emphasize local identity, incorporating both innovation (e.g. unique, richly decorated armlets made from cattle ribs) and conservatism (e.g. burying the dead within or alongside houses).

This article focuses on one of the most distinctive, if not iconic features of this culture – trapezoidal longhouses. Analysis of the origins and significance of these houses offers an interesting perspective from which to examine both the evolution of longhouses in the LBK and post-LBK, as well as the phenomenon of building local identity – making deliberate references to LBK heritage being one of the approaches that was used for this purpose.

RI12 REOPENINGS OF EARLY BRONZE AGE BURIALS AT FIDVÁR NEAR VRÁBLE/SOUTHWEST SLOVAKIA: EVIDENCE FROM RECENT EXCAVATIONS

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The site of Fidvár in southwestern Slovakia was the largest fortified settlement within its surroundings. Very close to this settlement and obviously belonging to it, is a cemetery of the same period which has undergone periodical excavation since 2008. With virtually no exception, all of the burials excavated thus far have shown signs of reopening: “robber shafts”, disturbed bone arrangements, missing grave goods, etc. By virtue of meticulous excavation methods, the period of this reopening can be narrowed down to a time frame of at least 2 years to a maximum of 20 years after initial interment.

The mainstream discussion of burial reopenings in the Bronze Age largely revolves around economic motives. At least at Fidvár, the amount of destruction done to primary burials seem to exceed the theoretical effort which would have been necessary to remove valuable grave goods. Rather, one gets the impression that those who reopened the graves engaged in a kind of ‘burial overkill’; in many instances the dead seem to have been virtually ripped from their resting places.

We would like to address the motives of these “reopeners” with the help of a detailed reconstruction of the processes involved in said grave disturbances. The interpretation naturally also takes the nearby settlement into account in order to determine whether any connection exists between these reopenings and certain destruction layers found in the settlement. Finally, we set the cemetery of Fidvár into context with other, similar cemeteries in southwestern Slovakia which also show heavy signs of reopening.

RI5 A TURNING POINT IN A CONNECTED WORLD: NAUE II SWORDS REVISITED

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Europe's history is one of steadily increasing connectivity and interaction between societies. This paper will show that cross-cultural interaction and mobility between societies in the European Bronze Age were more intense than is commonly acknowledged, and that the Bronze Age must be considered a formative epoch of European history. Its central hypothesis is that important historical phenomena, such as the famous raids by the Sea People, the material splendour of the Nordic Bronze Age and the rise and downfall of the Mycenaean city states, can only be understood by examining the strong economic co-dependences across the continent, from Scandinavia to the Mediterranean.

The guiding question is whether and how it is possible to find common explanation grounds for these formative events, based only on the material evidence and scarce historical sources. The approach taken here is a GIS-based mapping and analysis of a large geographical cross-section of the archaeological evidence. Thanks to denser communication networks, technological innovations diffused rapidly in the Bronze Age, lowering cultural barriers and intensifying trade and exchange. A prime example of this is the diffusion of flange-hilted swords of type Naue II, a pan-European weapons technology that bears witness to profound changes in warfare and society.

This paper will put the famous Naue II swords into their pan-European context, discuss reconstructions of communication networks based on a large and detailed GIS database, and suggest models of social change that connect the evolution of warfare technology with historic events that reshaped Late Bronze Age societies.

RI12 INTRODUCTION TO “GRAVE DISTURBANCES”: RECENT APPROACHES TOWARDS THE REOPENING OF BURIALS

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In our paper, we would like to give an introduction to the session “Grave disturbances”. As stated in the session abstract, starting point for our dealing with the secondary manipulation of burials is the view that, whatever the motivation of the “reopeners” of graves actually was, the act itself must be seen as a thoroughly cultural practice, embedded in social notions of what is proper, what is necessary and what is possible. We would like to highlight recent archaeological theoretical approaches and methodologies which try to deal with these practices, so as to pave the way for the other papers of the session.

RI15 COLLECTIVE VERSUS INDIVIDUAL IDENTITIES: RESISTANCE AND SOCIAL INVOLUTION IN THE BRONZE AGE SOCIETIES OF SOUTHEASTERN IBERIA

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Argaric communities (EBA) have been traditionally explained as a result of a long process of increasing complexity that led to deep social asymmetries and individualized identities. This paper explores not so much the triggers of this process as the phenomenon of resistance to these social and economic dynamics. If the cultural changes and continuities that occurred throughout the Bronze Age are considered, these phenomena should be considered successful. In this sense, the disappearance of individual burials and the widespread of the collective ones, the continued reuse of megalithic graves, the low division of labour and craft specialization that characterized the Late Bronze Age or the back to an architecture dominated by circular and oval shapes are some of the aspects that should indicate a less complex societies and an increased emphasis in community organization and collective (relational) identities.

RI1 INFERRING DOMESTIC ACTIVITIES IN LBK HOUSES FROM MICROWEAR DATA: WHAT ARE THE PITFALLS?

Annelou van Gijn

LEIDEN UNIVERSITY

Microwear analysis of flint and stone tools from several LBK sites from the Graetheide cluster (NL), has shed light on the various domestic activities carried out within these settlements. People were cleaning and currying skins, they were processing plants and producing wooden objects. They were also involved in agricultural activities like milling and harvesting of cereals. The question is whether all households were participating in equal measure in these different tasks or whether some were predominantly involved in one specific activity. Spatial analysis of the microwear results suggests that there are indeed some differences in the tasks carried out between individual houses. Some general areas also seem to be used more intensively for a particular activity, like hide working. It is of course very attractive to take these results at face value and to conclude some, possibly informal, kind of specialization between the households in these LBK settlements. However, there are several *caveats*. First of all, our sampling (and even excavation strategy) may be of influence. Secondly, these inferences would rely on the assumption that the pits associated with the houses (already an inference in itself) contain the waste deposits from these houses only. Last, there are the various inferential limits inherent in the method of microwear itself. In this paper I will show the results of the microwear analysis and assess these in the light of the various complicating issues.

RI20 VISUALIZING THE RESEARCH ON GAMLA UPPSALA

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The project: Gamla Uppsala - the emergence of a mythical centre, has since 2009 conducted research on this central place in Middle Sweden. It is a project where the research results have been gathered in major GIS-project where various surveys, excavations since the 19th century, historical maps, paleo-ecology data and new well aimed field work efforts constitute the fundamentals for the interpretations. Our results are multi-faceted and related to the specializations of a wide variety of researchers. Most notable results are a strongly reviewed picture of the structure of the early medieval manor complex and how the monumentality of the site emerge 550-650 CE. Strong aspects of the project are also the efforts to present the centre to a wider public. Not only by educating museum curators and guides, but also by presenting the site via a public webGIS and more recently, using 3D-visualization in cooperation with 3D-artists and entrepreneurs.

RI5 TIMES OF UPHEAVAL – INTERDISCIPLINARY INVESTIGATIONS OF SOCIAL AND POPULATION DYNAMICS AT THE ONSET OF THE CENTRAL EUROPEAN BRONZE AGE IN SOUTHERN BAVARIA, GERMANY

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At the transition from the Late Neolithic to the Bronze Age the introduction of metal artefacts marked a major step in European prehistory. It was often understood as a linear process in which the new technology was increasingly improved and accompanied by a continuous change of the local communities. However, facilitating the exchange of the metal raw materials and manufactured goods also required regular and organized contacts among communities.

The Lech Valley in southern Bavaria, Germany, offers an enormous archaeological record of more than 400 graves and several settlements. We used archaeological investigations, radiocarbon dating, XRD and lead isotope analyses of metal finds, as well as stable isotope and aDNA data of the human remains to study continuity and changes from the Bell Beaker Period via the Early Bronze Age into the Middle Bronze Age. The results shed new light on the chronological discussion and the origin of copper for Bronze artefact production. The maternally inherited mitochondrial DNA (mtDNA) indicates both local genetic continuity spanning the cultural transition, and, following the onset of the Early Bronze Age, a major influx of mtDNA types previously not found in this region. Moreover, it documents possible maternal kinship within and between burial communities. Strontium isotope data indicate largely local communities, but also disclose sex-specific residential changes. The archaeological

and scientific data will be linked to overarching research questions regarding the spread of the major technological and societal changes at the beginning of the central European Bronze Age.

RI32 SOCIAL DIFFERENTIATION AND SOCIAL CHANGE IN MEDIEVAL RURAL SPACE. AN EXAMPLE FROM THE LOWER RHINE AREA, GERMANY

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Due to the high building density it is seldom possible to excavate larger areas in modern villages. The Rheinish lignite opencast mining area between Cologne and Aachen (Germany) gave the unique opportunity to excavate large parts of the village of Pier and its hinterland. The excavations were performed by the University of Bonn and the regional bureau of monument conservation.

The results provide an insight into the social structure of a rural settlement from late antique to modern age. Lots and farms of different sizes and wealth became apparent as well as activity zones of certain social groups. Some areas of the settlement were populated by groups of comparable social status for several hundred years, whereas other parts revealed constant change.

What are the reasons for the observed coexistence of social continuity and discontinuity in a small area? What influence had the immense population growth in the high middle ages or the prospering nearby cities? The formation of rural communities in the High and Late Middle Ages was probably a key factor. Influence within these communities was essential for the status in the rural society. Religion supported social continuity. With the spread of christianity the practice of religion underwent fundamental changes but the sacred places did not shift and were always engrossed by the rural elites. Based on these factors the example of the village of Pier leads to a differentiated model of social dynamics in rural space from the late antique onwards.

RI8 GODDESSES AND INSPIRED HUNTERS AMONG SERVANTS: REPRESENTATIONS OF LANDLORDS AND THEIR WIVES ON ROMAN AFRICAN MOSAICS

Anna Mech

UNIVERSITY OF WARSAW

In 2nd century AD Roman Africa, especially in province *Africa Proconsularis*, a special form of provincial Roman art appeared - figural mosaic. These mosaics, depicting mythological or everyday life scenes, were displayed either in the context of public buildings, such as amphitheatres, or private estates (*villae*) of influential landlords.

Among the mosaics from *villae*, those with representations of landlords and their wives draw particular attention. Members of this social group had themselves depicted in a portrait-like way, some mosaics including even their names. They were shown at leisure or enjoying the typical pastimes associated with Roman nobility. Men were depicted hunting in company of followers or accepting gifts, women overseeing the labour of servants, trying on the jewellery or resting.

The paper aims to explore the social interactions that led to the creation of such images. On one hand, they clearly show a desire to accentuate the hierarchy of provincial population. The way landlords and their wives are represented alludes to the imperial, heroic and even divine iconographies (Venus) through the choice of topics, poses, costumes or attributes. Secondly, the mosaics reflect to some extent the internal power dynamics of the landlords' households as well. Those who ordered their creation expressed not only aspirations towards a special social standing, but also their perceptions of gender roles. Women were depicted passive, in simple daily and home activities, while men were shown in action, with an emphasis on their various levels of agency in the outside world.

RI9 FUNERARY PRACTICES IN THE SECOND MILLENNIUM BCE IN CENTRAL TYRRHENIAN ITALY: TRADITIONAL AND NEW MODELS AND THEIR CONNECTIONS WITH SOCIAL DEVELOPMENT

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The second millennium BCE in central Tyrrhenian Italy is characterized by a process of gradual but persistent cultural osmosis. A cultural koiné came into being by means of wide-reaching networks across Europe and the Mediterranean. On the regional level, the circulation of ideas, technologies, artefacts and people led to homogeneous material cultures, at places clearly influenced by central-European and Aegean civilizations. This growing cultural unity would develop further during the final centuries of the millennium, resulting in a framework of different *facies*. In a context of growing social stratification, different funeral practices are attested: chamber tombs, collective and individual burials in natural caves, single inhumations and cremation burial grounds. The aim of the paper is to investigate the connections between the developing social structures and the changing habits of the mortuary practices and how the latter are tied to the emergence of new political and social identities. The dialectics between inhumation and cremation rites, between single and collective burials and between chthonic

and ouranic cultic aspects will be traced in a diachronic perspective, trying to evaluate the influence of socio-economic transformations on burial models.

RI34 MAKING A HOME: CONSIDERING PLACE AND SPACE IN IRELAND'S VIKING TOWNS

Rebecca Boyd

INDEPENDENT

Boyd's previous work examined how Ireland's Viking-Age urban households used their architecture to create a sense of privacy and belonging within the home. Simultaneously, these private spaces engaged in a rapidly evolving urban environment, creating a new Hiberno-Scandinavian urban identity. This identity was complex, it encompassed scales of belonging and levels of investment articulated in many ways. Here I explore three points to deepen our understanding of that identity.

1. Urban dwellers had to interact with each other, as neighbours, consumers and suppliers. Where did these interactions take place? Dublin's Viking street pattern is familiar, but how and where did individual households trade items produced or services supplied? Can we re-interrogate the surviving evidence to 'place' these interactions within the urban space, at the streetfront, within houses, or elsewhere?
2. The question of Dublin's relationship with its rural hinterland has largely focussed around the socio-economics of supporting the town. The settlement at Cherrywood is key in re-orienting that discussion away from economics and towards the social element in the mixture. A closer comparison of this site with urban settlement patterns may give us new clues into whether its inhabitants self-identified as country farmers or suburban residents.
3. Viking Dublin's urban infrastructure (its harbour, street network and architecture) is distinctive and repeated across Ireland. Can we presume that the same cultural values applied everywhere? By comparing houses from Dublin and Waterford, we may be able to suggest varying degrees of 'Irish-ness' or 'Viking-ness' inside households.

RI17 SUGGESTIONS ON THE (RE)CONFIGURATION OF GOTHIC IDENTITY IN LATE ANTIQUITY BASED ON ARCHAEOLOGICAL AND HISTORICAL SOURCES: SHOULD JORDANES' ERROR BE REANALYZED?

Tiberiu-Theodor Plăcintă

UNIVERSITATEA "ALEXANDRU IOAN CUZA" IAȘI

Hypotheses regarding Jordanes' Gothic-Getic confusion have long been made and vary wildly, some historians believing the error derives from the lack of source material and knowledge or that "renaming" the Goths is nothing more than a very common stylistic procedure. Others have more complex theories: it could have been part of Justinian's political agenda to justify waging war on Ostrogothic Italy by showing the barbarity of the Goths or – the opposite – his strategy to boast the former enemies' status to elevate the prestige of his victory. Another theory says Cassiodorus made up the story at the Amal order.

But can this confusion offer clues about the (re)creation of Gothic identity? The "unity in diversity" suggested by the archaeological record of the Sântana de Mureș - Černjakhov culture (uniformity of most of the material combined with great variety in burial practices in many *necropoleis*) means a prolonged cultural exchange between populations. Also, intermarriages are demonstrated by the few anthropological studies made on SM-C skeletons.

Would then the Goths of the fourth century not know the Getic legends? Is it then improbable for the Gothic aristocracy to simply *claim* after generations of living together and interbreeding their neighbors' (and by now *cousins*) history? The Amals – a *kernel of tradition*, as described by Herwig Wolfram – would not want to include this in their own history? Finally, why would this "mutation of the kernel" would not be available to Jordanes from both Cassiodorus' work (which included the Amal legends) and his own family history?

RI7 PERINATAL DEATH AND CULTURAL BUFFERING IN A NEOLITHIC COMMUNITY: CASE STUDY OF A NEONATAL INDIVIDUAL FROM ÇATALHÖYÜK.

Belinda Tibbetts

UNIVERSITY OF EXETER

Identifying cultural responses to infant mortality in past populations is not usually a straightforward process. Experience has taught us that even during historical periods, the archaeological evidence can contradict the recorded beliefs and attitudes towards the funerary treatment of juveniles. The very youngest juveniles have been, until recent times, the least utilised contributors towards our comprehension of past cultural responses to their deaths and burials. These individuals are now widely recognised for the potential they provide for considerable insight into their cultural identity in past populations.

This case study employs a bioarchaeological approach to understanding the burial remains of a neonate within the context of its community, and the cultural response to infant death that is reflected in the archaeological record at Çatalhöyük. The neonate burial dates to approximately 6500 BC and is one of several burials within an architecturally elaborate 'history house' that was used over multiple generations.

In order to approach a more holistic interpretation of the social identity of this neonatal individual, results from the analysis of this burial, including the skeletal remains, burial environment and burial inclusions, will be discussed in relation to the cultural context of the contemporary living community. It will be demonstrated that within this Neolithic community, the youngest members were recognised as having a social identity and provided with culturally sanctioned burial.

RI23 NORTH BY NORTHWEST: AGRARIAN LANDSCAPES AS POWER STRATEGIES IN EARLY MEDIEVAL GALICIA (NW IBERIA)

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Galicia is a wet and temperate country located in the northwest of Iberia. It is the southern ecological frontier of Atlantic Europe. In many ways Galicia is closer to the northern lands' ends of Europe than to its neighbour regions of Iberia. At the same time, it has benefited of its location to function as a bridge between Atlantic Europe and West Mediterranean Europe. Recent archaeological research has produced new sets of data that defeat the traditional view of Galicia as a marginal land in the first millennium AD with a "poor" archaeological record. New data show a process of agrarian intensification, rooted on a full complex system of agricultural terraces and artificialization of land, with significant production of surplus, a dense network of rural settlements, monumental activity involving construction of early churches, presence of long-distant commercial relations (including with Byzantium) and exchanges of luxury products. This view reveals a great socio-economic dynamic in VI-X Centuries AD. Basing on these advances, we will explore the social dynamics that enabled this major transformation of the agrarian landscapes of Galicia during the Early Middle Ages. Four main issues will be discussed: the relation between these agrarian infrastructures and the intensification of the production, the relation between these and other major changes in the early medieval landscape (settlement, fortifications, churches and monastic colonization of new areas), the influx of fencing the land for building communities, and the role of agrarian spaces as a strategy for the consolidation of regional aristocracies.

RI31 WHO HOLDS THE POWER OF GOD? CHANGING RITUAL ROLES AND BURIAL PRACTICES IN CONVERSION PERIOD ANGLO-SAXON ENGLAND – A COMPARATIVE APPROACH.

Samantha Leggett

THE UNIVERSITY OF SYDNEY

During the conversion period in Anglo-Saxon England (c. 570 – 850 A.D.) there were major divisions and differences throughout the kingdoms and also within the fledgling Christian Church in the British Isles. The material culture reflects this very dynamic and mixed social sphere where political, economic, ritual and religious identities were being experimented with and renegotiated. With Germanic Kingship in force in Anglo-Saxon England much of the power ritual and otherwise lay with the royal houses and as such for the Christian missionaries to flourish they had to work within the royal court and its power structures until the church in England was more established. As Christian ideology spread there were observable changes occurring in the funerary record, with the 'final phase' of Anglo-Saxon burials appearing, grave goods fluctuating in and out of fashion, and overall standardisation of burial practice beginning to be seen across England. The paper addresses the question of who is responsible for these changes? Certainly the introduction of Christianity is at least partly responsible for the changes seen in burial practice, but is it the clergy or the royalty who wield the most influence and power over the lay populations and how they bury and honour their dead? Or do they even hold any sway at all? A comparison of several conversion period cemetery populations from across England will demonstrate the extent of centre (Royal and Ecclesiastical) influence on the periphery and their cemeteries in this time of great change.

RI7 OUT OF THE CRADLE AND INTO THE GRAVE: THE CHILDREN OF ANGLO-SAXON GREAT CHESTERFORD, ESSEX

Christine Cave

AUSTRALIAN NATIONAL UNIVERSITY

This presentation seeks to shine a light on the lived experience of Anglo-Saxon children, especially the infants. Unlike most Anglo-Saxon cemeteries, the Great Chesterford excavation appears to have sampled a good cross-section of the entire community, including infants and children, and thus provides a rare opportunity to examine those who are largely invisible in Anglo-Saxon mortuary contexts. As children are buried by adults, inferences can be made about adult attitudes to the dead child, as well community concepts of children and childhood. Where children are buried and how they are buried not only reflect adult points of view, but also provide a glimpse, albeit through the distorted lens of the grave, of the life of that child. We found that although some children were buried with exceptional treatment, in general children were supplied with fewer, less expensive, grave goods than adults; some were buried in ways that marked them as unusual and some in similar ways to the elderly. Despite this limited funerary investment, most of the usual adult grave goods are represented in infant and child graves. While the funeral tableau, displaying goods both practical and symbolic, provides an aid to remembering the dead, the burying of artefacts also functions as an aid to forgetfulness. Therefore, we concluded that the unwillingness or inability to

commit scarce resources to a dead child's grave is not necessarily a sign that their deaths were without meaning or that the child was not missed.

RI10 YOU ARE WHAT YOU EAT. THE CORRELATION BETWEEN THE INTRODUCTION OF CEREAL CONSUMPTION AND CERAMIC CHARACTERISTICS IN THE SWIFTERBANT CULTURE (THE NETHERLANDS; C. 4300-4000 CAL. BC)

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The pottery tradition of the Swifterbant culture spans more than 1000 years, starting c. 5000 cal. BC. It covers the area between Antwerp (Belgium) and Hamburg (Germany), while most sites are found in the Dutch wetlands. Interestingly, the Swifterbant culture holds both a Late Mesolithic ceramic phase and an Neolithic phase in which small-scale animal husbandry and cereal cultivation occurred.

This paper focuses on the period with the first evidence of cereal cultivation, dated c. 4300-4000 cal. BC. It will first be discussed whether this date might be the result of the absence of sites predating this period, after which the conceptual incorporation of cereal produce in the subsistence base is discussed. Was this innovation seen as 'raw material' for meaningful social action by means of material culture? It is argued that the incorporation of cereal produce correlates to a significant change in pottery technology, in which the newly developed pottery types prelude to later Funnel Beaker pottery.

As such, this paper argues in favour of deliberate social action on the side of the 'receiving end' of the farming frontier. It was not a matter of simply taking over a new subsistence base, but rather the active involvement of these new farmers in creating a New Neolithic: with new pots and new subsistence strategies.

RI37 THE PIT-GRAVE (YAMNAYA) CULTURE OF THE VOLGA-URAL INTERFLUVE: PROBLEMS OF THE CHRONOLOGY AND SPECIFIC FEATURES DEVELOPMENT OF THE ECONOMY

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ORENBURG STATE PEDAGOGICAL UNIVERSITY

The Pit-Grave (Yamnaya) culture, which occupied the steppe area from the Danube River in the west to the southern Urals in the east in Eurasia, has played a major role during the Early Bronze Age. The most stable Pit-Grave culture developed in the Volga-Ural interfluves.

A community practiced monotonous funeral rites in the form of earthen mounds (kurgans) over the deep and large burial pits on the vast territory. Characteristic crouched posture of the dead is with a bending on the right side and sprinkling with ochre.

The population began to practice nomadic pastoralism, introduced wheeled transport and used copper tools. Production of metal based on the local Kargaly copper deposit was developed in the South Urals at that time.

Due to the transition from the Eneolithic to the Bronze Age and the connection of many technological achievements with the Pit-Grave culture, it is especially important to solve the problem of establishing chronology of the culture and the stages of its development.

The ¹⁴C-dating of the culture was not known in this region up to the end of the XX century. Now we have more than 80 ¹⁴C-dates for the monuments in the Volga-Ural interfluve.

Based on paleopedological and radiocarbon data we can confirm the three-stage periodization of the Pit-Grave culture in the Volga-Ural interfluve: the early (Repino) stage – 4000-3300 BC, the advanced (classical) stage – 3300-2600 BC with two A and B steps – 3300-2900 and 2900 - 2600 BC, respectively, and the late (Poltavkinsky) stage – 2600-2300 BC.

RI34 A NEW LOOK AT DARK AGE EUROPE: AN IBERIAN VIEW

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The Islamic towns in Spain and Portugal tend to be perceived separately from the "Dark Ages" of Europe. Due to elements of a common Islamic urban structure, towns in the Iberian Peninsula of late Antiquity and the Early Medieval period are frequently looked at in relation to the towns of North Africa and further east, instead of those of Western and Central Europe. In examinations of urban identity of Europe in the aftermath of the Roman Empire, this has kept Iberian towns apart in an apparently separate, external process of urban development. However, the redefinition of the "Dark Ages" as culturally dynamic and the continuity of urban infrastructure and occupation at many Roman sites in the Iberian Peninsula makes these cities and their development a vital aspect of the entire range of urban transformation across Central and Western Europe between the 6th and the 11th centuries CE. This paper will discuss the separate treatment of post-Roman Iberian towns from those of the emerging Frankish kingdoms and the British Isles, to explore the importance of including this region in future cross-European studies of urban development and identities.

RI5 THE PERIODISATION OF BRONZE AGE IN THE EASTERN BALTIC REGION: HISTORIOGRAPHICAL REVIEW OF TURNING POINTS AND THEIR SIGNIFICANCE FOR THE CULTURAL AND SOCIAL DEVELOPMENT

Agne Civilyte

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There is no single unanimously adopted chronological scheme of the Bronze age periodization so far in the Baltic countries. The currently accepted treatment divides the Bronze Age into two periods – Early and Late Bronze Age. They correspond to the periodization of the Nordic Bronze Age. In recent years suggestions have emerged to single out the Middle Bronze Age, since it is held that the social, economic and cultural development towards Late Bronze Age society might have started several hundred years earlier than previously thought. In this way one seeks to come closer to the triple classification of the Bronze Age, that has established itself in the neighbouring countries, and to keep with traditions dominant in the historical scholarship. This presentation explores the criteria determining the periodisation of the Bronze Age into separate eras and how one can describe the turning points of cultural and social development in the Eastern Baltic region. The very fact that the dating of the beginning of the Bronze Age ranges at the interval of 700 years reflects the relevance of the topic. The situation with the end of the Bronze age is no less complicated. Therefore it is vital to reconsider, by taking into account cultural peculiarities of this region, how important is the splitting of the Bronze Age into shorter sub-periods and whether it really enables us to recognize better the change of various cultural processes.

RI8 THE UNEXPECTED ANCESTOR: ARTICULATING THE ROLE OF WOMEN FROM BURIALS IN NORTHERN BASILICATA (SOUTHERN ITALY)

Raphaelle-Anne Kok-Merlino, Raphaelle-Anne Kok-Merlino

UNIVERSITY OF AMSTERDAM

The role of women in pre-roman indigenous societies is often reduced to textile producers, characterised for example by the presence of loom weights and spindle whorls in graves. Leading positions are believed to have been reserved for men, expressed through the presence of weapons and/or banqueting sets associated with drinking and the consumption of meat.

The burial ground of Melfi-Pisciolo, situated in the northern part of today's Basilicata in Southern Italy, shows that the role of women can be articulated more clearly. The only 'double depth' grave contained probably the oldest depositions, which have been identified as two female burials. The exceptional grave goods included materials that are usually interpreted as part of the dominant male's world, such as spits and a large bronze bowl, connected with the male banqueting scene. The importance of these depositions through the entire period of use of the necropolis is underlined by the notable distribution of the female burials in the late 5th and the early 4th century BC: in this period, the female burials were placed near and perfectly aligned with the oldest grave of the cluster, which seems to be an indication for the importance of a shared, collective history as a uniting element in this community. The analysis of the burial record in every facet in a holistic approach, avoiding the dichotomy between gender roles and power relations can result in a surprisingly different reconstruction of social structures in indigenous Southern Italy.

RI18 FLINTS IN GRAVES FROM PRE-ROMAN AND ROMAN INFLUENCE PERIOD IN POLAND AS AN EXAMPLE OF OVERLOOKED RESEARCH MATERIAL IN ARCHAEOLOGY.

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UNIVERSITY OF GDANSK

Flints were one of the main raw materials used to produce tools in the Stone Age. With the passing time this feedstock was superseded by bronze and iron. Nevertheless, once in a while they are found in much younger context, like for example graves from Roman influence period. Unfortunately, archaeologists who are focusing on the Iron Age do not treat those findings seriously. They consider them as remains of earlier settlement or even as natural pieces of flint that accidentally got into younger objects. Often they are omitted in research papers, wrongly recognised or mentioned only nominally. Moreover, these kinds of flints usually represent simple forms, which are not specific for any exact period. Because of that they are unattractive as an archaeological material for most of the scholars. The main aim of this paper is to pay close attention to the problem of marginalisation of flints. Author will focus on the findings from graves dated on pre-Roman and Roman influence period found in Poland. It seems that more detailed analysis of these materials, their function and exact archaeological context may shed new light on this marginalized subject. It could help to define whether they were put in graves purposefully or by accident. It is also possible that some of them were made in the Iron Age. Answers to those questions can help in understanding the function of flint in latter prehistory and perception of this material by contemporaneous populace.

RI1 THE NEOLITHIC EVERYDAY: DECAY, DISCARD AND THE HOUSEHOLD

Penny Bickle

UNIVERSITY OF YORK

The Neolithic house is no longer considered a single entity of social organisation by archaeologists, but rather as multifarious and contingent on regional and local trajectories of development. Domestic architectures are therefore envisaged as a palimpsest of different material and community activities and the Neolithic house, as an affective environment of interconnected material cultures. Increasingly bioarchaeological data, such as isotope ratios, are also being drawn on to discuss households and their varied organisation. However, this approach needs careful thought with regards to the important

dimension of time, particularly in terms of scale. How does the data arising intersect with both the generational replacement of houses and the rhythm of everyday routines? How can information arising from individual skeletons and bodies be related to group activities and social organisation? This paper will compare some of the temporal patterns arising from different Neolithic architectures to debate how different forms of evidence can be combined. The emphasis will be on comparing the LBK and post-LBK longhouses of central Europe to Neolithic household architecture more widely.

RI13 ROCK-CUT BURIALS ALONG THE UPPER YANGZI RIVER: IDENTIFYING LOCAL CAVE-MAKING PRACTICES

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SCHOOL OF ORIENTAL AND AFRICAN STUDIES

This research focuses on the intersection between rock-cut burials along the Upper Yangzi River, and the Han empire Southwest frontier.

Exhaustive survey in the Qi River valley, connecting the Sichuan Plain, the Yunnan-Guizhou Plateau and the Three Gorges area, is here combined with case study comparisons across other tributaries of the Upper Yangzi, which show stronger connections to the Han Empire provincial centres, or are more explicitly specialized trade and communication arteries between such centres. Along the Qi River, dated man-made caves and carvings correspond to a moment in history when the many tribes of Southwest China met the Han Empire (1st to 3rd century CE), but comparison with neighbouring areas shows that the caves might belong to a wider process of social interaction extending on the following two thousand years and possibly earlier back in time, across the same canyon-and-plateau landscape.

The Qi River man-made caves and carvings do not seem to fit the chronological and spatial categorization still applied by archaeological surveys, and enrich our understanding of cliff burials in general, by suggesting that this specific tradition of processing the dead, in highly visible yet inaccessible caves, rooted in local landscapes, belongs to times and areas of intense cross-cultural contact and enhanced cultural change.

To improve the definition of cliff burials, this research surveys each datable cave and group of carvings on a carefully recorded local scale, and tracks the development of both the technical tradition of cutting caves and the practice of marking the landscape with burials.

RI3 IMPORT OR IMITATION? RAW MATERIAL DIVERSITY AS AN INDICATOR OF PROVENANCE FOR POTTERY FOUND AT LBK SETTLEMENTS IN LESSER POLAND.

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Artefacts noted at LBK settlement sites include items which come from other, sometimes quite distant, regions (e.g. Spondylus shells, certain varieties of flint and obsidian, stone tools and dyes). They not only demonstrate that contacts were maintained between LBK communities living in different regions, but also on occasion provide evidence of the various origins and even the prominent social status of individual households within a village community. The greatest controversy regarding artefact origins surrounds ceramic vessels, particularly those recognised as 'imports' (or local imitations) based solely on their ornamentation. This article addresses the problem of identifying 'imported' pottery through the application of macroscopic methods, mineralogical and petrographic studies (thin sections), as well as XRF and XRD to analyse the ceramic body technology (recipe) used for making vessels found at the Brzezcie 40 LBK settlement in Lesser Poland.

The results of these analyses point to the use of a variety of raw material deposits from a range of locations outside the Brzezcie 40 settlement site (e.g. Tertiary deposits as well as Quaternary loess-like and alluvial deposits). Telling results were obtained from element content analysis, which enabled vessels featuring ornamentation typical of the Bükk culture to be distinguished from locally produced LBK pottery (the former contained higher levels of elements such as K, Na, Ca, P, Ni, Sr, Ba and lower levels of S).

Acknowledgements to the fifth co-author, Dr Bartosz Handke, AGH University of Science and Technology Faculty of Materials Science and Ceramics Kraków, Poland.

RI33 WAS THE LATE CYCLADIC I SETTLEMENT OF AKROTIRI (THERA) A COLONY OF CRETE OR WAS IT AN INDEPENDENT URBAN CENTRE OF THE AEGEAN? TOWARDS AN INTERPRETATION OF THE CULTURAL IDENTITY OF THE LATE BRONZE AGE CYCLADIC CITY, THROUGH A SURVEY OF THE FINDS.

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The question of the identification of cultural identity of a prehistoric city is closely related to the landscape, to the climate and the time that this city existed and developed. What if a scholar has to deal with a flourishing international port, which at its peak faced the absolute catastrophe and vanished because of the destructive mania of the nature (volcanic eruption), but what

is left behind is so rich in information, that create a series of questions and issues, instead of giving answers, as someone would expect?

One of the most popular issues of discussion among scholars of the Aegean archaeology is the debate of whether Akrotiri was a minoan colony or not. This is going to be the main aim of this study, to define the term colony and clarify the way this term is used in this case and evidently to show why we should not use it in the case of the settlement at Akrotiri.

This study is going to give a "tour" to the city of Akrotiri, by referring to the architectural evidence that confirms minoan influence, the monumental art of frescoes which again reflects the minoan and egyptian principles, the pottery which either it is imported from Crete or if local it imitates the minoan prototypes or the imported luxurious vessels so as to identify the social form this Late Bronze city followed. Therefore, the discussion will lead to the parts that form the cultural identity of the people of this coastal international port.

RI5 TRANSITIONS DURING THE LATE BRONZE AGE IN SOUTHEAST HUNGARY

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Around 1300 BC, at the beginning of the middle phase of the Late Bronze Age according to Hungarian terminology, significant changes occurred throughout the Carpathian Basin, manifesting themselves in various forms: rich warrior tumulus graves such as in Caka (W Slovakia), large cemeteries and ritual monuments such as in Lapus (NW Romania) or a series of fortified sites in various regions, e.g. in Transdanubia (W Hungary) or in the southern part of the Great Pannonian Plain (SE Hungary, NW Romania). These changes all indicate important political, social, economic and ideological transformations that characterize the "Tumulus-Urnfield transition". While change seems to occur everywhere, its manifestations differ considerably from region to region and continuities can also be observed. The aim of our paper is to discuss the processes, forms and reasons of these changes with a primary focus on the emerging system of fortified settlements in SE Hungary, and place them in a wider Central European context.

RI25 CULTURAL TRANSFORMATIONS: THE LATER HISTORY OF A BRONZE AGE NURAGHE AND ITS INHABITANTS.

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Recent research has focused on how identities of people and things are flexible and situational, often negotiated through contact and space, rather than being an innate fixed aspect of human character. The suggestion is that the material culture created by social groups is a result of decisions made by people to reform and/or reproduce their social structure in specific contexts.

S'Urachi is a large Bronze Age tower (nuraghe) situated in central west Sardinia. Although it dates from the second millennium BC, the material culture found around and inside it comes from a variety of periods, especially throughout the first millennium BC; Phoenician, Punic and Roman (8th --> 1st century BC). This raises the question of whether there was continuity of settlement at the site and what this can tell us about the people who lived there.

In this paper, we use the examples of everyday material (amphorae, kitchenware) from S'Urachi to examine notions of identity in the material record. The questions we pose are, specifically: is the material typical of the Punic material culture; can it be related to the material of a similar period or does it refer to a more specific Sardinian or local identity? And in general, how did the function and identity of the nuraghe change from the Bronze to Iron Ages and what can this tell us about the way the nuraghe was seen by the communities living around it in the 1st millennium.

RI9 INHUMATIONS, CREMATIONS AND BI-RITUALISM IN THE NORTHERN ITALY BRONZE AGE NECROPOLES: RITUAL PRACTICES AND SOCIAL ORGANIZATION

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Thanks to the last decade acquisitions about Northern Italy Bronze Age necropoleis, Casinalbo above all, we are actually able to provide a deeper view of the ritual practices, demography and social structures of the communities that were settled in Northern Italy by the XVI century BC.

It is very well known that the appearance of large cemeteries, consisting of hundreds or even thousands of graves, coincides with the development of village communities, with the progressive adoption of cremation during the Middle Bronze Age and the start of the historical cycle of the Terramare.

This ritual change is accompanied by the extreme reduction of grave goods in general, and in some cases by the total absence of weapons in male burials. At the same time, new practices, such as fragmentation rituals, begin to be performed in honour of the ancestors or the deceased himself in specific areas of the cemeteries.

New relevant advances are also due to the convergence of archaeological and anthropological research. More than 1000 cremation burials have been investigated recently, and the results have shed light on the transformations in the criteria of inclusion/exclusion from the cemeteries, and from distinct topographic groups. Moreover, the integration of anthropological data and chronology has allowed to obtain a diachronic development of the social structures and different systems of kinship. What now seems to emerge is that the Po Valley communities differ significantly from the rest of the Peninsula, and the gaps likely rely on a different economic social, and political organization.

RI27 GERMAN CERAMICS IN NORWAY IN THE 14TH TO 17TH CENTURY – IMPORTED LIFESTYLE OR ORDINARY COMMODITY?

Volker Demuth

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In the late medieval and early modern period all pottery in Norway was imported as the country had no domestic pottery production since the Viking age. Thus medieval ceramics provides a profound glimpse of the various international connections of the country. But additionally questions arise concerning the deeper meaning of the pottery finds of the period in Norway. Which kind of ceramics was used when, where, by whom and why? The analysis of selected ceramic finds may provide an idea how far an international or "Hanseatic" lifestyle was adapted in Norway.

On the basis of finds of pottery in Bergen, the largest contemporary town in the north, and different rural find spots along the country I want to try to evaluate the significance of the ceramic finds in their various contexts. Not astonishingly there are large numbers of German pottery in the layers of the Hanseatic kontor at Bryggen in Bergen, proving the cultural impact of the Hanseatic merchants in the city. But was the imported pottery also used outside the Hanseatic quarter of the town? And further on, to what extent is imported pottery found outside the urban centers as Bergen?

By presenting selected ceramic finds from different find spots in Norway I want to discuss in what way material culture represents subordinate social systems.

RI34 LIUBICE – OLD LÜBECK – LÜBECK. THE SHIFTING OF AN URBAN IDEA?

Dirk Rieger

ARCHÄOLOGIE HANSESTADT LÜBECK

Founded in the 9th century Liubice was built as a Slavonic stronghold in the western parts of the Obodrits' realm on a peninsula among the banks of the confluence of the river Trave and the river Schwartau. Due to its geographic location with access to the Baltic Sea and to hinterland trading routes, Liubice was connected to Saxony, Scandinavia and the Eastern Baltics. Being embedded in this multi-cultural zone and in an early medieval trading network, it developed from a single fortified place into a princely residence with a strong mercantile character at the end of the 11th century. It had two churches and was a primarily place for Christian missionary ambitions. But was it then an emporium like other famous ones or was it something different? Was it just a trade-focussed settlement or did it had more of an urban structure, an urban use of space or even a kind of urban identity? Is there a different conceptualisation and organisation of space, housing culture and infrastructure like in the German Lübeck that was founded in 1143 only 5 km south of Liubice? Are there any differences or even similarities? Do we have to see Lübeck therefore as a successor or as a shifted transformation of an urban idea that rose in the melting pot area of Slavs, Saxons and Scandinavians?

RI18 SAILORTOWN, BELFAST NORTHERN IRELAND. AN IRISH COASTAL COMMUNITY EXPLORED

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An antipathy to the investigation of Ireland's coastal communities exists and can probably be attributed to the political history of Ireland. The ports and harbours mostly controlled by and for British interests began to symbolise British rule, especially post 1922 when the Republic was establishing a national identity distinct from Britain, or the 'other'. For the past millennium, Ireland has been a focus of international trade, the legacy of which has been reflected in the archaeologies of human coastal activities, such as harbours, quays and towns. In spite of the abundance of material remains, there is relatively little knowledge of these maritime communities, their social, industrial and political lives.

This paper will report on an archaeological and historical exploration of Sailortown, (the unofficial name given to a tiny enclave of streets, located on Clarendon Docks, Belfast, Northern Ireland), which is the subject of a three-year British Academy research fellowship project through which this Irish coastal marginal community will be explored whilst addressing the issues of balance and bias to the study of coastal communities in academia.

RI9 FUNERARY EVIDENCE IN EARLY IRON AGE SOUTHERN ITALY: RITUALS, BURIAL PRACTICES AND SOCIAL STRUCTURE

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It is widely acknowledged that Italian Early Iron Age, a period of about two hundred years spanned between the end of the tenth and the end of the eighth century b.C., represents a key focal point for the development of local protohistorical societies, rapidly evolving towards more complex and stratified structures.

For Early Iron Age southern Italy, funerary evidence represents a huge dataset that allows investigating developments in the socio-political configuration of local communities, as well as the ways 'cultural' affiliation is reflected in the archeological record. Both issues have been fully explored by recent research, thus providing a general framework to relate to and to compare with while analyzing contemporary developments in other Italian regions.

Aim of this paper is to analyze the wide spectrum of Early Iron Age southern Italy funerary behaviors as a means to understand social complexity and 'cultural' kinship: the discussion will focus on rituals, funerary assemblages and socio-political configurations of local societies as reflected in the funerary evidence, in their changes through space and time; also, special attention will be drawn to the wider frame of Mediterranean connections generated by Greek and Levantine projection to the West in the eighth century b.C. and on the way they affected rituals, identity and socio-economical developments.

RI34 WALKING ON THE EDGE: A TOPOGRAPHY OF UNDERGROUND ECONOMIES THROUGHOUT LATE ANTIQUE AND EARLY MEDIEVAL AGES (FIFTH-NINTH CENTURY)

Giulia Peresso

UNIVERSITÀ DEGLI STUDI ROMA 3

The perception of an immeasurable distance between classical and medieval age marked by the traditional date of 476 A. D. stated one of the most stable points on the time line of both historians and archaeologists. Last season of academic studies around the Late Antique tried to reduce the strenght of this point of view despite the lack of definition about the research lines chosen. That is the gap this study commits to filling from a methodological point of view. On the research hand, its main purpose is to look at this transition by an economical perspective. Same needs, different way to answer it. This process may contain the potential to get to the point of cultural transformations occurred after the end of the Empire. The speech will try to approach the topic using a specific perspective. The lowest. Hunters of spaces to carry on their business. Hunters of materials to build those spaces. These were priorities for Rome inhabitants during the Middle Age. The study will collect the archaeological *data* referring to practices related to the new economy; *ateliers* specialised in the re-working of selected materials, new building techniques to employ it, farms, orchards and markets into public areas, the whole city seems to withdraw in a dimension of autarchy. This approach will try to map the economical activities stated into the city of Rome, taking in consideration their reflections on social behaviours. A new approach to a city which, far from "dying", is reinventing itself, discovering new potentials also in reorganizing urban spaces through new functions.

RI30 THE CONTENTIOUS OF HERITAGE: POLITICS AND IDENTITY

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Heritage is a phenomenon that has different meanings and importance for different individuals, groups and institutions. For instance, while it is significant for identity and memory by ethnic groups it can be seen as a threat by nation states. It can be a reason of conflict between groups over ownership rights of the lands, or as a national and world heritage by the different point of views. In the case of Turkey, the Turkish nation state has seen minority' heritage as a threat and tried to re-configure the identity of many heritage sites of minorities. In this paper, I will discuss the approach of Turkish state to heritage of minorities- with specific reference to the Ani site in east Turkey.

RI5 WHAT DOES REALLY CHANGE AND WHEN? RECENT RESEARCH ON THE LATE BRONZE AGE/EARLY IRON AGE TRANSITION IN SLOVENIA

Matija Črešnar

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There is little doubt that the transition from the Late Bronze Age to the Early Iron Age is one of the major turning points in European prehistory. That is also the case in Slovenia, the region located between the fringes of the south-eastern Alpine world, Italian Peninsula, the Balkans and the Pannonian plain, a melting pot of its own.

The change in some aspects may appear abrupt as the settlement pattern and the mortuary practice seem both to change quite radically and other forms of cultural expression also undergo clear changes. However, when examined in detail and case by case, the situation looks far less clear. Research carried out in the recent years, including the use of new methods and modern technologies, has shown that first changes, e.g. in the settlement pattern, appeared much earlier and that some traditions, as burial customs, pottery production etc. show obvious continuity. We are dealing with a period, when the "old" and the "new" coexist and when the fundamentals of the new era are being laid, however the tights to the preceding one have not yet been cut through.

The more we appear to know, the more complex the situation seems in the transitional period between the Late Bronze Age and the Early Iron Age and new even more intriguing questions post themselves in the course of our research ...

RI24 THE FINDINGS OF AIZANOI GRAVES AND INTERPRETING

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In this paper, analyzed that the findings which are found North Necropolis of Aizanoi between 2012 and 2014 years. The graves are generally earth cist and terracotta plaque lid graves. While the earlier graves are dated to the endings of the 2nd century BC., the latest tombs are belonged to the 3rd century AD. However the common dates are between 2nd BC. and Late 1st centuries AD. for the graves. The cremation was widespread for the earlier graves, inhumation is common after the midist of the 1st century AD. We consider that some cremation graves are belonged to the soldiers though of the findings. The grave which is found terracotta Heracles statuette seems that contacted to Balkans. Heracles statuette is symposium type. Probable it is set to heroised the dead into the grave. The similar examples are met with Balkans. It is discovered a miniature helmet upon the grave earth. The another interesting findings which are found in some cremation graves of Aizanoi North Necropolis is the bowls that set reversed to the earth. As known that the similar bowls are found Phrygia and Lydia regions also discovered in Macedonia. Some inscriptions of Aizanoi are informed that the soldiers came from Macedonia in the Late Hellenistic period to Aizanoi. It is possible that some graves which are found in the north necropolis, related to people from Balkans in Aizanoi in Halter Hellenistic period.

RI4 PRODUCTION OF POTTERY AND BRICK OBJECTS FROM THE SECOND HALF OF XIVTH CENTURY IN TÉTEGHEM (NORTH OF FRANCE).

Vaiana Vincent

INRAP

Téteghem is town situated in the North of France, 4 km away from the coastline and 3 km from Belgium. It's located precisely in a "border region" on the maritime plain, on the south of the North sea. It's an environment with variable sedimentary deposits like clay, peat and sand. Consequently conditions are good for pottery manufacture. Recent archaeological surveys and digs provided evidence for ceramic production dating from the middle of the 12th century and another dating to the second half of the 14th century. The techniques and decoration includes Téteghem in a homogeneous micro-regional ceramic tradition that we can compare with others sites of the maritime coast. The production of brick objects is particularly significant. These consist of lids, spit-supporters, cups and double-bacs with elaborated decoration: line patterns incised, small triangles impressed by a knife, fingering, part coat with red slip and carved triangles patterns (so-called "keberschnidtt"). A synthesis of this type of objects is made in Netherlands (Dorgelo 1959 and more recently Heidinga & Smink 1982). There are other examples in North-West of Germany and on Belgium coasted. The distribution of these objects, already revealing the hanseatic trade road, have demonstrated a shared culture of coastal people.

RI13 JOURNEYS INTO THE DARK

Rick Peterson

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There are 45 cave burial sites in Great Britain with published Neolithic radiocarbon dates. Recent analysis of the archaeology and human remains from these sites suggests that there were probably four different practices during the Neolithic involving human remains and caves. These were disarticulation by successive inhumation, multi-stage disarticulation, individual burial and mummification. As a group these were part of a much wider set of transformational practices on human bodies documented from the whole of Neolithic Europe. This paper will look in detail at disarticulation by successive inhumation in British caves to draw out the methodology and possible meaning of these transformations.

Over the course of the Neolithic successive inhumation increased in relative importance as a burial practice. There were also changes in the kinds of spaces used, particularly an increasing emphasis on burial at depth. It will be suggested that these changes were driven by a change in the relationship between the human agency of the mourners and the perceived agency of the burial cave. Drawing on ideas from Actor Network Theory, the ideas of 'affordances' developed Tim Ingold and the concept of the 'affect' from the work of Giles Deleuze this paper will look in detail at the archaeology of burial caves with successive inhumation to attempt to explain this shift.

RI27 A TALE OF TWO CITIES: A PERSPECTIVE ON THE CONNECTIONS BETWEEN IDENTITY AND MATERIAL CULTURE FROM MEDIEVAL LIVONIA

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The perspectives of interpretations of the material culture of the Eastern Baltic have ranged from that of the last pagans and later neophytes, stressing the indigenous, rural population, to that of typical hanseatic urban material. The interpretations on the identities expressed in material culture have mostly been based on ethnic groups, yet there are other important aspects, e.g. wealth and prestige, that makes outlining the non-German identities difficult. Following the approach by Jones (1997), emphasis should also be place on the 'others', against whom the group identity is constructed, as well as on the process of identity construction.

On the basis of the Estonian medieval urban archaeology, we can establish two partially overlapping, but still different paths. Based on pottery and glass consumption, local handicraft and housing remains, we compare plots within the medieval town to single out contemporaneous differences within the towns and discuss their meaning. In **Tallinn**, the firsthand impression supports the idea of socially divided space with differences in housing and household items. In **Tartu**, the archaeological material has a less differentiating look, with main outstanding properties connected to conspicuous consumption and German background. Several locally produced vessels remained in use for the whole medieval period among the largest part of the town households, which leads to the idea, that identity expression was probably confined to some other elements, e.g. dress and accessories. We also try to compare material culture connected to ethnic groups of similar background from the two cities.

RI8 BUILDING GENDER AND POWER RELATIONSHIPS IN SICILY: A VIEW FROM THE NATIVE ACROPOLEI (8TH-5TH CENTURIES BC)

Meritxell Ferrer Martín

STANFORD UNIVERSITY

The arrival of postcolonial approaches to the study of the Ancient Mediterranean has started to break down the long-standing hegemony of acculturative interpretations. Nevertheless, the study of Sicily is still dominated by traditional readings based on colonial discourses. This body of scholarship only takes into account the point of view of the colonies. As such, most of these studies still conceive of male colonial elites as the only possible actors in the island's historical development, while interpreting native populations as mere passive recipients of colonial innovation.

Following postcolonial and postfeminist postulates, this paper focuses on to analyze the agency of Sicilian native populations through a study of their most important communal ritual places –the so-called *acropolei*– and of the periodic ceremonies carried out in them. In these celebrations, a sense of community shared by all participants was constructed and materialized, along with the power dynamics and relationships that existed within it. Similarly, in these ceremonies other social identities presented by participants and by the whole community were also created and legitimized. Specifically, the aim of this paper is to analyze one of these social identities: the creation and materialization of gender identities and relationships through the analysis of some of the ritual practices performed in these celebrations. This study allows us to recuperate the agency of these native communities and, especially, to highlight how gender identities and relationships were constructed in these ritual arenas, stressing their similarities and differences with their relationships with other communities settled in the island.

RI30 TO WHOM DID DEVÍN BELONG? THE SITE ON THE BORDER OF CULTURES.

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From the birth of an independent state in 1993, the national identity of the Slovaks has been struggling with problems. Even twenty years after reaching sovereignty, Slovakia is identifying with myths and turning back to the 9th century, the heroic Early Middle Ages. Archaeological excavations of key sites has been stressed, esp. those at Bratislava, Nitra and Devín, because they recall the fame of so-called Great Moravia. The Devín site stands up from these contested heritage sites because of its uniqueness. It is surrounded by an aura of exceptionality. It is situated on the border line and it can be understood on many levels. It always lay on the border of different worlds; beginning with Romans and Barbarians and ending among modern political formations (Hungary, Austria, Czechoslovakia, Slovakia). They all tried to adopt it for the presentation and national identification. The glory of Great Moravia period represented on the Devín site was exploited by different political regimes and establishments by means of populist political ambitions which are reality up to these days. My aim is to present "ownership" of the Devín site during time and the role of archaeology in formation its identity.

RI23 MANIFESTING POWER - THE CREATION OF MONUMENTAL GAMLA UPPSALA

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The monumentality of Gamla Uppsala is one of the sites main characteristics besides numerous very Early Medieval literary records. Barely ten years ago was the centre considered a Migration period period creation, primarily on basis of datings of the mounds. Today are these datings revised and the results from repetitive excavations in combination with major revisions of existing data, have generated a strongly revised picture of how the monumentality of the site is created during less than a century. We can today talk about a monumental entity constituted by grave mounds, raised buildings on artificial plateaus and very long post row constructions, leading into and demarcating the centre. In this presentation I intend to emphasize the societal context of the site. Its relation to contemporary societal transformations and not the least relations to Europe, reflected in imports of both objects and ideas between c. 550-700 AD.

RI1 HOUSES UNDER THE MICROSCOPE: UNDERSTANDING THE RELATIONSHIP BETWEEN THE HOUSE AND DAILY ACTIVITIES IN NEOLITHIC ORKNEY

Benjamin Chan

LEIDEN UNIVERSITY

The Neolithic houses of Orkney represent some of the best preserved Neolithic domestic architecture in western Europe with many examples having preserved walls, house floors and external occupation surfaces, such as middens. These rare contexts of preservation offer excellent potential for the detailed analysis of both the broad range of activities associated with houses, and in the best cases, the identification of the spatial organization of those activities in relation to domestic architecture. There is therefore the possibility to address important questions about whether craft and subsistence activities were conducted uniformly across different settlements, and by individual houses within aggregated settlements. This paper will look critically at the current state of knowledge concerning house-related activity areas in Neolithic Orkney and will argue that whilst there are some suggestions of variability, there are many unanswered questions about the basic composition of the house and the craft activities and subsistence practices that took place within and around them. It will be suggested that this issue can to some extent be addressed by using microwear analysis to increase the resolution of our understanding of craft activities and to add crucial insight into the missing organic components of our artefact assemblages. The potentials of this approach will be illustrated using the case study of the Neolithic settlement of the Braes of Ha'Breck, Wyre, a late 4th millennium BC settlement consisting of five buildings that show a development from wood, to stone-built houses.

RI33 THE CREATION OF AGGREGATE IDENTITIES IN PREHISTORIC ARCHAEOLOGY

Mara Vejby

SANTA ROSA JUNIOR COLLEGE

This paper will discuss the persistent challenges and limits of detecting identities within prehistoric archaeology. It will argue that the material patterns uncovered through archaeological research are likely *aggregate* identities rather than cultural or even social identities within a geographical region. An *aggregate* identity is being defined as the collection of distinct cultures, which may possess enough similarities that they get artificially grouped together. In the case of prehistoric societies, surviving material items are what make a people visible to present day archaeologists. The similarity of material items and/or settlement structures can create deceptive cohesion, which is then defined as a 'cultural group.' There are aspects of culture, however, that are not accessible to a prehistoric archaeologist, such as, language, oral tradition, and some ritual activities, to name a few. By parsing out separate aspects of identity, and the ways in which they can be created and displayed by an individual or group, there is a better chance of conducting a meaningful discussion of the multiple identities that coexisted within prehistoric societies. The potential to combine these identities during modern research and re-imaginings of different phases of prehistory can then also be discussed. Using both prehistoric and ethnographic examples this paper will attempt to illustrate the dynamic challenges of identity reconstruction.

RI3 CERAMIC PRODUCTION AND VILLAGE HISTORY: A CASE STUDY ON THE EARLY NEOLITHIC SETTLEMENT OF CUIRY-LÈS-CHAUDARDES (PICARDIE, FRANCE)

Louise Gomart¹, Louise Gomart², Michael Ilett³

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In this presentation, we wish to contribute to the understanding of early Neolithic village history, from foundation to desertion, by examining the ceramic assemblage of the Lbk settlement of Cuiry-lès-Chaudardes (Picardie, France). Through the lens of manufacturing processes and decoration techniques, we will characterise and confront the different technical traditions and decoration variables within the village. From there, we will raise the issue of the relation between production features and potters' identity. Considering vessels as the result of series of actions that involve technical skills, transmission of knowledge and therefore interactions between individuals, this approach aims to address the organisation of ceramic production, the social structure of the villagers community, as well as the mobility of pottery producers throughout the village occupation.

RI24 TWO SANCTUARIES FROM AIZANOI IN PHRYGIA: METER STEUENE AND ABA SULTAN

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PAMUKKALE UNIVERSITY

In this paper, analyzed that the relation between Meter Steunene sanctuary of Aizanoi and Aba Sultan which is located on the opposite hill of the Cybele sanctuary in Aizanoi/Cavdarhisar. Meter Steunene sanctuary is located 3 km far from southwest of Aizanoi ancient city. Two *bothroi* which were built for Cybele are seen still today. Ancient writer Pausanias is mentioned that the procession for Cybele. People who are received to Cybele cult in this procession, must get into *bothroi* and, cut a bull by Cybele priests and washed the blood of the bull and then accepted to the Cybele cult. We observed that another ritual is occurred which are located just the opposite of the Cybele cult place that the named Aba Sultan by the local people in Cavdarhisar. Local Cavdarhisar people are climbed to the hill and pray to the Aba Sultan for the rain and indeed this tradition is related to Turk-Islam Periods. People are employed with agriculture for thousand years since Roman period and also Modern times in Aizanoi-Cavdarhisar and naturally they are begun to pray for the rain on the Aba Sultan Hill and offered the animal sacrifices, when the drought is became in Cavdarhisar. Two women who have got different names but similar rituals on the two hills where are located facing each other in Aizanoi/Cavdarhisar. The names could be change but the tradition is continued in Aizanoi/Cavdarhisar in the Phrygia region.

RI7 LATE CHALCOLITHIC JUVENILE REMAINS AND ASSOCIATED MORTUARY PRACTICES FROM ÇAMLİBEL TARLASI IN CENTRAL ANATOLIA

Jayne-Leigh Thomas¹, Ulf-Dietrich Schoop²

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Excavations at the Late Chalcolithic site of Çamlıbel Tarlası in Central Anatolia uncovered numerous burials and human bones from secondary contexts within the settlement. Osteological analyses revealed that the majority of the individuals recovered were young children and infants; only four adult skeletons were found. The juvenile internments were found in two mortuary groups, with babies and young infants buried in large pottery vessels and older children in flexed positions (Schoop, 2010). As with other contemporary sites in the region, it appears that the mortuary practices found at Çamlıbel Tarlası reflect the regional tradition of burying juvenile and infant remains in pots or under the floors of the settlement, with the majority of adult individuals buried extramurally. Current research is underway to fully examine the bioarchaeology of Çamlıbel Tarlası in regards to health, diet, population demographics, and funerary rites. By utilizing various methodologies and investigative techniques, future research can be established which will reconstruct the cultural and social identities of these children and allow for a broader interpretation of life during the Late Chalcolithic.

Schoop, U. D. 2010: Ausgrabungen in Çamlıbel Tarlası 2009. In: Schachner, A. (Ed.): Die Ausgrabungen in Boğazköy-Hattuşa 2009. Archäologischer Anzeiger 2010, 191–201.

RI5 THE RISE AND FALL OF AN EARLY BRONZE AGE SETTLEMENT AT THE EASTERN FRINGE OF ÚNĚTICE CULTURE: AN ATTEMPT TO EXPLAIN THE MBA DEPOPULATION IN EASTERN CENTRAL EUROPE

Jutta Kneisel

CHRISTIAN-ALBRECHTS-UNIVERSITY KIEL

The Únětice Culture (UC) is the first intensive metal processing Culture in Central Europe that participate in the supra regional exchange system. They acquire metal from the south, process it and distribute it to the North. Between 2200 and 1600 BC the UC pass through an intensive hierarchical development from a more together acting Society to a more individual society with big hierarchical differences in ritual. Fortified settlements are rare. At the Eastern fringe of UC in Greater Poland and Silesia we have four fortified settlements marking the border of UC as well as the border of metal distribution. East of it, in the Trzciniec Area, metal is lacking.

The most northerly settlement is Bruszczewo, situated 60 km Southeast of Poznań. The presentation give an insight into the development of this settlement, their supra regional connections until its decline. The construction of the fortification starts during the 21st century BC and was renewed every again the next 300 years until mitt of 17th century. The settlement was abandoned around 1650 BC and not resettled before 1000 BC. The start of the Middle Bronze Age in Eastern Central Europa is a turning point in settlement history. Finds are missing and pollen profiles shows a recession in human impact. Routes with supra regional connections are changed. It seems, as if at the transmission to the MBA this area was depopulated. Scientific analyses in Bruszczewo give possible answers to this decline.

RI32 UNLOCKING IDENTITIES: KEYS AND LOCKS ON IRON AGE FARMS IN EASTERN SWEDEN

Emma Nordstrom

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When keys are analysed it is usually those found in graves that are focused upon, meanwhile locks are rarely discussed in terms of their meaning or use in society. In this paper the focus will be on both locks and keys and their social significance in the context of the farmstead. Finds from Iron Age farms on Gotland and in Mälardalen will serve as case studies.

Questions dealing with the idea of locking will be explored, such as why and what people living on a farm locked up. What this could indicate in terms of private ownership and property linked to specific identities on the farm as well as in society as a whole will be discussed.

The paper will argue that the lived experience made the farm a social arena for the use of keys as displays of status or identity. Everyday practices such as locking and unlocking, installing a lock and the potentially ritual act of handing over a key will be discussed in terms of performance of identities. Traditionally, keys in the burial record have been interpreted as a reflection of a female identity associated with the 'Lady of the House'. However, recent studies of Iron Age graves have shown that being buried with a key was a rare custom and not exclusive to women. These studies show that new interpretations are necessary and this paper attempts to do just that.

RI22 FOR AN ARCHAEOLOGY OF HYBRIDIZATION IN SOUTHERN PALESTINE: POTTERY, MATERIAL CONNECTIONS AND IDENTITY IN THE LATE BRONZE AGE

Angela Massafrà

UNIVERSITY OF GLASGOW

The Late Bronze Age in Southern Levant is a period of internationalization, in which Palestine joins the 'globalized' economy of exchange of the Eastern Mediterranean. An interesting case of hybridization is shown by the connection between Egypt and

Southern Palestine: since the beginning of the period, the two cultures are closely entangled, at the same time as Palestine witnesses a strong incidence of Cypriot material.

An archaeology of hybridization for the Southern Palestinian area, though, has rarely been explored, mostly because of the difficult interpretation of material from the main sites, excavated in the early 1900s and poorly published.

A new interpretation of finds from the area, with a focus on the main site, Tell el-'Ajjul, can allow, on the one hand, to propose a theory of hybridization which fits the context under analysis and, on the other, to consider different degrees of material hybridization as witnessed by recorded finds. In particular, a contextual analysis of pottery sets will make it possible to appreciate and evaluate cultural practices of the Late Bronze Age Southern Palestine and their connections with the Egyptian and Cypriot societies.

RI29 A TEMPORARY TOWN DURING THE FIRST WORLD WAR: KNOCKALOE INTERNMENT CAMP, ISLE OF MAN **Harold Mytum**

UNIVERSITY OF LIVERPOOL

By September 1914 the Isle of Man had received its first internees from Britain, first at Cunningham's holiday camp in Douglas but, following riots that autumn, and increased numbers being sent for internment, an additional site was required. The site of Knockaloe, near Peel, was chosen and at first expected 6,000 internees, only slightly more than could be accommodated at Douglas. However, this camp was augmented by three more contiguous camps, leading to a settlement housing 23,000 internees and 3,000 guards. Recent archaeological investigations have revealed the nature of the organization and planning required to cope with such large numbers arriving on the site in a matter of months. Augmented by limited documentary and cartographic sources and a substantial collection of photographs, the archaeology reveals the nature of the infrastructure and security measures put in place to control a large number of alien internees. From the first structures erected in 1915, to the complete removal of all temporary structures during 1919, this short-lived but intensively occupied site consists of a special form of short-lived settlement that has received little archaeological attention. The site reverted to agricultural use, and was not reused in World War 2, therefore offering a rare opportunity to examine World War 1 practices both from the perspective of the administrators and of the inmates.

RI10 NEOLITHIC FARMING IN DUTCH AND GERMAN BORDER ZONES

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Welmoed Out, Stefanie Klooss, Mans Schepers, Wiebke Kirleis

An overview of recent research related to the introduction of arable farming at Neolithic sites in the Dutch wetlands and in the southwestern Baltic region from the late 5th millennium BC onwards sheds light on the complexity of neolithisation in these regions from an archaeobotanical perspective. Combined archaeological and archaeobotanical data related to arable farming, including features indicative of local cultivation and crop and weed assemblages, indicate both similarities and differences in the choices people made concerning arable farming practices. Does this evidence allow disentangling routes of neolithisation among the influence of factors like site function, environmental conditions and differential preservation amongst others? This paper aims to bundle specialists' knowledge from different regions and make it available to a wider public.

RI33 POWER, VISUALITY, AND COMMUNITY IDENTITY IN THE EUROPEAN IRON AGE

James Johnson

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Recent approaches to identity in the European Iron Age have focused primarily on how identity is expressed in mortuary practices. Such expressions include the deposition of exotic and/or luxury goods, weapons, and items related to personal appearance and style such as mirrors and shaving kits. In other approaches, the visual nature of funerary goods, including the body, is treated as the primary conduit through which identities are produced. These two approaches have been largely treated as disparate, rather than fundamentally linked through relational processes of identification. In this paper, I seek to reconcile these approaches through a multi-scalar approach to community identity shifting from broad scale or supra-local to the local and eventually to the individual burial. Building upon the very rich history of research of the European Iron Age, focusing specifically on the late Halstatt period (late C and D) as well as late Scythian period Iron Age, I explore how different levels of power were entangled in quotidian and event-oriented visuality, and it was through these visualities that identities were expressed, reinforced, and sometimes forced on, community members.

RI13 BURIED WITH HIS BOW AND ARROWS: THE EXCEPTIONAL GRAVE OF A 14TH CENTURY WARRIOR IN TSAGAAN KHAD CAVE, GOBI DESERT, MONGOLIA

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Authors: Henny Piezonka, Birte Ahrens, Gonchigsuren Nomguunsuren

In May 2010, an exceptionally well preserved 14th century AD cave burial was excavated by a Mongolian-German team at Tsagaan Khad mountain in Southern Mongolia.

Graves in caves and crevices are attested to in Mongolia and neighboring regions from the 6th to the 17th century AD. They represent a specific burial custom that existed alongside other, more common grave forms such as stone and earthen kurgans. The deceased were brought to natural caves and crevices in slopes and mountain tops that were difficult to access. There, they were put to rest in their clothes together with grave goods such as weapons, horse-riding gear and parts of wagons or yurts. Due to the dry climate of the Inner Asian steppes and semi-deserts, organic material is often very well preserved in these graves. Even natural mummification of the bodies themselves can be encountered.

The burial of Tsagaan Khad is outstanding among the Mongolian cave burials in several ways. Firstly, it contained a number of items so far without parallel in their excellent state of preservation, among them a decorated leather quiver and an almost undamaged, beautifully adorned composite bow. Secondly, it is one of very few cave burials that have been documented in a more or less undisturbed state. This enables us to achieve a comprehensive culture-historical assessment of the burial and thus to gain new detailed insights into the nomadic culture at the time of the Mongolian World Empire.

RI12 GRAVE REOPENING IN EARLY MEDIEVAL EUROPE: NEW RESEARCH PERSPECTIVES

Alison Klevnäs

STOCKHOLM UNIVERSITY

This paper presents new research into a long-recognised phenomenon: the widespread reopening and ransacking of burials in the row-grave cemeteries of the Merovingian kingdoms. Grave disturbance has been recorded in hundreds of early medieval burial grounds since the 19th century, but until recently there was almost no synthetic work comparing evidence between sites and regions. The practice was commonly glossed as 'grave-robbery', and assumed to be an unlawful activity with material motives. Hence reopening was for a long time seen mainly as a problem: disturbance not only of the dead but also of the archaeological resource, with analysis of burials, grave goods and social structures all hindered by interference with the original burial context.

However, the last few years have seen significant new findings about the date, extent, and types of grave reopening seen in this period. This paper highlights the work of the Grave Reopening Research working group (reopenedgraves.eu), whose members are carrying out detailed investigation of reopening evidence in five different areas of early medieval Europe. This new work demonstrates that it is possible to move on from speculation about motives and to develop interpretations which are grounded in the evidence. Grave reopening was a widespread and intensive practice in 6th and 7th century Europe, with untapped potential for understanding contemporary attitudes to death, decay, commemoration, possessions, and ancestors. It has significant implications both for our understandings of early medieval burial practice, and also more widely for recognition of conflicts and power relations in early medieval society.

RI6 CHALCOLITHIC CROP PREFERENCES AND AGRICULTURAL PRACTICES ON THE ANATOLIAN PLATEAU: COMBINING INFERENCES FROM ARCHAEOBOTANY AND STABLE ISOTOPE ANALYSIS

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The aim of this study was to build complementary inferences about the relative 'status' of crops by combining archaeobotanical evidence of crop abundance, processing and deposition with stable isotope data on crop water status (carbon) and soil N composition (nitrogen) as well as scope for assessing the palaeodietary role of crops in conjunction with faunal and human collagen isotope data. The Early Chalcolithic West mound of Çatalhöyük (5900 – 5550 cal BC) and Late Chalcolithic Çamlıbel Tarlası (3590-3470 cal BC) are located on the Anatolian Plateau and offer an opportunity to investigate the comparative nature of agricultural practices and crop preferences during the Chalcolithic period. The two case studies reveal differences in agricultural choice and crop status: data from the West mound at Çatalhöyük demonstrate that the dominant crop, hulled barley, occupied a drier niche in the agricultural landscape than less abundant wheats and pulses. $\delta^{15}\text{N}$ values tend to be high and variable, reflecting a complex set of factors including high soil organic matter, local/seasonal wetting and drying and climatic aridity. The less arid site of Çamlıbel Tarlası reveals that the dominant crop, lentil, grew under well-watered conditions, whereas barley and einkorn grew in more poorly watered situations. Nitrogen isotope values at Çamlıbel Tarlası rule out very intensive manuring and suggest a different baseline ecology to that of the Konya plain site of Çatalhöyük. Differences in crop abundance and growing conditions reflect the nuanced nature of agricultural choice and the utility of combining archaeobotany with stable isotope ecology.

RI1 THE HOUSE(HOLD) IN THE NEOLITHIC OF GREECE: INSIGHTS FROM POTTERY

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Ioanna Siamidou, Kostas Kotsakis, Dushka Urem-Kotsou, Slaviša Perić and Paul Halstead

In recent years, the extent to which some form of 'household' was a basic social unit has been extensively debated for the Neolithic of Greece. To date, this debate has largely focussed on the evidence of 'domestic' architectural plans, with limited contextual analysis of portable, everyday material culture, such as ceramics, not least because there have been few modern excavations of burnt buildings with contents preserved *in situ*.

This paper focusses on a rectangular Middle Neolithic house of wattle-and-daub construction at Paliambela Kolindrou, northern Greece. The house was destroyed by fire, preserving abundant traces of internal fixed partitions and facilities, but contained very few portable items, suggesting that it was largely cleared before deliberate burning. Such deliberate burning, well known in the central and north Balkans and plausibly interpreted as an act of ritual closure, raises questions as to the value of these destruction deposits as 'snapshots' of Neolithic domestic life. The ceramic contents of the burnt house at MN Paliambela are analysed, in the comparative context of pottery from contemporary neighbouring structures, to explore (1) whether individual 'houses' or groups thereof sheltered a basic household unit, (2) the extent to which ceramic vessels (including some imports) shaped social relations within and between households, and (3) the extent to which acts of ritual closure by conflagration have helped or hindered attempts to answer the preceding questions.

RI36 INVISIBLE ROMAN BREASTFEEDING: MALE POWER AND AFFECT

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Roman sources convey ambivalence about maternal breastfeeding: on the one hand, philosophers and medical writers say that it is good and desirable; on the other hand, there is a dearth of literary and visual depictions of breastfeeding in domestic contexts – by contrast to religious or mythological contexts. This could be due to a real disinterest of male creators of visual art in an act belonging to the female realm. But it could also be explained by a strategic disinterest, aiming at demoting maternal breastfeeding by making it as invisible as possible, a strategy itself consciously or unconsciously triggered by male negative feelings.

This paper explores men's potential feelings and reactions and men's related strategies concerning breastfeeding in the specific context of Roman elite society. Using the tools of modern psychology, it will try to analyse men's desire to have the sole control over female breasts as seen as sexual body parts only, jealousy of the pleasure that breastfeeding gives both mother and child, and above all envy of the essential, demiurgic act which is a female prerogative. Attempting to make breastfeeding invisible would be part of the process of taking control of it: the lack of visual depictions of breastfeeding would reinforce and perpetuate the idea that mothers of the elite could dispense with it, and accordingly create a vacuum then filled by male strategies of reappropriation.

RI35 NEGOTIATING THE MIDDLE GROUND: 'HYBRIDITY' IN THE INNER ASIAN FRONTIER BETWEEN THE CHINESE AND STEPPE EMPIRES

Bryan Miller

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Archaeological engagements with notions of hybridity have frequently focused on objects of intermixed cultural elements, asserting them as evidence of cultural amalgamation in circumstances of culture contact. Yet hybrid components of material culture assemblages are not so much indications of a new hybrid culture as they are products and instruments of cultural mediations between discrete cultural and social entities. This paper addresses 'hybridity' in frontier realms of intense inter-cultural interaction between the Iron Age empires of China (Han) and the Inner Asian Steppes (Xiongnu) through analyses not only of so-called hybrid *objects* but also of hybrid *practices*, incongruous to the cultures in contact, as well as 'pure' objects from interacting cultures within 'hybrid' cross-cultural consumption patterns. Intermixed objects and modified consumptions of pottery and personal ornaments coupled with variable practices of seemingly steppe-style animal offerings within tombs of Chinese colonial communities together exemplify material and performative intercultural mediations that constituted not a new 'Great Wall Region' hybrid cultural identity but rather the means through which local groups navigated multiple cultural regimes and negotiated a 'middle ground' of interaction between competing social orders.

RI7 EMOTIONAL ACT, SUPERSTITION OR RITUAL? - EVIDENCE FROM CHILD BURIALS IN THE MEDIEVAL PERIOD

Jane Jark Jensen

MUSEUM OF 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 torn down.

This excavation had a different approach to methodology, and some of the aims were to map the layout of the cemetery and locate traces of the burial ritual. This approach to the documentation revealed a lot of differences in the layout of the burials with one type of burial standing out from the rest - the children's graves.

A lot of those graves were decorated and laid out with great care, some with special features. A number of children were also buried with other children or adults. The overall interpretation of these graves, were that children were treated with high respect and love.

But what do these special features of the burials reflect, besides the emotional act? Do they reflect superstition, religion, a concept of childhood or perhaps something else? The burials were found to vary in layout and the overall interpretation is diverse.

This paper intends to, based on a chosen selection of these child burials, to interpret the findings and with a European outlook try to put them into a cultural and social context.

RII THE NEOLITHIC SITE OF HRDLOVKA, CZECH REPUBLIC: SUMMARY OF PROJECT RESULTS

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The contribution deals with a research project focused on the processing and evaluation the Neolithic site of Hrdlovka (Czech Republic), excavated during the salvage excavation since 1987 to 1990. Since the 2012 the data obtained during terrain excavation are processed using up-to-date methodology. The most important factor of the Hrdlovka site was very good visibility of Neolithic architecture in the field, caused even by colour contrast between yellow tertiary clay and very dark infill of the Neolithic features and structures. This fact enabled a study of Neolithic longhouse construction in detail (e.g. reparation practices). The overburden area of 8.37 hectares revealed 58 groundplans of Neolithic longhouses. The architectural development ranging from the early LBK to the late SBK is observed and presented. Research project comprises complete evaluation of this unique site in terms of the Neolithic architecture in relation to the artefactual (ceramics, lithics) and ecofactual (animal bones) assemblages. Based on the settlement chronology the situational analysis was also performed. Then, the site is set within the framework of Central European Neolithic. authors: Vaclav Vondrovsky - Michaela Divisova - Lenka Kovacikova - Petr Sída - Jaromir Benes

RI34 LIVING IN A WIC. LIVING IN THE WILD. REALLY ? A NEW LIGHT ON THE INFRASTRUCTURE, THE FABRIC AND THE USE OF SPACE AROUND QUENTOVIC (FRANCE)

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Quentovic is an important administrative and custom estate, well-known by historians and numismatists. The early medieval settlement is located in the lower Canche valley, along the Channel coast. Both sides of the river Canche were significantly occupied in the Early as well as in the Late Roman Times. In the middle of the valley, continuous occupation, craft production and the later management of the river activities attest the importance of the site through the first Millenium, especially between the 6th and the 10th cent.

A new collaborative project has helped to integrate the data from several preventive archaeological excavations and from the environmental study program. A geophysical survey has also been launched in 2014. Our paper will thus firstly introduce the organization of the wic (paths, channels, plots, buildings, activities and funeral areas). We secondly intend to link those characteristics with the providing of resources, for food as well as craft in the wild area of the low valley and estuary. We will finally try to elucidate the status of and the relationship between the settlements scattered in such an environment, altogether composing a puzzled wic so often quoted, but so badly described in the sources.

RI19 HERDING ECONOMIES, SUSTAINABILITY AND RESILIENCE IN VIKING AND NORSE ORKNEY

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From the 10th-15thAD, Orkney was the heart of the powerful Earldom of Orkney which played a pivotal role in the socio-economics of the Norse world, linking Scandinavian Ireland and England with Norway, Denmark and the western Atlantic islands. Norse Iceland, Greenland and the Faroes have recently been the subject of major inter-disciplinary study, providing new insight into the complex interplay of environmental, societal and economic factors which contributed to the varying resilience of N. Atlantic society, a region which became increasingly marginal for agriculture as global climate cooled from c. 13th C AD. Differences in vulnerabilities between Orkney and the other N. Atlantic islands have been less well studied, a disparity which this paper will aim to readdress. Drawing on newly available data from several key sites in Orkney, including the Earl's Bu and Snusgar, this paper will take as its focus herding economies in the islands of Orkney during the 8-15th

centuries AD. It will explore diachronic changes in the role of livestock in underpinning societal sustainability (eg., by enabling participation in local and regional networks of gift-giving, feasting, trade and other prestige enhancing activities) as well as the extent to which herding economies may conversely have had a deleterious impact through intensification of resource utilisation, over-stocking, expansion into environmentally fragile uplands, coastal margins, etc., and, as such potentially contributed to the decline in agricultural production and the marginalisation of the islands in the Later Medieval period.

RI23 LANDSCAPE AGENCY AND THE MATERIALISATION OF POWER IN VIKING AGE ICELAND

Karen Milek

UNIVERSITY OF ABERDEEN

This paper discusses the trajectories of different power centres in Viking Age Iceland as the result of choices of different ways of dwelling in the Icelandic landscape. The dominant discourse on landscapes in the North Atlantic region emphasizes the vulnerability of northern environments, the severity with which they have been culturally modified, and the intensity of their management by Norse settlers and their descendents. This paper proposes an alternative perspective that places greater emphasis on landscape variability and the intimate entanglement and symmetrical interactions of environmental and human agencies. Natural variability in the Icelandic landscape provided different potentialities for economic and social capital, which were used in different ways by the aspiring Icelandic elite. Drawing on examples from recently excavated sites in different regions of Iceland, including Vatnsfjörður, Hofstaðir, Hrísbú, Reykholt and Hólar, this paper traces how selective interactions with the diverse topographies and resources offered by the Icelandic landscape enabled Viking-age and medieval Icelanders to create different networks, and to acquire different materials and objects, which were used, sometimes in innovative ways, to materialise and signify power. The entanglement of the aspiring elite with different parts of the Icelandic landscape lead to highly variable expressions of power and deeply embedded localized power structures – possibly one of the factors that lead to the civil wars that characterised power politics in Iceland in the 13th century.

RI1 HOUSES AND HOUSEHOLDS AT NEOLITHIC ÇATALHÖYÜK: THE CONTRIBUTION OF MICROWEAR AND MICROBOTANICAL ANALYSES OF GROUND STONE TOOLS TO THE UNDERSTANDING OF HOUSEHOLD ACTIVITIES.

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Over the past two decades the character of ancient households has become the focus of numerous studies and the investigation of domestic activity areas has played an influential role in recent archaeological discourses. To date, the identification of activity areas in domestic buildings has been based on typological classifications, the presence and spatial distribution of certain artefact categories, mainly pottery assemblages. In this contribution we wish to provide further insight into the range and type of household activities performed in domestic spaces through the integrated microwear and microbotanical analysis of ground stone assemblages. The Neolithic site of Çatalhöyük in Turkey provides an excellent case-study to explore this question in depth. Capitalising on the rich dataset of ground stone tools, ecofacts and well-preserved architecture we wish to investigate variability in the range of activities (food-processing, craft-production) taking place across varied types of houses (i.e. 'history-houses' vs. 'non-history-houses'). The results of the microwear and microbotanical analysis will be integrated with information provided by the analysis of the macrobotanical remains and other organic materials such as animal bone assemblages. By using multiple lines of evidence our aim is to provide a clearer picture on the nature and type of activities taking place within enclosed spaces at Neolithic Çatalhöyük.

RI7 CHERISHED THOUGH LOST: INDIVIDUAL AND SOCIAL IDENTITIES IN CHILD BURIALS AT BASEL-GASFABRIK, SWITZERLAND

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The Basel-Gasfabrik site, a large unfortified settlement with two associated cemeteries, is among the key locations for the La Tène period in Switzerland. Numerous child burials have come to light both in the settlement and the cemeteries, permitting insights into a vast spectrum of responses induced by the death of young members of the late Iron Age community. In the cemeteries, children's graves were generally furnished both with more numerous and more variegated grave goods than those of adults. Their highly individual features reveal personal as well as social attributions. In the settlement, distinctions emerge between the burials of newborns and older children, reflecting evolving social roles. The number and age structure of the children from the site indicate that the burials comprise a representative segment of the former population. Infant mortality was around 60%, with the majority of children dying before the age of four. The absence of clear distinctions in health and dietary status between the children from the settlement and the cemeteries raises questions as to the social criteria underlying the choice of mortuary practices and final resting place. Age and possibly sex related complexities also emerge in patterns of peri- and post mortem manipulations in children and adults found in the settlement.

RI34 FRAGMENTS OF AN URBAN LIFE? - BACKFILLS AND WASTE AS SOURCES OF INFORMATION OF 11TH-12TH CENTURY URBANITY IN COPENHAGEN

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Information from large-scale excavations carried out in the center of Copenhagen in recent years', is currently being analysed. Among the more important findings is a settlement area from the earliest part of the city's history, holding great potential for exploring the origins and development of urbanity in Copenhagen. The remains consisted of a variety of settlement features, including domestic pits, roads, buildings and a cemetery. However, the preservation conditions have resulted in a rather fragmentary source material, largely comprising of pits, postholes and leveling layers. A relevant question to address is what information can be gained, and what limitations might there be in the analysis of these types of features? What can the fragmentary remains tell of the use of space, organisation of activities and social practices, and how do these relate to an emerging urbanity and urban identity in Copenhagen?

A closer study of these features is a central part of a planned PhD-project dealing with the early development of urban life and urban identity in Copenhagen. The study will use an integrated, contextualised approach, viewing every deposit as a deliberate action, and all the different types of information it holds as meaningful for the interpretation of day-to-day practices, such as waste disposal and functional use of the area. This paper will present the initial phase of this study, including an assessment of the material's source value for investigating the development of urban life.

RI3 A VESSEL ASSEMBLAGE OF THE 13TH CENTURY FROM HEŘMAŇ (PÍSEK DISTRICT, CZECH REPUBLIC). A PRELIMINARY REPORT.

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A settlement area dated to the 13th–14th century was found during the rescue excavation in 2011 in the village Heřmaň (Písek district, Czech Republic). The excavated area can be interpreted as a settlement and production area. The most common features were shallow pits, pit complexes and postholes, which in some cases formed lines. An object 45 can be considered as an exceptional in terms of its size as well as the infill. The aim of this contribution is to present a hoard of pottery vessels from the 13th century recovered from the layer 45B of this feature. This layer was created during one event or in a short period of time. Due to the significant number of defective (poorly fired) vessels, it can be assumed that these vessels represent a waste from a ceramic workshop. A part of the assemblage is characterized by the presence of so-called pottery marks, which occur almost in all vessel shapes. The most frequently occurring marks are of basic square and circular design. The marks created by the same matrix, so-called identical marks, are important in terms of the research of the phenomenon itself as well as for the interpretation of the assemblage as a whole. It is also possible to observe a link between the individual mark and category, size, decoration and material of the vessel. The results of this analysis could provide a further insight into the discussion concerning the meaning and function of the so-called pottery marks in medieval society.

RI27 CITY PLANNING AS A REFLECTION OF CULTURAL NORMS

Mattias Obrink

BOHUSLANS MUSEUM

The town Nya Lödöse (New Lodose) was founded in 1473 on the Swedish west coast, at the confluence of the rivers Säveån and Göta älv, about 5 km east of present Gothenburg. The town was founded on royal initiative and the intention was to create a hub for trade and commerce.

The recent years of archaeological investigations have shown that the town was laid out after a relatively regular city plan with a grid of parallel streets and square plots. At first glance, the various plots and streets may seem to form a repeating pattern, but looking closer there are substantial differences.

In this presentation the focus will be on two streets, both oriented in an east-west direction, stone-paved and with a width of 5 meters. One street appears to be old-established as a thoroughfare, and probably it existed long before the town was founded. The other street probably had a more local importance as a passage to the plots along it. The two streets were planned, designed and used in different ways. This probably reflects different patterns of accessibility and movement, private and public. It also reflects the structures of power and governance, and cultural norms that underlie this.

RI22 BIOLOGICAL VERSUS CONSTRUCTED IDENTITIES? RE-EVALUATING HYBRIDIZATION IN THE COLONIAL CONTEXTS OF SOUTHERN ITALY

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The modes of Greek colonization in southern Italy have long been a focus of debate. This has seen the contraposition of traditional conceptions of binary, ethnic-based interaction with more recent constructions of the colonial process as fluid both diachronically and in terms of the identities of the agents involved. The archaeological evidence, showing a high degree of

cultural interaction with the creation of shared spaces and new forms of production, is compelling. Nevertheless, its complexity and variability has allowed the entrenchment of opposite interpretations, from the enslavement of the local population by the Greek colonists to the creation of 'mixed' sites where ethnic and cultural boundaries were increasingly blurred. In this paper, we compare the archaeological evidence with the biological distances between the populations of several settlements along the Ionic Gulf, including inland indigenous sites, sites with 'mixed' Greek-indigenous contexts and sites identified as Greek colonies. These data have been obtained in the course of an osteological study that is still underway. Its preliminary results show that our understanding of Greek-indigenous interactions can no longer be reduced to a binary model, nor to a chronologically discrete, homogeneous phenomenon. Rather, interactions can be best understood within long-term shifts in regional power balances between different communities who constructed their identities not along pre-determined ethnic lines but as a result of contingent local dynamics.

RI14 TRANSFORMING IDENTITIES: CLOTHING AND CONFLICT IN LATE MEDIEVAL/ EARLY MODERN IRELAND

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The entanglement of identity and attire in zones of conflict is explored through a tattered set of clothes from late sixteenth/early seventeenth-century Ireland, a period characterized by military conflict and the reorganization of society through plantation. Found in a bog, the clothing incorporates individual elements derived from Irish, English, and Scots fashion, and allows an exploration of the physical manifestations of processes of hybridity and the pragmatic accommodations of impoverishment and displacement. At some stage in their life histories, the individual articles of clothing came together and were worn by an unknown individual who perished unremembered in a bog in the territory of the O'Cahans, lands refigured as the Londonderry Plantation. Likely male, the wearer may have been a soldier in the English, Scots or Irish forces, a displaced Irish labourer or O'Cahan kern, or even an impoverished English worker brought to transform the land into the idealised order promised by Plantation. How significant was it that his clothing reflected multiple cultural origins? Would he have stood out for his mix and match approach to attire, or was the material blending, and the creativity it implies, the norm? In addition to considering the role of material culture in identity formation and negotiation, examination of what has become known as the Dungiven costume also speaks to the ongoing legacy of early modern conflict, as the cultural associations of the garments, and by extension their past wearer(s), continue to be subjected to the politically-charged nature of identity politics in contemporary Northern Ireland.

RI10 THE BEGINNING AND DEVELOPMENT OF NEOLITHIC FARMING IN THE SOUTHWESTERN BALTIC REGION IN THE LIGHT OF ARCHAEOBOTANICAL AND PALAEOECOLOGICAL INVESTIGATIONS

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The rather late adoption of farming practices in the southwestern Baltic region is generally regarded to reflect the marginal role of this region for the Neolithisation of north-west Europe. Despite earlier contacts with farming societies, it was only during the early 4th millennium BC and influenced by contacts with cultural groups in the south-west that new cultural traditions (i.e. the Funnelbeaker Culture) developed and Neolithic subsistence strategies gained importance. In the Funnelbeaker area, the beginning of crop growing is closely connected to cultural developments of monumentality and social differentiation. After the adoption and implementation of new cultural and economic elements, the spread of the Funnel Beaker phenomena in northern continental Europe turns the southwestern Baltic region into a core region for cultural development. Hereby, new evidence of archaeobotanical macro remains from Northern Germany and Southern Scandinavia, well dated by a broad series of radiocarbon dates, and high-resolution pollen data from laminated lakes, offered the possibility for detailed reconstruction of the beginning of cereal farming and different phases of human impact and land use strategies.

RI38 ARCHITECTURES, POWER AND GENDER IDENTITIES: THE PRACTICE OF EVERYDAY LIFE

Margarita Sánchez Romero, Eva Alarcón García

UNIVERSITY OF GRANADA

Margarita Sánchez Romero (Universidad de Granada)

Eva Alarcón García (Universidad de Granada)

At the end of the third millennium cal BC human communities in the south of Iberian Peninsula articulated a new way to inhabit the space: circular houses become quadrangular, and diaphanous interiors turn into divided spaces. Inside the settlements, the scattered organisation of the houses during Copper Age changes to a compact and dense urbanism during EBA. This phenomenon could be analysed in two scales: the settlement one (urbanism) and the dwelling one (architecture), this is to say, the space of the community and the space of the intimacy. In this paper we assume a phenomenological approach to the experiences of architecture and space, and we developed a methodology, based on maintenance activities, that allows us to observe the architectural object as expression of ways of life of past communities. We will pay spatial attention to maintenance activities as key elements for daily life experiences and spaces, and we will explore how power

relations are created and maintained in this sphere; how everyday practices sustain or transform social structures related to age, gender, sex, status turning domestic spaces in places in which ideological discourses are generated, social identities are negotiated and political decisions are taken.

RI8 GENDER DYNAMICS AND THE GREEK COLONISATION OF SOUTHERN ITALY

Giulia Saltini Semerari

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The study of the Greek colonisation has thus far remained only marginally concerned with gender dynamics. With few exceptions, authors have limited their approach to the occasional consideration about the possibility of indigenous women marrying into Greek colonies. In this paper, I integrate the study of gender dynamics fully into the reconstruction of early colonial interactions. Long-term differences and similarities in the construction of gender roles in Greece and southern Italy are considered in order to identify possible areas of misunderstanding, conflict or mutual collaboration. Regional power dynamics are also taken into account as these influenced who engaged in such relationships and with what strategies. To do so, I draw on current literature and the preliminary results of my on-going project in southern Italy. This focusses on archaeological and osteological analyses of two Early Iron Age cemeteries (Incoronata and Santa Maria d'Anglona), and has thus far produced important results with regards to postmarital residence patterns, kinship organisation and the intersection between gender roles and status. Integrating this evidence with current understandings of gender dynamics, I argue that intermarriage between Greek newcomers and indigenes would have been seriously restricted by differences in cultural norms, and may be hypothesised only for limited yet important cases.

RI33 MOVING BEYOND MYTH

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The Bronze Age inhabitants of the island of Crete have been collectivized as the Minoans since Arthur Evans's excavations at Knossos at the beginning of the twentieth century. Bent on establishing the builders of the so-called palace at the site as the earliest civilization in Europe Evans linked them to historical Greece through the myth of the eponymous King Minos. Yet the material culture - the pottery, seals, metalware - and the mortuary practices resist such easy categorization and instead display strong regional preferences within a relatively small geographic area. Local communities enjoyed connections with diverse external cultures some looking to the Cyclades, others to the Levant or Anatolia. At the same time there is indisputably a particular feeling or quality to the objects. This paper looks to social practice and in particular to commensality as the binding thread. While there unquestionably were hierarchies on Crete, particularly in the Late Bronze Age, the importance of community as enacted in toasting and feasting apparently trumped any attempts to create a centralized political authority able to control the entire island. Central court buildings and the standardized conical cups both expressed the shared heritage of the Bronze Age population and allowed for the assertion of regional identity. Recognizing this diversity allows the archaeologist to abandon the essentializing "Minoan" designation and explore the more complex world of the early Cretan peoples.

RI26 DEFENDED SETTLEMENTS AND RELIGION IN EARLY MEDIEVAL WALES

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In this paper I will attempt to consider the relationships between defended settlements and religious sites in early medieval Wales. Our understanding of this topic is greatly constrained by a lack of site data, and only a small number of early medieval sites have been identified and explored archaeologically. Nevertheless, the 'twinning' of high status secular and religious sites has often been noted as a feature of early medieval Wales. This paper will focus upon two key areas, firstly the relationships between early medieval 'secular' defended settlements and religious sites, including churches and cemeteries; and secondly, the relationships between prehistoric defended settlements and early medieval religious sites.

RI1 THE NEOLITHIC (SBK) LONGHOUSE NO. 8 FROM HRDLOVKA (CZECH REPUBLIC). UNIQUE DEPOSITION OF GRINDING STONES IN LIGHT OF ENVIRONMENTAL ANALYSIS

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Knowledge about the *Stichbandkeramik* (SBK) houses is still limited due to their specificity of archaeological preservation. Beneath the wall of Hrdlovka house no. 8 the unique deposition was discovered. One of the wall postholes was surrounded by a larger pit (feature no. 838) containing 35 grinding stones and their fragments. The association with the house posthole allows us to suggest that the hoard was deposited during house construction. In addition to the grinding stones, feature 838 also contained ceramics with typical late SBK decoration. Grinding stones were subjected by series of microbotanical analyses

(phytolithes, starch). The dating of the deposition context is supported by radiocarbon dating. Attention is paid to the meaning of this valued deposition. The number of grinding stones associated with the house highly exceeds the expected amount of these tools used simultaneously in a single household, which is estimated on the basis of ethnographic parallels as being three at most. Therefore, it could be supposed that the hoard is an assemblage of tools from several households, maybe all households of the settlement in the given phase. House no. 8 could consequently be considered as exceptional in this context, because its construction was reinforced by such an exceptional act.

RI13 GROTTA DELLA MONACA (CALABRIA, ITALY): A MINE THAT BECAME GRAVEYARD

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Grotta della Monaca is a karstic cave located in Calabria, in the southern part of Italy. It is plentiful of iron oxides (such as goethite and hematite) and copper carbonates (malachite). The cave was an attraction for its mineral resources since Palaeolithic times. Minerals were intensively dug up during Late Neolithic and Copper Age. During the Bronze Age, when mining resources were depleted, the cave became a graveyard. Radiocarbon datings attributed human skeletal remains to the II millennium BC. Archaeologists discovered the main centre of the graveyard in the most subterranean part of the cave, where about 100 individuals were inhumed inside natural niches of walls and on the ground. The presence of genetic inherited characters on the skeletons allowed to suppose that these individuals were blood related. Therefore, the selection of burial sites may have reflected the social organization based on familiar groups. The poor grave goods were especially characterized by vessels in bad state of preservation, but ornaments (shells) and female weaving tools (whorls) were also found. In the entrance of the cave, there are the traces of funeral rituals. Here, commingled and burned skeletal remains of the adult *Sus scrofa* were discovered with fragmented vessels and bronze swords intentionally broken.

RI34 KAUPANG REVISITED: RE-INTERPRETING THE BUILT ENVIRONMENT AND USE OF SPACE THROUGH MICROMORPHOLOGICAL ANALYSIS

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Kaupang, in southern Norway, is a Viking-age urban settlement, craft production and trading centre and harbour dated to ca. AD 800-960. While other towns from this period such as Birka, Hedeby or Ribe have metres of well-preserved stratigraphy, the poor preservation conditions at Kaupang have hindered a good understanding of the settlement structure and phases of occupation. Moreover, it has been difficult to produce robust evidence about the way people lived in this town. Efforts have been made to interpret the activities taking place on the six plots and associated buildings using the artefacts found in the 2000-2002 excavation campaign. Problems related to the poor preservation of the site's stratigraphy presented the excavators with serious challenges related to their interpretations about the range of activities, the function, extent of the buildings, and the use of space within the town.

The application of micromorphology on a large scale has filled this gap by establishing more detailed interpretations than those based on field methods alone. The analysis of over 70 thin sections has made it possible to redraw the existing plan of the settlement, revealing that almost all buildings had similar internal structures and a primarily domestic function. This suggests that the town was more densely occupied than previously thought. Moreover, new information about the widths of the buildings and the space syntax analysis of the new settlement plan has changed the understanding of how the inhabitants interacted with their built environment and how private and public space may have been perceived.

RI2 THE REMAINS OF WAR: THE 1ST CENTURY AD POST-WAR DEPOSITIONS AT ALKEN ENGE, EASTERN JUTLAND, DENMARK AND ITS CONTEXT

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Over the years, a number of large scale depositions of remains of war, dating primarily to the 2nd to 5th centuries AD, have been uncovered in wetlands in South Scandinavia. They appear to represent a particular ritual tradition, and they form a unique source to the military organisation of the period. Since 2009 investigations at the site of Alken Enge have contributed with a new component to this group of finds by revealing a site which first and foremost contains the remains of the warriors themselves. The bones of the warriors show indications of systematic handling of the remains before deposition, and they are situated in a landscape with numerous other depositions including one of the most comprehensive of the weapon deposition sites, Illerup Ådal. The paper presents the investigations at Alken Enge, and discusses the relation to and implications for our understanding of the post-war depositions in South Scandinavia.

RI7 "MISSING INFANTS". GIVING LIFE TO ASPECTS OF CHILDHOOD IN MYCENAEAN GREECE VIA INTRAMURAL BURIALS.

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During Late Bronze Age, in mainland Greece, children and especially infants are underrepresented in the mortuary archaeological record, giving some evidence that they are buried 'elsewhere' or treated in a different way in comparison with older children and adults. A thorough insight into age data of the deceased reveals that in most of the cases infants aged under 18/24 months are absent from the community cemeteries, yet present, in domestic contexts, although not in adequate numbers. The practice, under a more synthetic discussion, seems to reflect a conscious mixing of the residential and funerary space juxtaposing or moreover conciliating life and death.

It is widely accepted that age is one of the major factors structuring human societies; therefore the phenomenon of infants' absence from the skeletal material in Late Helladic cemeteries deserves further attention. Through examples of intramural infant burials within that period, we will try to investigate various aspects of a social landscape such as formation of identities, life stages, social memory, relations of power. In that way, emphasis on gaining information about the life of infants and children and about the impact of their premature death in Mycenaean society, as well, is promoted.

A closer examination of intramural infant burials could, also, contribute to the configuration of a theoretical scheme, required for a more profound research on this highly complex funerary behavior.

RI10 THE EMERGENCE OF ANIMAL HUSBANDRY AT TWO FRONTIERS OF EUROPEAN NEOLITHIC: THE DUTCH DELTA AND WESTERN TURKEY IN COMPARATIVE PERSPECTIVE

Canan Çakırlar

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The traditional perceptions of the beginnings of animal husbandry in the Dutch Delta and Western Turkey are very different from each other: The Dutch Delta is traditionally perceived as an area where animal husbandry was adopted gradually and slowly, while Western Turkey is viewed as an unconditional receiver of all Neolithic technologies coming from the east, including domesticated livestock. Recent zooarchaeological research reveal new, multi-linear plots of transition to animal husbandry in both areas. In this paper, I will outline the findings of this research and identify the common methodological and theoretical bottlenecks that restrict efforts to understand pre-Neolithic - Neolithic frontiers.

RI22 "KING OF SUMER AND AKKAD": TWO ENTITIES UNDER THE SAME KING. INTERPRETING THE CULTURAL IDENTITY OF THE NEOSUMERIAN KINGDOM

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What is the way in which elites and population received the "others" and accept or regret the coexistence of alterity? Is the representation of the political authority the cause or the consequence of the process of hybridization? At the end of the 3rd millennium B.C., the great availability of textual data from the cities of southern Mesopotamia shows us a complex situation of different ethnic groups living in the same urban contexts and involved in the same political and economic activities. The use of epithets such as "King of Sumer and Akkad" and "King of the four quarters", used by the kings of the Ur III dynasty, could point to a perception of a plurality born in the preceding period, and spread at the highest point at the end of the 3rd millennium B.C. From this perspective, the continuation of a long-lasting process of hybridization seems evident. Through the analysis of material culture, and in particular of the pottery tradition, the present work will seek to analyse the roots of this coexistence and since when it began.

RI20 SCONE ABBEY: DIGITAL RECONSTRUCTION, INTERACTION AND ENGAGEMENT

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Scone Palace in Scotland is an important historical site and hosts hundreds of thousands of visitors every year. The expansive grounds and grand house make this an attractive historical destination. However, there is a history which is hidden from the human eye. The site boasted one of the most important and architecturally significant buildings in Scotland. Scone Abbey was founded by Augustinian Canons around 1114 and was one of the chief residences of Scottish Kings. It was located next to the coronation site of Scottish Kings and housed the Stone of Destiny.

Today little remains above ground of the Abbey. This paper will present the methodology and technologies used in creating a 3D digital model of the Abbey as it would have been in its prime. The model is situated in a virtual world environment. This enables experimentation with lighting and the embedding of archaeological information to create an interactive environment. It is also possible to use the model as a stage to provide the context for representations of both tangible and intangible culture. Models of objects, books and paintings can be seen in their original context.

An important aspect of the virtual world environment is the richness of the possible interactions and the ability of audiences using digital literacies learned through playing computer games. The environment is explored through the proxy of an avatar

which can be controlled using a game controller. This gives an intuitive way of exploring the space and provides plenty of facilities for interactions.

RI29 THE ARCHAEOLOGY OF CONFINEMENT: FROM BOTH SIDES OF THE BARBED WIRE FENCES. COMPARATIVE STUDIES OF GERMAN WWII POW CAMPS IN NORWAY AND TEXAS, USA

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Traumatic experiences of war often play a dominant role in establishing a group identity, in modern nation states. As with many other nations, the WWII is still an important part of the collective memory in Norway and in the United States.

During the Second World War, Norway was accorded a special status within Nazi Germany's war strategy. The construction of Festung Norwegen (Fortress Norway), the Norwegian part of the Atlantic Wall, and other massive German investments in occupied Norway demanded an enormous and steady supply of labor. To that end, more than 140,000 prisoners of war, slave labourers, and political prisoners from at least 16 European nations were conveyed to Norway, resulting in a network of approximately 500 Nazi camps to accommodate them.

On the other side of the Atlantic Ocean, the United States and Canada maintained prisoner of war camps to hold approximately half a million German soldiers captured by allies in North Africa, Italy and later, in Normandy. The soldiers arrived by the shipload, placed in a network of POW camps situated mostly in rural areas, and were used as forced labour primarily in agricultural production, such as picking cotton or harvesting lumber. This was the reverse image of the European POW story from WWII - German soldiers on the other side of the barbed wire fences. This paper presents a comparative perspective on history and materiality of WWII POW camps in Norway and in Texas, USA, including results of ongoing archaeological investigations of selected sites.

RI5 FROM U-TURNS TO GRACEFUL CURVES: GREYSCALES OF CHANGE IN BRONZE AGE LANDSCAPES

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This paper will present a methodological view on the way we define "turning points" in Bronze Age communities, and argue that many interpretations are influenced by research biases.

As a case study, we will present preliminary results from our research in southern Italy. Our focus was on a site type usually not included in models of Bronze Age settlement dynamics, but which occurs in almost all Mediterranean survey projects: the small protohistoric ceramic scatter. The Rural Life in Protohistoric Italy project (2010-2015) of the University of Groningen investigated 160 of these, recorded during 10 years of field walking surveys in the mountainous inlands of Calabria. Guided by a stratified sampling approach, we conducted detailed re-surveys, geophysical surveys, material re-studies, soil mapping and small test pits on representative examples of site types. This strategy aimed to mitigate detection and research biases, and allowed us to integrate detailed on-site studies with interpretations at the landscape scale. In the paper, we will focus on the "Final Bronze Age crisis": a 'turning point' signaled by Renato Peroni and others in southern Italy. We will show that Peroni's influential model of settlement contraction in large centers in the last phase of the Bronze Age is based on non-systematic surveys targeted at remarkable locations. By contrast, we have documented a dense distribution of single habitations with storage facilities – a remarkable non-centralized settlement "boom". We argue that detailed investigations of small protohistoric surface scatters unlocks sliding scales of change, adding nuance to Bronze Age turning points .

RI5 GREAT MIGRATIONS OR EXTENDED SPACETIME? FROM THE MIDDLE TO THE LATE BRONZE AGE IN THE LOWER DANUBE

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In the Lower Danube region with the beginning of the Late Bronze Age the place of the earlier, Middle Bronze Age small-scale cultures was taken by new and widely distributed assemblages of material culture.

In the 1950s – 1970s several authors argued that this change was the result of the so-called continental preliminaries of the Great Aegean Migration, which was meant to explain the gradual distribution of several traits of the East-Central European material culture further south-eastwards, and the similarity of some of the Lower Danube ware with the 'Barbarian ware' from Aegean Basin (e.g. Morintz 1978 following the earlier ideas by Mozsolics 1957 and Kimming 1964). Others added to this explanation the consequences of the Srubnaya migration, of Eastern European origin (reiterated in Leahu 2003). In more recent years, with fading interest in the archaeological reconstruction of migrations and the lack of alternative interpretations, the Lower Danube region was left out of the discussions concerning important Late Bronze Age phenomena in Europe (e.g. Kristiansen & Larsson 2005).

In this paper, I will argue that this radical restructuring of the material culture can be better explained as determined by the local society, mainly through its intense participation in far-reaching trade and travel, raised interest in the spatiotemporal

extension of the self (Giddens 1979; Munn 1986), new gender arrangements, as well as the introduction of new table manners as a means of social distinction.

RI3 IDENTIFYING MANUFACTURING SEQUENCES THROUGH THE MINERALOGICAL ANALYSIS OF PREHISTORIC POTTERY: THE EXAMPLE OF THE CANTABRIAN REGION (NORTH OF SPAIN)

Miriam Cubas

SOCIEDAD DE CIENCIAS ARANZADI

Pottery, understood as manufacture, is the result of a technological process, which covers a set of operations that transform a raw material into a product with new physico-chemical properties. Using this general framework, we allow distinguish different tasks related to the definition and characterization of different manufacturing sequences in some ensembles recorded in the Cantabrian region (North of Spain). The objective of this study is to propose some hypothesis to understand the *technological transference* of this technology and to understand the social context of its appearance.

In this communication we present the pottery technology within the geographical context of the Cantabrian region during the fifth millennium cal BC. This research is focused on the pottery ensembles from Los Canes (Asturias), Los Gitanos (Cantabria) and Kobaederra (Vizcaya). These archaeological sites constitute important deposits for the study of the Neolithisation process(es) in the region. After describing the main characteristics of the pottery assemblages, we propose some hypothesis enabling an approach to how pottery production was organized and the role it played in these processes.

RI34 SHIFTING THE FOCUS: FROM RINGFORT TO TOWN ON THE ISLAND OF WALCHEREN (NETHERLANDS)

Pieterjan Deckers

VRIJE UNIVERSITEIT BRUSSEL

Pieterjan Deckers (Vrije Universiteit Brussel) and Bernard Meijlink (Walcherse Archeologische Dienst)

Whereas the defensive character and historical context of the late 9th-/10th-century circular fortresses of Zeeland (Netherlands) have been the focus of research for many decades (van Heeringen 1995), the towns that developed within and around them have received less attention. This paper aims to track the nature of nucleated settlement on the island of Walcheren up to the 11th century, discussing domestic architecture and infrastructural elements including, but not limited to the defensive features. The occupation history of the ringforts of Zeeland, and their domestic architecture in particular, are best-known from the extensive excavations within the ringfort of Oost-Souburg. However, recent fieldwork at other sites, as well as a new study of the antiquarian documentation concerning the 6th- to 11th-century beach-site of Domburg, complement and challenge the present state of knowledge. This new research highlights the individual biographies of each of the ringfort settlements. The new data also allow to move beyond the narrow focus on the ringforts as a distinct site-type towards a more encompassing view of these settlements. In some respects, Walcheren emerges as an area marked by a degree of idiosyncrasy. At the same time, however, the emergence of these settlements is firmly rooted in the broader social, economic and political context; and the material expressions of this incipient urbanism share many similarities with contemporary developments elsewhere in the southern Low Countries and northwestern Europe.

RI15 CONSTRUCTING IDENTITY IN IRELAND DURING THE 3RD MILLENNIUM BC.

Neil Carlin

UNIVERSITY COLLEGE DUBLIN SCHOOL OF ARCHAEOLOGY

This paper details how new forms of (foreign) material culture and social practices were incorporated into an Irish milieu over the course of the 3rd millennium BC in Ireland. It will be argued that these new ideas/objects were adopted/adapted as part of a long sequence of ongoing alterations in strategies of identity formation which fulfilled the distinctive needs of local communities. It will be proposed that an increased interest in external contacts was one of numerous gradual changes over the course of this millennium and that there was far less social upheaval than previously believed.

RI11 SOCIAL SPACE ORGANISATION DURING THE TALAIOTIC PERIOD IN MALLORCA

Maria Gelabert Oliver

GRADUATE SCHOOL 'HUMAN DEVELOPMENT IN LANDSCAPES' (KIEL UNIVERSITY)

The tower-like talaiotic monuments of Mallorca (Balearic Islands) are emblematic and well-dated Iron Age architectural features (between ca. 900 and 550 BCE). These buildings represent the nodal structures of talaiotic settlements around which the daily life of the community was developed having important social and economic functions. The diffusion of these monuments in Mallorca reveals the expansion of a particular social model throughout the island. However, the adopted system of social space organisation following the expansion of the talaiotic society remains unknown. The existence of autonomous settlements versus a hierarchical organisation based on a central settlement represent the current main hypotheses.

A novel approach has been adopted in the study of the social space organisation during the Talaiotic period. This approach has as departing point the talaiotic monuments as an expression of social identity and activities within a settlement. The study of architectural characteristics of talaiots provides information on the diversity of archaeological typologies. Furthermore, given the communal role of talaiots the study of construction methods and estimates of work invested in their construction provides

a value of social intensity. The analysis of 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.

This paper will discuss implemented methods, obtained research results, and proposed social space organisation models for Mallorca during the Talaiotic period.

RI16 A NEW WAY OF PERCEIVING SALT: CEREMONIAL SUBSTANCE IN ROMANIAN HOLIDAYS AND RITUALS OF PASSAGE

Mihaela Asăndulesei

ALEXANDRU IOAN CUZA UNIVERSITY OF IAȘI

The importance of salt has been well-known since prehistory, a fact confirmed by the archaeological evidence. This apparently banal substance is vital for the functioning of the human organism, also being the first spice and preservative ever used. Indispensable in the day-to-day life, it has contradictory qualities: it preserves but at the same time it corrodes. These attributes classify it as a strong element, but brings it closer to the experience of the sacred, with important values for the spiritual life, with purification, healing, protection or compensatory functions.

The main goal of this paper is to produce a detailed presentation of both the traditional practices involving the use of salt, and an interpretation of the symbolical universe generated by this natural element. The work takes into consideration the earliest accounts by Romanian ethnographers on the symbolism of salt in holidays, and in rituals of passage found in the Eastern Carpathian area of Romania. The study is completed by recent works, which highlight the role of salt in the traditional communities, and by personal research on the continuity or disappearance of symbolic customs from the aforementioned context.

The mentions, quite scarce, with relevance to the symbolism of salt, unlike those from the sphere of domestic, craft or commercial uses, represent the argument for selecting this topic. At the same time, a continuous, visible, profound and irreversible transformation of the traditional social behaviour demands an anthropological approach which aim to capitalise and save, at least at the theoretical level, all these aspects.

RI33 AGAMEMNON'S NEIGHBORS – EXPRESSIONS OF LOCAL IDENTITIES IN THE MYCENAEAN CORE AREA

Ann-Louise Schallin

UNIVERSITY OF GOTHENBURG

My presentation focuses on expressions of social identities during the Late Helladic period in the Mycenaean core area, Argolis, in Greece. The Mycenaean culture was widely distributed on the Peloponnese during this time. Since written evidence is scarce in the Argolid we need to rely on the archaeological evidence as our main source for a further understanding of the Argive regional social structure and this evidence reflects the local identity, the inhabitants' status and various social roles.

In this paper the evidence of the so-called prestige finds from the citadel site of Midea serves as a basis for analysis. It has been argued that the Mycenaean elite was responsible for the production of precious finds, especially the ones made of glass and it seems that the glass beads and other precious goods at Midea were used as prestige items and were displayed at social gatherings, such as feasts and funerals; they were subsequently deposited in tombs. The presence of these finds at Midea tells us that the inhabitants conformed to the common standards of Mycenaean elite behaviour and that they were competing in prestige with the same sort of commodities as their powerful neighbours in Mycenae and Tiryns. I now pursue this argument further and investigate if this observed phenomenon was as evident before as after the catastrophic years of 1200 B.C. Moreover, I add the evidence of Mycenaean figures and figurines to continue the work of defining a local Midean identity.

RI32 THE WALRUS IN THE WALLS: HOUSE DEPOSITS AT AÐALSTRAETI.

Timothy Carlisle

UNIVERSITY OF ABERDEEN

The Viking-age house at Aðalstraeti, Iceland is an exceptionally interesting site, not because of size or artefact assemblage, but because of anomalous deposits of walrus bones which were buried under the structure. Although structured deposits are a relatively well-documented phenomenon in northern European cultural contexts, frameworks for defining and discussing these deposits in historical periods, the Viking age especially, are disparate in their terminologies and interpretations. This is partially due to the variability in the materials and locations of such deposits, but there is also an apparent reluctance to engage with contentious theories surrounding interpretation of ritual activity. This presentation will propose an interpretation of the walrus bone deposits at Aðalstraeti within a revised interpretive framework informed by an interrogation of ritual theory. Extracting the cognitive approaches to the interpretation of ritualized activity indicates that the operative elements of ritual purpose are the performance of the behaviour and the context, both spatial and socio-cultural, of that performance. This suggests that ritualised performances served as discursive mechanisms through which knowledge of the world was constructed.

Rethinking the role of house deposits within this theoretical framework allows for a reconstruction of interpretive paradigms in order to focus on practical elements of deposition as a means of constructing and negotiating world-views. Placing this within

the context of household archaeology suggests that foundation deposits, such as those at Aðalstraeti, were a way through which many elements of Midgard mentalities, including social identities, were negotiated and established at a household level.

RI37 MORE THAN BROKEN POTTERY - A PARTICULAR FUNERARY CUSTOM IN THE EARLY MEDIEVAL UPPER-RHINE REGION

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In 2005 the Archaeological Service of Ct. Baselland excavated part of the 8th century AD burial ground at Bürgerweg in Aesch (Switzerland). The 19 graves were anthropologically and archaeologically analyzed in a Bachelor's thesis at the University of Basel.

The graves held part of a hard-working, rural population. More than half of the individuals are children, the adult individuals, all identified as men, were generally in good health. In contrast the subadult individuals showed signs of deficiency and/or phases of physiological stress.

Only a small percentage of the graves contained grave goods such as a knife, an awl and pottery. In five graves large pottery sherds were found in the infilling. They belong to glimmer tempered and overtorqued pots (glimmergemagerte, überdrehte Ware) produced in south Alsace that were seemingly intentionally smashed before being deposited in specific locations in the infilling. This funerary custom is also found in the adjoining areas of the French Alsace and German Breisgau. The phenomenon, known only from this specific timeframe and region, coincides with connections which are mentioned in contemporary written records and is interpreted as evidence of a „Franconian“ cultural influence in the area. Findings from settlements and burials confirm to immigration from the Upper Rhine region from the middle of the 6th century on. The burials of Aesch-Bürgerweg allow a glimpse into the different identities and their change in a rural community in a time of political change.

RI4 AT THE EDGE OF THE BYZANTINE EMPIRE: POTTERY FROM THE ‘DARK AGES’ PELOPONNESE

Rossana Valente

UNIVERSITY OF EDINBURGH

According to the Chronicle of Monemvasia, in the Late Antique period, a massive immigration of Slavs put the Peloponnese at the edge of the Byzantine Empire. Different sites have produced quantities of handmade pottery or pottery made on a slow wheel, which have been related to a Slavic craftsmanship, completely different from the fast-wheel made pottery of the Late Roman manufacturing tradition. By the ninth century, the Byzantine Empire underwent a period of political development, mainly determined by the military campaigns promoted by Nikephoros I against the Slavs in central Greece and in the Peloponnese. To this period belongs the reorganization of the themes of Hellas, Macedonia and Peloponnese when this territory was finally reintegrated into the Byzantine Empire.

Looking at contexts excavated in Corinth and Sparta this paper would like to show how in those cities domestic, hand-made cooking pots were used contemporaneously with early Byzantine wheel-made cooking pots, amphora and storage vessels, which resemble shapes identified in other regions of the Mediterranean. The contemporary usage of different manufactured pottery suggests how, at the edge of the Byzantine controlled territory, people of Slavic ethnicity mixed with the local population who had adopted Byzantine culture. The predomination of wheel-made unglazed wares from the late 9th century onwards may be indicative of a process of Hellenization of those Slavic groups. Nevertheless, the hand-made manufacturing tradition was never completely forgotten, in fact hand-made pottery was still produced well into the thirteen century.

RI5 DIFFERENT ORIGINS FOR THE TERRAMARE: FROM A “COLONISATION” TO AN “EXTENSIFICATION” MODEL?

Jonas Danckers

UNIVERSITY OF LEUVEN - RESEARCH GROUP ARCHAEOLOGY

The history of the large ditched and embanked Middle and Recent Bronze Age (MBA-RBA, ca. 1650-1150 BC) settlements of the Central Po Plain (Northern Italy) has traditionally been presented as a “rise, florescence and fall” *grand narrative*: these so-called *terramare* are often considered as resulting from a colonisation during MBA1 and MBA2, as flourishing in MBA3-RBA, and collapsing in the 12th century BC. Whereas recent debate focussed mainly on the collapse of the *terramare*, this presentation specifically addresses their origins. The dominant “colonisation model” displays several problems. First, the typological macro-scale groups that are supposed to have come to the plain from outside, can also be interpreted as local aspects of material culture. Secondly, the enormous difference in site-density between MBA1 and MBA2 is also determined by the fact that from MBA2 onwards sites are larger, have more frequently an embankment and ditch, are situated on a higher position in the landscape and are occupied for a much longer period than before. Rather than explaining the *terramare* settlement boom by an externally-sourced colonisation, focus will be upon the changing agricultural practices that potentially led to larger, more stable and more structured sites. We suggest that a shift from a small-scale intensive agriculture to a more extensive agriculture has possibly led to the emergence of the *terramare*. Such alternative explanation allows a better understanding of

the basis of the *terramare* phenomenon, a potentially more positive evaluation of its collapse and opens perspectives for comparisons with parallel developments in 2nd-millennium BC Europe.

RI34 REEXPLORING EARLY URBAN ANTWERP, 9TH-11TH CENTURY

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Antwerp (Belgium), located at the junction of the rivers Scheldt and Schyn, seems to have acted as an early medieval trade settlement, connecting the hinterland to other trade centres abroad. Archaeological excavations in the medieval heart of Antwerp have revealed numerous traces and finds from the early history of the traders' settlement. Research on the urban genesis of Antwerp gives new insights into several aspects of its early urban identity: architecture, infrastructure, morphology, artisan activities, etc. Excavations in the medieval burg area during the 1950s and -60s and in 2008-2009 drew attention to the remarkable preservation, complexity and richness of the local archaeological record, uncovering parts of wooden pathways, wattle fences and rectangular workshop-like dwellings protected by a D-shaped moat and rampart, erected by the end of the 9th century. This Carolingian castrum annex port grew into an Ottonian stronghold and centre of power in the end of the 10th century, giving way to its flourishing trade. In the next two centuries, a probably densely built area surrounded the ancient burg. Both spatial entities reflect the character of early urban Antwerp and are subject to ongoing interdisciplinary research.

RI9 RECENT EXCAVATIONS OF THE IRON AGE AND ARCHAIC BURIAL GROUND OF MONTE DEL BUFALO AT CRUSTUMERIUM (ROME)

Peter Attema, Barbara Belevi, Albert Nijboer

GRONINGEN INSTITUTE OF ARCHAEOLOGY

Recent excavation campaigns in 2013, 2014 by the Groningen Institute of Archaeology and the Superintendency of Rome in the cemetery of Monte Del Bufalo at the Latin settlement of Crustumerium significantly add to the existing body of topographical, chrono-typological and anthropological information on tombs relating to the site's existence between the 9th and 5th c. BC. The new data on funerary architecture pertain to the grave typology, grave markers, male and female grave assemblages and the rites that can be inferred from them, while topographical data relate to infrastructural features and delimitation of the burial ground. Importantly, a newly discovered and well preserved burial complex is in the course of being excavated. This complex is revealing new and important data on Crustumerium's funerary past. Geophysical and excavation data deriving from the latter context will be presented in preliminary form in this session, hopefully with new and exciting information from the campaign scheduled for the summer of 2015.

contributors: Walter Pantano, Jorn Seubers, Sarah Willemsen

RI1 HOW MANY STORIES FOR HOME? TRACING DIVERSE HOUSEHOLD CONFIGURATIONS IN NEOLITHIC GREECE

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Extensive archaeological investigation in Northern Greece during the last three decades has brought to light a vast amount of Neolithic sites. Recent evidence has considerably enriched our understanding of Neolithic lifeways in the region. It has also allowed us to evaluate and move beyond long-established archaeological categories in terms of settlements 'types', house forms and intra-site spatial configurations. Within these developments, the socioeconomic dimensions of houses and households has been at the centre of the archaeological debate.

This paper aims at investigating how different spatial arrangements in domestic architecture can unfold the diverse dynamics between households and the community. Key to our analysis is the construction and distribution of dwellings and thermal structures within different settlements. House construction will be challenged as part of a process which produces and reproduces spatial interrelations and social perspectives. Emphasis will also be given to the role of cooking facilities as major loci of daily performance, gathering and social interaction that may unveil varying degrees of openness or boundedness and sharing or competition. The sites selected for our discussion fall into the Middle and Late Neolithic periods. Their analysis will allow us to track changes in the organisation of household practices and discuss developments within different spatiotemporal scales.

RI25 THE HOME NETWORK: IDENTITY AND MATERIALITY IN EARLY MODERN AND MODERN ULSTER

Kathryn Whalen

UNIVERSITY AT BUFFALO

The area known as Ulster is one region where complex ethnic relationships are evident in the past, as well as in the present. My dissertation explores the relationships between native Gaelic Irish residents, Plantation English colonists, and immigrant Scottish settlers to the north of Ireland through their use of tablescapes and ceramics as markers of ethnicity, economic class, and market opportunity. It is understood that during the Early Modern and Modern Period, there was a drastic shift away from coarse earthenware, to a more distinctly English table setting, dominated by English imported ceramics. This

study looks specifically at the trade of ceramics in Early Modern Ulster, to see if coarse earthenware ceramics are being imported from England along with refined earthenwares or if they are being produced in Ireland. Through the use of portable X-ray fluorescence (pXRF), the multi-elemental makeup of 804 sherds will be examined to determine their point of origin.

This presentation reports on the preliminary pXRF data collected for *The Home Network* project. It will discuss the limitations and benefits of pXRF as a method for examining Early Modern and Modern coarse earthenwares, as well as present the data collected as an illustrative case study. The assemblage to be tested is of 804 coarse earthenware ceramics collected over the summer field seasons of 2009-2014. These sherds represent twenty-two farmsteads across Counties Armagh and Tyrone, and a range of ethnic groups and classes.

RI21 CHANGE IN BURIAL CUSTOMS DURING EARLY IRON AGE IN NORTH ESTONIA - IMMIGRATION, INNOVATION OR VARIATION?

Anu Kivirüüt

UNIVERSITY OF TARTU

In the presentation I will talk about Võhma Tandemägi – a ridge in North Estonia that houses several prehistoric graves from different eras – stone cist and *tarand* graves and probable cairns. I will concentrate on the excavated Early Iron Age (500 BC – 450 AD) *tarand*-grave which consists of large interconnected rectangular burial areas (*tarands*) that are defined and separated by stone walls. The inside of the rectangles is mostly filled with smaller stones, soil, commingled artefacts and bones.

The fully excavated *tarand*-grave on Võhma Tandemägi has several strange features as it was in use for a long period. The grave has been used for both inhumation and cremation burials while most of the bones are commingled and scattered all over the grave area. Nevertheless, there were six intact inhumation burials in the grave. They were buried in groups of three and one of the triple burials was seemingly the oldest disposition into the grave, whereas the other three were probably among the latest ones. Yet, the fragmented and commingled cremated and uncremated bones have also ended up in the grave at some point.

How to find out the sequence of the burial events? Where do the differences originate from? What did the different mortuary treatment depend on? Was it age, sex, time of death, identity or something else? I will give an overview of various methods I have used while trying to find answers to the risen questions and also touch upon methodology that could be helpful in future research.

RI5 SHAPING IDENTITY THROUGH SOCIAL IDEALS- A CASE STUDY FROM SOUTHERN NORWAY

Silje Hauge

CULTURAL HERITAGE MANAGEMENT OFFICE, CITY OF OSLO

Lista in Southern Norway is an area where the larger patterns of the Scandinavian Bronze Age can be studied in a microperspective, and in this paper I will look at both the monumental as the more mundane sources to bronze age society in the period 1400-1000 BC (phase II and III). In this timespan a series of considerable changes in the archaeological record occur in Southwestern Norway: The practice of building gravecairns and mounds is consolidated, a change in hoarding practice are evident and bronze artefacts appear for the first time. It has been a general opinion that these changes in material culture reflects a shift in power relations towards a more hierarchic society, and that prestige goods was important in this process. To a lesser degree it has been discussed why and how this happened. I argue that production and reproduction of social inequality through ritual practice made such a shift in power possible. A central element in this approach focuses on how power structures and social differentiations are upheld or changed through ritual acts, and more specifically how we can trace the outline of new social ideals in the archaeological sources during periods of change.

RI3 IDENTIFYING GENDER-BASED ROLES IN NUBIAN A-GROUP SOCIETY THROUGH INTEGRATED MORTUARY AND POTTERY TECHNOLOGY STUDIES.

John Gait

BRITISH SCHOOL AT ATHENS

Speculations on the nature of gender-based roles in the production of prehistoric pottery have tended to rely heavily on ethnographic analogies, and have been perceived largely to lie outside of the realm of direct inquiry from purely archaeological sources. This paper examines the role of gender in the production and use of decorated pottery by the late Neolithic/ Chalcolithic Nubian A-Group culture of southern Lower Nubia (Sudan) between the late 4th and early 3rd millennia BC. Examination of the use of decorated pottery in funerary contexts reveals a strong correlation with the sex and age of interred individuals. This observed pattern in the use of pottery in mortuary contexts mirrors other aspects of gender-based differentiation seen in the archaeological record, which collectively suggest an entrenched separation of male and female roles within A-Group society. Through reconstructing the *chaîne opératoire* of A-Group pottery production and identifying certain critical decision making stages in the decoration of pottery, it is possible to further speculate as to specific gendered roles in aspects of pottery production itself. Through such integrated approaches to pottery production and use, and engaging with aspects of the archaeological record that usually lie outside of the remit of pottery technology studies, it is possible to present

a complex picture of the role of pottery in the maintenance and expression of gender-based identity within A-Group society; an interpretation that challenges the reliance on ethnographic analogies, and casts doubt on the simplistic perception and utilisation of decorated pottery primarily as a chronological tool.

RI8 THE ROLE OF ROMAN WOMEN IN SACRIFICIAL MOTIFS ON ROMAN SARCOPHAGI

Danielle Baillargeon

UNIVERSITY OF TORONTO

Visual representations of sacrifice on sarcophagi dating from the 2nd to the 4th century CE depict women as active participants in a number of different guises: stock goddess figures, companions to male figures or active sacrificants. This project seeks to investigate how the depiction of sacrifice is a meaningful motif for the commemoration of feminine virtue. How were feminine values of piety idealized and how is that idealization conceptualized in the context of gendered social discourse? Using Roman biographical sarcophagi dating from the 2nd to the 4th century CE from the environs of Rome, I will integrate a discussion of the iconography of sacrifice into the socio-cultural understanding of sacrifice and its role in the institutionalized discourse of gender in Roman society. I will draw on literary, legal and epigraphic evidence to develop a literary conception of female roles in order to provide a comparison with the visual forms. On biographical sarcophagi, sacrifice is visualized in a number of ways: it may be presented as the culmination of a processional motif, evoking a public sacrificial landscape that is constituted on the integration of male and female realms of religious purview. In other cases, female figures are depicted as actively involved in sacrificial activity, co-opting the motif that articulates male public virtue. Some sarcophagi further nuance the representation of female sacrificial activity to articulate a specific conception of marital unity. The differences in iconography represent a changing dialog between the representation of Roman virtue and the greater context of social self-presentation.

RI3 POTTERS AND THEIR LOCAL NETWORKS DURING THE LATE URNFIELDS (HALLSTATT B): AN OVERVIEW OF CERAMIC PRODUCTION IN THE KAISERSTUHL MICRO-REGION (GERMANY)

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The Kaiserstuhl volcano concentrates Urnfields activities on the German bank of the Upper Rhine. Beautifully crafted potteries of the "Rheinisch-Schweizerische" group (Kimmig 1940) are especially abundant here, later developing into the original Ihringen-Gündlingen style.

This paper offers an overview of local manufacturing processes during the entire Hallstatt B (around 1050-800 B.C.), with some first thoughts about the potters' identity, drawn from the socio-economic set-up of the production. Was there an early "workshop" in the region, as has been claimed, or was domestic output dominant? At a micro-region scale (about 100 km²), what interaction networks operated in daily life?

Dania Braun analysed in detail the ceramics of an extraordinary Hallstatt B1 "pottery cache", from the Münsterberg hill-top settlement at Breisach. Over 400 vessels compose this closed find, among which 130 are complete; they served as a base for multiple analysis methods. Metric analysis, X-ray, Refracting, a Thermal Colour Test, chemical analysis and experimental recreation were used to examine the manufacturing steps and the tool marks that occurred. The results show two distinguishable types of production methods. In comparison, Marie Philippe sampled several Hallstatt B2-3 sites (six settlements and one cemetery) to reconstruct the most complete forming sequences and then follow their dispersal in space and time. The occurrences are interpreted in terms of direct socio-economic interactions between communities. These two separate research projects are complementary, and give greater insights into production, in technical and social terms, in the same context.

RI34 HILDESHEIM AND WERLA – THE RESOURCE MANAGEMENT OF OTTONIAN CENTRAL PLACES

Markus C. Blaich

ROEMER- UND PELIZAEUS-MUSEUM HILDESHEIM

The diocese town Hildesheim (founded 815) and the ottonian royal place Werla (10./11. cent.) are both situated in the foreland of the Harz mountains, ca. 40 km respectively ca. 20 km away from the royal place Goslar, founded about 50 years later (11./12. Cent.). Goslar is situated next to the Rammelsberg, one of the richest ore deposits in northern Europe (copper, lead and silver). Mining there started in late carolingian time (9. cent.) and came to a first peak in the late 10. and beginning 11. century.

Notably, both places (Hildesheim and Werla) feature structural changes, but not in a concurrent way. Hildesheim becomes one of the important diocese towns, Werla declines in the 11. century and is displaced by Goslar. On the other hand Hildesheim and Werla are closely connected to the mining in the Harz mountains. And the starting basis of both places seems to be completely different. The interaction between these three royal places will be discussed along the line of structures and formations „trade and craft – mining – urbanisation“.

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RI22 WINE VS PORRIDGE: GENDER, POWER AND CULTURAL ENTANGLEMENTS IN COLONIAL MEDITERRANEAN ARCHAEOLOGY

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In recent years, food, foodways and culinary traditions have become a solid line of research in the study of diasporic or colonial contexts and in the analysis of cultural contacts between Mediterranean migrant communities and native peoples. Most of these discourses, however, have focused their attention in consumption practices and their materialities primarily. In them, the ingest of alcohol -mostly Mediterranean wine- and the materialities associated to its service and consumption have been central in the study of hybridity processes, the creation of cultural entanglements, and the negotiation of power relationships, masculinities, and social networks. On the contrary, the analysis of culinary practices, traditions and materialities –mostly local porridges- have been belittled in the study of hybridity, gender ideologies, collective identities and power relationships within colonial and migrant communities. The aim of this communication is to call this dualism between consumption and cuisine in question, and to evidence that this duality has been mostly constructed on colonial and gender-biased perspectives. To do it, we analyze from a contextual and comparative perspective practices, contexts and materialities related with the preparation and consumption of food from different emporic and colonial settlements of central and western Mediterranean.

RI13 THE PROTOHISTORIC "QUICKLIME BURIALS" FROM THE BALEARIC ISLANDS

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Traditionally, the Balearic so-called 'quicklime burials' of the Iron Age have been considered to be inhumations in quicklime. The general appearance of the bones, however, resembles more closely that of cremated bones. Laboratory tests reveal that the observed features of the bones from these burials, including cracks, thumbnail fractures and warping, cannot be explained by an inhumation in quicklime. The $\delta^{13}\text{C}$ value, Fourier transform infrared spectra, SF values and the low carbon content of the apatite moreover indicate a thermal manipulation of the bones. The ^{14}C content is depleted with regard to the accepted archaeological age of the sample, which can best be explained by carbon exchange between bio-apatite and fossil CO_2 released during the heating of limestone. This implies that the Balearic 'quicklime burials' must be interpreted as an elaborate cremation practice in presence of limestone.

The remains of these cremations were selected from the pyres and deposited in rock shelters and caves, which entrances were oriented to natural features as the sea or valleys. Quicklime burials take the form of a bulk of white hardened lime mixed up with fragments of cremated bone. Funerary goods were present, but not in all burials. They could be deposited in groups in the caves and rock shelters. Certain types of objects were selected for deposition in these burials.

In the Early Roman period this practice is abandoned by the local population.

RI12 REUSE OF GRAVES AND BONES MANIPULATIONS IN EARLY MEDIEVAL SOUTH WEST OF FRANCE

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The Early Middle Ages in Western Europe is distinguished by many social changes. Several transformations affected the organization of funerary spaces and peculiar funerary practices spread (reuse of burial, manipulations of bones). The studies of these practices were only based on textual sources or imprecise analyses of bones deposit. Here, using examples from early medieval cemeteries located between the Loire and the Garonne (South West of France), we studied study these practices using biological, archaeological and historical data. Our analysis uses 14 funerary sites from a defined historical region, the ecclesiastical province of Bordeaux which allows to compare sites, geographically near and from different archaeological contexts. With an archaeothanological analysis, we will focus on the heterogeneous nature and complexity of graves reuse and bones manipulations which vary according to a series of parameters, including the chronology, the type of container or the position of the grave within the burial ground. Even if the primary cause of these practices cannot be discovered, their study is fundamental to understanding the dynamic organization and the evolution of funerary spaces. The analysis of these data provides new elements of consideration about the changes of the burial practices and the perception of the dead.

RI21 NEWCOMERS TO THE GRAVE: ROMAN AND MEDIEVAL BURIALS IN HIERAPOLIS OF PHRYGIA (TURKEY)

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The starting point of this session is the excavation of four house tombs, three sarcophagi as well as a number of simple tile graves in Hierapolis, Phrygia. One house tomb in the North Necropolis was used from the Augustean period, but an inscription indicates that the tomb was taken over by new owners in the third century. While some artefacts and bones from the first phase were thrown under the funeral benches, skeletons were left in situ on the benches, and the bodies of the second use period were deposited directly on top. The other graves, all in the North-East Necropolis, could be tied to re-use of the

necropolis – graves being taken into use again after long periods of disuse, being emptied, or just tidied, new graves being constructed almost on top of earlier graves, and so on, but generally in a less organised manner. In these cases, we have been faced with serious challenges in trying to disentangle what belongs to whom, what happened when, who did what, and how it was done. We will present some of the methods we use to sort out and to try to understand these events, particularly why so many different reappropriations exist within our relatively small sample. Indeed, it does not seem to be one general motivation behind the reappropriation of the tombs, and the finds, both human remains and grave goods, give evidence on practical, social and religious considerations governing the access of funeral spaces, and testify to changing times and traditions.

RI18 LIFE ON THE MARGINS: EXAMINING ANIMALS IN THE IRISH NEOLITHIC USING PROTEINS

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The Irish Neolithic remains a period in which animals – domesticates and wild fauna alike – remain largely invisible and unquantifiable. Bone preservation is poor on Irish prehistoric sites due to soil acidity and the positive identification of species via traditional morphological analysis is only occasionally possible as faunal assemblages are small and highly fragmented. However, information on the genus and species of animals is also contained at the molecular level, with tiny amounts of bone protein (mainly collagen) able to provide a means of species identification. Collagen extracted from bone is cut into smaller fragments using an enzyme; as the enzyme is specific to particular amino acids, a unique protein sequence will likely yield a unique group of fragments. This group of fragments is then visualised as a 'fingerprint', measured using soft-ionization mass spectrometry methods.

In recent years this approach has been used to differentiate between animal species from a range of archaeological contexts in the Near East, but its use in targeting preservationally marginal faunal assemblages is new. Combined with the results of organic residue analysis of pottery lipids (which can distinguish between ruminant/non-ruminant and milk/meat fats on the basis of stable carbon isotope values), it provides an important means of characterising early livestock economies in areas of poor organic preservation. This paper details the results of a recent pilot project undertaken on Irish Neolithic faunal assemblages, following on from a successful two-year programme of lipid analysis on pottery vessels from the same period.

RI1 HOUSE STRUCTURES OF THE ORCADIAN NEOLITHIC. AN ARCHITECTURE-SOCIOLOGICAL ANALYSIS

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Neolithic Orkney is an extensively discussed topic in archaeology since the 1960s. Reasons for this are the long chronological span, which is represented by the construction and use of the chambered cairns as well as the good preserved houses.

In my presentation I want to analyse different house structures of the Orcadian Neolithic within and between settlements using Space Syntax Analysis. The concept of Space Syntax includes both, theories and techniques that will contribute to the analysis of spatial structures (such as settlements, houses, cairns, etc.). The aim of this analysis will be to differentiate households from another, compare them and investigate if any practices can be associated with specific houses or parts of the houses by analysing the architectural remains and their spatial patterns.

RI20 MEDIEVAL SCONE: A ROYAL EDIFICE REVEALED.

Oliver O'Grady

OJT HERITAGE

Scone has long been recognised as a primary centre for inauguration ceremonies and early parliamentary gatherings in Scotland between the 10th and 15th centuries AD. Our familiarity with the site's historical significance had until recently contrasted markedly with an inadequate understanding of the archaeological remains at Scone. The site is usual among European royal centres in that little was known until comparatively recently about the structural development of the royal centre. This is in part because much of the historic landscape at the Scone was obscured by post-medieval gardens that were formed after the Reformation when the site came into private ownership.

This paper will present results from the first archaeological explorations undertaken at Scone between 2005-2009, including the results of Ground Penetrating Radar surveys and trial excavations. The two main monumental foci at the medieval centre were a large royal assembly mound known as the "Moothill" and an Augustinian Abbey; archaeological details of which will be revealed for the first time.

The second half of the paper will concentrate on the cultural significance of the royal mound in the context of wider European comparators. The opportunity is also taken to look at the interpretation of principal medieval royal centres, sites which can be vested with the status of national symbolism. The multi-layered development of royal centres requires a reflexive interpretive approach. Royal centres are seen as conduits for the reconfiguration of medieval collective identities, and as susceptible to contemporary political agendas through substantial legacies of cultural heritage.

RI33 IDENTITIES VERSUS TYPOLOGICAL ENTITIES. RE-DIMENSIONING THE ROLE OF FACIES IN ITALIAN BRONZE AGE NARRATIVES

Jonas Danckers

UNIVERSITY OF LEUVEN - RESEARCH GROUP ARCHAEOLOGY

After WWII, similarly to Clarke in Britain and von Merhart's pupils in Germany, also in Italy critiques were formulated against the traditional "archaeological culture" concept which too easily equated monolithic, well-delineated units with discrete peoples from the past. In Italian Bronze Age studies, Peroni introduced the concept of *facies*, i.e. an overlap of macro-scale distribution patterns of "types" which resulted from detailed typological study of materials. These entities were mainly used in chronology building, and in theory equation with past human groups was avoided. In practice, however, during the last decades these typological entities continued to play an important role in historical narratives on 2nd-millennium BC Italy. *Facies* are not seldom still implicitly seen as direct reflections of human groups since described, for instance, as performing actions or as lacunar images of nation-state-like bounded "cultures". Besides these criticisable "cultural interpretations", other assumptions such as (1) a "type = a mental template" and (2) "more typological similarity = more intensive interaction", remain unquestioned in many syntheses. In this paper we evaluate the current role of *facies* in Italian Bronze Age narratives, make hidden assumptions behind their interpretations explicit, and confront these with anthropological literature on craft and apprenticeship. By means of examples such as the Apennine, *terramare* and Grotta Nuova *facies*, we emphasise that typology informs only of a rather superficial facet of pottery making practices and interaction. As well-documented these entities may be, it remains crucial to stress that the relation between *facies* and past identities is anything but straightforward.

RI12 MICROTAPHONOMY IN CONTEXT

Edeltraud Aspöck

OREA AUSTRIAN ACADEMY OF SCIENCES

Since the 2011 EAA session on reopened graves (Aspöck and Klevnäs 2011) research on grave reopening practices increased, methodologies became more sophisticated (e.g. application of archaeoethnology) and new interpretational models have been explored. The large part of research has been on evidence of early Medieval graves.

In my talk I will discuss methods of analysis and I will take a closer look on how we can use taphonomic information for the interpretation of a reopened grave in its wider cultural context. Case study will be an early Bronze Age reopened grave from eastern Austria, where a series of methods (single finds recording, micromorphology, archaeoethnology) have been applied to document and analyse the formation process of the grave.

Aspöck, E. und Klevnäs, A., Past 'disturbances' of graves: the reopening of graves for 'grave-robbery' and other practices (Session report, EAA 2011), *The European Archaeologist* 36, 2011, 66–70.

RI17 RE-TRACING IDENTITY: THE MATERIALISATION OF MULTIPLE IDENTITIES IN FUNERARY CONTEXTS OF BRONZE AGE CRETE

Nathalja Calliauw

UNIVERSITY OF LEUVEN, RESEARCH FOUNDATION - FLANDERS

Identity is a complex matter, and while often referred to in singular terms, it is now generally agreed upon that we should investigate 'multiple identities'. Identity could be described as the complex entanglement of all relations tying us to our human, material and natural environment. This constellation of relations is ever-changing, and thus hard to grasp. For archaeologists this is even more challenging, because we are restricted to those relations that have been materialised in the archaeological record. Funerary contexts offer a good starting point for our search for multiple identities in the past. Because of the presence of both human and nonhuman material we are not confined to the study of possible materialisations of identities in material culture and practices. We also have access to potential materialisations/manifestations of identities in the body. This advantage of funerary contexts is, however, lost if the human and nonhuman material are studied in isolation, as is often still the case for Bronze Age Crete. Identity studies in these contexts are furthermore often limited to only one or two aspects of identity such as for instance gender and status. Starting from the conception of identity as a nexus of relations, this presentation will explore how we can investigate multiple identities of the Cretan Bronze Age simultaneously. By tracing the wealth of relations that can be deduced from both the human and nonhuman material, a funerary network can be created, reflective of multiple relations or identities materialised in the funerary practices of Bronze Age Crete.

RI26 RECONSIDERING ENCLOSED LOWLAND POWER CENTRES IN EARLY MEDIEVAL SCOTLAND: MONASTERY, CIVITAS OR PALACE?

Oliver O'Grady

OJT HERITAGE

The development of low-lying power centres in late first millennium AD Britain has been recognised to coincide with the expansion of ecclesiastical authority and infrastructure in early medieval kingdoms. Narratives of state formation and systemic models have underpinned previous arguments that elite secular and Church ideological interests diverged to facilitate the development of nascent coalesced kingdoms. However, to date only limited archaeological evidence has been presented for the

early medieval palace complex in Northern Britain to compare with the hall-complex and burial site at Yeavinger in Northern England or the palace and cathedral of Carolingian Aachen. It is argued here that a more refined understanding of regional diversity in the archaeological record for church-settlements is required to advance beyond this apparent deficit in evidence.

In this paper I will use the example of southern Pictland in Scotland and excavations at the rectangular enclosed church-settlement at Fortingall to argue for a fundamental reinterpretation of lowland monastic sites as enclosed power centres. An over-reliance on Irish monastic archaeology is identified as an important problem in limiting previous discussion of early medieval monastic sites in Scotland. Discussion focuses on the significance of the *civitas* as an innovative instrument for the expansion of a proto-urban royal authority. When reassessed in this way traditional features such as the *vallum* invest royally patronised church-settlements with a defensive authority based on sacred observance. That such sites could be founded on older cultic centres can link their development to the wider Christianisation of pagan landscapes across Northern Europe.

RI27 RECONSIDERING THE INTERPRETATION OF 'HANSEATIC MATERIAL CULTURE' FROM A CERAMIC POINT OF VIEW

Roos van Oosten

LEIDEN UNIVERSITY

In a recent article in the *European Journal of Archaeology* Gaimster specified his theory that 'German stoneware may be regarded as a type-fossil of mercantile or 'Hanseatic' urban culture' (Gaimster 2014, 65-66). He interprets the apparent high frequency of imported stoneware finds in Kalmar, Sweden (3%), as a signature of Hanseatic trade. For many years now the Dutch classification system has been used to classify artefact assemblages in the Low Countries. Drawing from this vast haul of data is an international first and enables mapping the distribution of stoneware in individual towns through time. With 20% the frequency is rather high in comparison with European benchmarks. Zooming in, two patterns emerge: The older the complex, the higher the frequency of stoneware and in addition; the closer a town is situated to a stoneware production centre, the higher the frequency of stoneware, regardless of whether a town is a member of the Hanseatic league. This epi-distribution pattern in particular raises the question: Is the Hanseatic signature actually visible in the archaeological ceramic record at all?

RI5 RECONFIGURING THE ELITES AND THE NATURE OF SOCIETY IN LATE PREPALATIAL EAST CRETE

Matej Pavlacky

UNIVERSITY OF KENT

The late Prepalatial period (EM III – MM IA), previously seen as a transitional era before the "palaces" or "court buildings" were built, is now more viewed as a time of major growth that increases in complexity *gradually* through MM I (Schoep 2006; Schoep et al. 2012). This complexity is often explained through ideological and peaceful influence of elites on communities. There is also evidence for major, yet again *gradual*, urban and rural growth (Whitelaw 2012). The data from the Vrokastro (Hayden 2005) and Gournia (Watrous et al. 2012) surveys confirm the increased number of sites in Prepalatial East Crete. However, the gradual growth of sites can only be seen up until EM IIB, the increase of sites in EM III is rather *rapid* and cannot be explained by natural generation growth but rather by arrival of new people into the region. The archaeological evidence from Priniatikos Pyrgos, our case study site, suggests *destruction* in EM III. This paper intends to examine the possibilities that it was an act of violence from elites in Malia, especially when taken into account that Priniatikos Pyrgos was a local (and most likely very rich) production centre in EM IIB, and therefore may have been perceived as a problematic rival for these elites. In a larger scale this destruction may have been the turning point for the elites to gain control over the region, which seems to have been completed in the following period (post MM IA).

RI18 CENTRAL PERIPHERIES; LOYALIST ARCHAEOLOGIES ON THE SOUTH SHORE OF NOVA SCOTIA

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UNIVERSITY OF OXFORD

The archaeology of eighteenth century Loyalism in Atlantic Canada in general, and on the South Shore of Nova Scotia in particular, is marginal in multiple ways. Two of these are considered in this paper:

Firstly, the current economic marginality of the region has led to its being excluded to a large extent from mainstream histories - and historical archaeologies - of Canada. Secondly, archaeologies of the Loyalists have the potential to create politically awkward narratives - the story of the Black Loyalists is a politically sensitive one, with uncomfortable implications for the current white population. On the other hand, that of the White Loyalists is associated with an overtly patriotic conservatism deeply unattractive to many academics.

To redress this imbalance I argue that archaeologies of the Loyalists in Nova Scotia need to consider them in their eighteenth century context; one in which their region was paradoxically both more marginal and more central than it is today but where groups and individuals were deeply enmeshed in networks of movement across and around the Atlantic. Archaeologies of the Loyalists can also avoid the pitfalls associated with looking at what might be described as single identity groups, not through ignoring those identities - often as significant during the eighteenth century as they are today - but through attention to the

interactions and relationships between them. In doing so, they will not, perhaps, avoid political awkwardness, but the narratives that emerge should provide more balanced insights into the complex nuances of the historical situation.

RI33 “WHAT’S IN A NAME?” CULTURAL ENTITIES AND GROUP IDENTITIES IN THE NEOLITHIC OF SOUTH-EAST EUROPE.

Susan Stratton

CARDIFF UNIVERSITY

The prehistory of south-east Europe has long been dominated by the use of cultures, defined spatially and temporally by the occurrence of certain pottery types. Despite acknowledgement that these cultures are problematic they continue to permeate the way we discuss the archaeology of the region. We excavate a Vinča settlement. A burial is Hamangia. Ceramics continue to be the way we think and talk about these societies. It is becoming increasingly clear that the distribution of these supposedly discrete ceramic groups were much more messy; there are now known various examples of overlaps of pottery types in time and space. Groups once thought sequential have been dated to the same time, ceramics of different cultures have been found on a single settlement.

While cultures pervade south-east European archaeology, my own background in British archaeology leads me towards thinking about the individual, with ideas about personhood, agency, the lived experience of one person. Such thinking allows us to neatly side-step the issue of “cultures” by focusing on a different scale. The issue remains, however; how did people identify themselves? What was the real sense of relationship behind the shared use of a certain ceramic type? Through family, clan, settlement, region or shared material culture? This paper explores how else we may be able to think about the lived identities of the people of prehistoric Europe on scales somewhere between “archaeological culture” and “the individual”.

RI7 THE MORTUARY PRACTICES OUTSIDE FUNERARY CONTEXT FOR NEWBORNS IN FRANCE IN THE LATE MIDDLE AGES AND THE MODERN ERA

Isabelle Souquet-Leroy

INRAP

In France, from Middle Ages, any individual born and baptized within three days after birth, was buried in consecrated ground in the community cemetery in Christian liturgy. When the death occurred before baptism, these children were excluded from the cemetery but soon, ritual practices have enabled parents to bury their young children in the cemetery, a symbol of integration into society of Christians. However, archaeological discoveries have shown that some infants were not buried with the rest of the community but outside the cemetery in domestic spaces. If this practice is known to protohistoric and ancient periods, it is unusual in a Christian society.

These examples reveal another image mortuary attitudes, intimate “family”. They are located on the border between belonging to a private club and exclusion in society.

RI35 CONTEMPORARY EXPERIENCES OF A PAST PROCESS; MARGINALITY, IMPROVEMENT, AND CLEARING IN GALLOWAY, SCOTLAND

C Broughton Anderson

BEREA COLLEGE

In 2005, I conducted research focused on the identity of Dumfries and Galloway, its marginalized past, and manifestations in contemporary life. There were clear-cut examples of marginalization that were intricately linked to the practice of tourism, and more specifically the process of land development in order to attract holiday travelers. These contemporary processes of “improvement” mirrored that of 18th and 19th century practices to improve the land often at the cost of the general population. Three specific issues surfaced in that research: the act of locals being priced out of the housing/farm market, the physical alteration of land for profit, and encroachment on historically sensitive land. In 2011, these three issues were still prominent with one significant difference: locals were making repeated references to processes designed to bring about social and economic change but with detrimental, residual effects: people were leaving the region because of high unemployment and failing farms. In this paper, I trace forward the 18th century ideas of Improvement, a matrix of economic, material and social changes meant to develop a productive, civilized world, and clearing, the removal of populations from the landscape, as practices still at play today. How do the past practices of “improvement” and “clearance” appear on the landscape and how does the material culture associated with the past help us understand the practices as they are carried out today?

RI3 THE CAVE BELOW AND THE ROCKS ABOVE: PETROGRAPHIC ANALYSIS IN CONTEXT, AT THE RITUAL SITE OF HIGH PASTURE CAVE, ISLE OF SKYE, SCOTLAND

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Excavations at the subterranean cave complex of High Pasture, Isle of Skye, Scotland, have uncovered a fascinating range of structures and deposits, with activity from the Early Bronze Age to the third century AD. Rich assemblages, including decorated Iron Age ceramics associated with feasting episodes, indicate that this site formed a key part of the prehistoric landscape, with the cave and precincts modified to suggest an intensive and unequivocally ritually-focused use-history.

The location of High Pasture Cave – at a distinctive geological junction between Cambrian Durness Limestone and the dramatic 'Red Cuillin' volcanic complex – has provided a unique opportunity, in conjunction with the rich ceramic assemblage, to use thin section petrology to explore potential choices in rock and clay sources, with fascinating results. The raw materials collected to make the pottery indicate that the ceramic traditions reflect a wider desire to modify the cave and its precincts to take in elements of the wider landscape.

With an analysis undertaken by the project geoarchaeologist and environmental coordinator for the site (and thus assessed with an understanding of the anthropogenically-modified mineralogical profile of the on-site deposits, as well as patterns of biological resource use and site taphonomy), in conjunction with in depth regional ceramic expertise, High Pasture provides a thought-provoking approach to petrographic case study. Is our baseline for evaluating and contextualising ceramic makeup usefully refined by assessment from a geoarchaeological perspective? And to what extent do assemblages from 'special' sites assist in contextualising relationships between pottery technology and society?

RI10 BETWEEN THE DANUBE AND THE DEEP BLUE SEA: CONTRASTS AND CONNECTIONS AT THE INTERFACE BETWEEN COASTAL AND CONTINENTAL NEOLITHICS IN THE WESTERN BALKANS.

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The spread of farming-related technologies and practices into Europe has long been understood to involve two 'streams of neolithization', commonly labelled as 'coastal' (i.e. Adriatic/Mediterranean) and 'continental' (i.e. Danube basin/central Europe). While much research has focused on the processes by which these streams carried farming respectively around the Mediterranean littoral and into central Europe – i.e. on frontiers between farming and non-farming populations, howsoever conceived – this paper turns instead to the nature of the 'frontier' between coastal and continental streams in the region in which they are first clearly apparent: the western Balkans.

The results of new research at several sites in Bosnia & Hercegovina, Serbia, Croatia, and Montenegro – undertaken as part of the EUROFARM project – are presented in the context of a wider synthesis of zooarchaeological, archaeobotanical, and radiocarbon data from across the region, in order to assess the nature and coherence of 'Neolithic packages' involved in each of the classic streams, and particularly in the much less well-known contact zone between the two.

RI24 THE ARCHAEOLOGICAL IMPLICATIONS OF THE "PHRYGIAN WANAX"

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Phrygians have been considered "newcomers" to the Anatolian Iron Age cultural sphere, allegedly from the Balkans, based on textual (i.e. the Herodotean *Bryges* connection), and archaeological evidence (e.g. the intrusive hand-made wares found in Anatolia, more specifically in the EIA strata of Gordion). A more curious connection with Europe lies in the linguistics of Phrygian. The words *vanaktei* and *lavagtaei*, most probably the titles of *midai*, found in M-01a, directly correspond to Mycenaean *wanax* and *lawagetas*, the titles used for the Mycenaean king, and for the person who was second in command in royal Mycenaean hierarchy, respectively. Since linguistics does not allow an IA borrowing from the Greek-speakers of Anatolia, we are facing very interesting conundrum: these titles, implicating an established hierarchical political organisation, are either LBA borrowings from the Mycenaean political sphere -which is the common opinion-, or relics of the heritage common to both Greek and Phrygian-speakers dated from the times before the linguistic bifurcation of said languages, as postulated by Brixhe. Archaeologically, this presents a formidable problem: i) either the LBA ancestors of Phrygians had substantial contact with Mycenaeans to the extent that they adopted their political titles, if not institutions; or ii) we have to think of a common pre-split Greco-Phrygian society where such an established social hierarchy was in place. I will investigate the archaeological implications of this linguistic data in terms of the identity of the IA Phrygian state, which so far has been mostly overlooked by Aegean prehistorians and scholars of Phrygian studies alike.

RI2 WARFARE AND THE DESTRUCTION OF HILLFORTS IN BRONZE AGE IRELAND

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This paper considers the archaeological evidence for warfare and conflict in Bronze Age Ireland, with specific reference to traumatic events that occurred at hillforts during the twelfth and eleventh centuries BC. The building of these strongholds took place at a time of growing militarism, reflected in an increased output of bronze weaponry, including the first use of swords. The picture that emerges, however accurate, is of a highly competitive society, obsessed with power and status, but riven by disputes of various kinds. As with all warfare, those conflicts were historically contingent and culturally determined, leaving us with the challenge of how to recognize short-term catastrophic events in the archaeological record. The results of recent fieldwork are used to identify direct evidence of conflict at a number of hillforts across Ireland. Patterns of deliberate destruction can be identified for the first time, based on a correlation of geophysical survey data and excavation records. The significance of these hillfort-burning events is considered in relation to longer-term processes that shaped the political relations of the Late Bronze Age.

RI5 LAW OF SUPPLY AND DEMAND – ECONOMIC FUNDAMENTS OF CHANGE IN LATE BRONZE AGE SOCIETY OF SOUTHERN CARPATHIAN BASIN

Hrvoje Kalafatic

INSTITUTE OF ARCHAEOLOGY

Late Bronze age, as one of the deciding periods in development of Prehistoric Europe, was defined by outburst of metallurgy that reflected on emergence on new social practices. Recent acknowledgments of prehistoric features, such as intensification of surveys for resources, induced mobility, development of trade, inter regional communications, changed perception of cultural groups in the southern part of Carpathian basin. Populations of that region were not the inventors of metallurgical technology, but did significantly upgraded metallurgic process and induced expansion of demand and supply of resources. Beginning of Late Bronze age was burst point of metallurgic activities which can be observed through findings of semi-products slag, ingotes, moulds , etc. This explosion of metallurgical activities is visible on variety of mass produced products, both in its quantity, high level of craftsmanship and its aesthetics. Important evidence of metallurgical activities can be observed through residues of everyday use, in form of damaged and fragmented objects that were collected to be recycled in metallurgic process, or deposited in form of hoards. Late bronze age was the period which can be observed as a turning point in way the settlement of new regions was conducted. This is the period in which new patterns settlements can be observed, primarily seen in the way settlements were founded in areas rich with ore, as well as on strategic posts along communication routes which lead from the metalliferous regions toward regions which were in demand of resources necessary to conduct metallurgic activities.

RI37 RECONFIGURING MARGINAL IDENTITIES OF THE DEVIANT DEAD: DECAPITATION PRACTICE IN THE ROMANO-BRITISH PERIOD

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Archaeological investigations of Romano-British burials have revealed a variety of burial treatments and attitudes toward the dead. Ambiguous, unusual, differential or marginalized 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 foreign, low or criminal status; however, a contextual analysis of Romano-British 'deviant' burial practices suggests alternative narratives that could shed new light on the constructed, restorative, transformative, and liminal identities of the Romano-British dead. This paper will investigate Romano-British decapitated inhumation burials with associated faunal deposits and material culture through a regional multiscale approach. This investigation offers an opportunity to expand our understanding of the larger social contexts of minority populations by balancing instances of bias regarding their lifeways, challenging the assumed negative status of so-called deviant burials, and reassessing the nature of 'deviancy' during the 1st – 4th century A.D. in Roman Britain.

RI10 THE SEEDS OF CHANGE IN THE EASTERN WOODLANDS OF NORTH AMERICA

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The Eastern Woodlands of North America has long been recognized as one of the best-documented centers of plant domestication worldwide, where agriculture arose independently of influences from other areas. The suite of small seed crops commonly referred to as the Eastern Agricultural Complex, comprised of goosefoot (*Chenopodium berlandieri* ssp. *jonesianum*), sumpweed (*Iva annua* var. *macrocarpa*), pepo gourds (*Cucurbita pepo* spp. *ovifera*), sunflower (*Helianthus annuus* var. *macrocarpus*), maygrass (*Phalaris caroliniana*), knotweed (*Polygonum erectum*), little barley (*Hordeum pusillum*), and giant ragweed (*Ambrosia trifida*), were part of the initial farming systems established in the river valleys and uplands. While their recovery from both topographic locations has fueled an ongoing discussion regarding the physical landscape of initial plant domestication, what is not disputed is the profound social impact that it had on subsequent generations. Decisions made by hunter-gatherer groups that led to initial plant domestication resulted in the establishment of new relationships among prehistoric groups and between prehistoric peoples and the natural world. These new relationships are correlated with panregional religious movements, the construction of monumental architecture, elaborate mortuary ceremonialism, and the trade of exotic raw materials, that have antecedents in the Archaic (11,500 – 3,200 cal yr BP) period and come to define the Woodland (3,200 – 1,020 cal yr BP) period. Here we use plant assemblages from multiple sites to show how hunter-gatherers applied their knowledge of the natural world to dramatically transform the physical landscape into incipient horticultural systems, and how this transformation greatly affected the cultural landscape of the region as well.

RI34 MEDIEVAL MEDEMBLIK: A CENTRE IN THE PERIPHERY OF THE LOWLANDS

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Medemblik is a small rural city in the north-western part of the Netherlands. In early medieval times, Medemblik formed a centre of trade and religion for the surrounding region. It was situated in one of the peripheral zones of the Frankish Empire, where many different cultures, peoples and ideas touched. The small Frisian-Frankish trade settlement was situated on one of the most important trade routes from Dorestad to the North. The material culture found in excavations reflects these international ties. The linear trade settlement on the banks of a bog river can be seen as a smaller, subservient version of Dorestad. Throughout the sometimes rapidly changing early medieval world, Medemblik retained its central trading position within the Frankish periphery. The Church of Utrecht also took an interest and acquired the right to levy toll on trade in Medemblik. It was not until the destructive floods of the 12th century and the demanding war with the Dukes of Holland in the 13th century that Medemblik lost its prominent position and declined into the small rural city it is today.

RI30 CONNECTING HERITAGE IDENTITIES: THE CASE OF HASANKEYF AND ILISU DAM

Banu Aydinoglugil

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Heritage sites contain natural and cultural material remains used in constructing meanings and identities by different groups through objects and practices. Hasankeyf is an archaeological and natural heritage site located in Southeast of Turkey forms a prism that contains and reflects those varied identities. Hasankeyf is depicting a unique set up of sociopolitical, archeological, cultural and natural piece of landscape in terms of its location and its role in local, national and international contexts. The town is imminent danger of flood by the ongoing construction of Ilisu Dam, which is a state led initiative. Its rich archaeology contains multiple periods from Neolithic to Byzantine as well as acting as a center during Artukid and Ayyubid periods of 12th-15th-century of Middle Age Islam. The town being in a region dominated by Kurdish population, its heritage have been claimed by some Kurdish human rights activists and attempts to destroy the site and resettle local inhabitants was seen as a human rights violation of Kurdish people. Despite that, local inhabitants calling themselves 'Hisni' a niche culture reflecting mixture of multiple identities and cultures, held a different view of the heritage and landscape of Hasankeyf, passed onto generations as oral histories, tales, stories, local names and traditional ecological knowledge. However, Turkish state is determining the scale and character of heritage management of the site in which the cultural national identity has been the dominant discourse. This paper explores the interaction between these multiple vocalities in determining preservation of heritage.

RI24 A NEW ROCK-CUT NECROPOLIS FROM WESTERN PHRYGIA (DEMIRKAYA NECROPOLIS)

Hakan Sivas

ANADOLU UNIVERSITY

One of the most important peoples in Iron Age Anatolia was the Phrygians, Thracian migrators surging in Anatolia by ca 1200 BC.

Because of its strategic position in the centre of Asia Minor, controlling the routes between east and west, the region of Phrygia was of great importance throughout the history. The region was named after the Phrygians who are believed to have been an Indo-European people, entering Asia Minor from Thrace about 1200 BC and seized control of the whole central plains. In the early Iron Age, the Phrygians gained power to become the dominant people in the Anatolian plateau, in the heart of Phrygia, between 9th and 7th century BC. After the political decline of the Phrygian Kingdom at the beginning of the 7th century, the Phrygians continued their lives in the region, first under Lydian supremacy (in the first half of the 6th century BC), then the Persian hegemony (547/546-330 BC). Subsequently, the region passed successively under the rule of Alexander the Great, his generals, the Attalids in the Hellenistic period, and the Romans. In the Roman Imperial Period, Phrygia was repopulated and the region became prosperous by all means.

This paper is dealt with the Demirkaya Necropolis, village of Sağırlı, district of Bayat in the Province of Afyonkarahisar. Demirkaya Necropolis consist of 3 Phrygian and 9 Roman tombs which were recently found during the survey by the team under leadership of Prof. Dr. Taciser Tüfekçi Sivas.

RI38 BOUDICA, THE WARRIOR QUEEN: POWER, MEMORY AND FEMINISM

Tais Pagoto Bélo

UNIVERSITY COLLEGE LONDON

This presentation is based on the Boudica, the Breton queen, from the Iceni tribe, who led an army against the Roman Empire in I A.D., in the ancient Britannia.

She is known as the first woman who led a freedom movement; she was an influence to the feminists and to women leaders of England, such as for Elizabeth I and Victoria; and an inspiration to poets, artists and propagandist from different historical moments. It was not the image of the warrior queen that made the British easy accept a feminine government, but was used as an excuse to admit a woman in power.

During the British Empire her figure was exalted through statues in the cities of London, Cardiff and Colchester, and a Stained Glass Window in the Town Hall of the last one. Boudica's statue of London was a kind of a gift to the nation, and an answer

from the queen to her own female power, in a moment of exceeding nationalism. The presence of a woman in the government seems to be fundamental to celebrate a heroine and not a hero in this period of time.

The patriotic and heroic spirit of the Twentieth century made the British suffragists use Boudica's statue as a place of vindications, turning her to a symbol of women's causes. And the personification of Boudica can be seen as an attempt to perpetuate her, and for this reason, it is important to demonstrate how Boudica still is alive in British collective memory.

RI29 LIGHT AND DARKNESS IN EDWARDIAN COLONY ASYLUMS OF SCOTLAND AND IRELAND

Gill Allmond

QUEEN'S UNIVERSITY BELFAST

The 'colony' asylum, first appearing in Germany, Scotland and Ireland around the turn into the twentieth century, represented an attempt, utopian in its inspiration, to cater for large numbers of mentally ill patients in 'perfected' communities modelled on bourgeois housing developments, consisting of domestic-style 'villas' laid out around communal buildings. The rural location and the design of the buildings themselves was intended to maximise exposure to light and air in express contrast both to early 'prison-like' asylums and to the dark and dingy working class hovels that were a prominent feature of contemporary discourses and created a troubling counterpoint to the rural/suburban. I examine the architecture, spaces and interior decoration of asylum 'villas' in Scotland and Ireland in order to understand how light is admitted to and conducted through the buildings. I connect the material evidence with its cultural context, in particular contemporary understandings of the therapeutic qualities of light and the sets of ideological oppositions created in contemporary discourses around darkness and light. The poster will highlight the ways in which essentially carceral institutions were presented to a sceptical public as places of freedom and therapeutic care.

RI25 INDIGENOUS AND ROMANS IN THE PORTUGUESE TERRITORY - INFLUENCES AND CHANGES IN RELIGIOUS PRACTICES.

Daniela Ferreira

COMPLUTENSE UNIVERSITY OF MADRID

The understanding of religious manifestations is assumed as one of the most relevant studies in the dynamics inherent to the process of acculturation occurred between indigenous and Romans in the Portuguese territory. The primary source for this view lies with the votive epigraphy, understood as a provider of divine names, rituals and forms of thought organization.

The Portuguese Beira Interior, possessor a large number of epigraphic testimonies, appears as a singular area for the study of indigenous religious expressions. Taking into account this singularity, and based on the joint analysis of the sum of votive monuments dedicated to indigenous deities; we have formulated a proposal of organization of the pre-Roman religious pantheon based on the degree of exclusivity from the theonyms recorded in the region under study. The ultimate goal focused the understanding of regionalism and the organization, in consequence, of the apparent disorder subsequent to such a marked diversity of theonyms.

The result of this interpretation has expressed in the individualization of theonyms only mentioning in Beira Interior, in the particularization of regional theonyms which confirm to the possibility of a votive pantheon extended to adjacent regions, and in the distinction of these specifications in relation to the designations of the divine, widely represented in the rest of Hispanic territory. The proposed organization allowed us to perceive specific geographical areas of each of these groups, thus contributing to the definition of the fields of action of each evoked deities and the consequent definition of their attributes.

RI6 A PREFERENCE FOR MILLET AND BROAD BEAN? ARCHAEOBOTANICAL EVIDENCE FROM BRONZE AND IRON AGE CROATIA (CA. 2400 TO 100 CAL BC)

Hrvoje Kalafatić

INSTITUT ZA ARHEOLOGIJU

Co-author: Kelly Reed, University of Zagreb

The Bronze and Iron Age in the Carpathian Basin see major changes in society with the development of proto-urban centres, centralisation of authority, social hierarchy and the intensification of trade. However, due to limited archaeobotanical research in the region questions on how agriculture developed in the face of these socio-economic changes is less clear. In Croatia, archaeobotanical evidence has begun to suggest that this period saw a shift in the main crops cultivated by the late Bronze Age, with a particular preference for broomcorn millet and broad bean. The archaeobotanical data from Croatia is presented here and examined within the context of the archaeological evidence of the Carpathian Basin to explore why broomcorn millet and broad bean may have become a popular choice at this time.

RI3 STUDIES ON THE FUNNELBEAKER-WESTGROUP: POTTERY OF MEGALITHIC GRAVES

Julia Menne

CHRISTIAN-ALBRECHTS-UNIVERSITY KIEL

This project focuses on the material culture in the context of the phenomenon of early monumentality with a special focus on the investigation of megalithic graves in Northwest Germany. The main subject is the pottery which was analysed from a material, functional and typological aspect. In this, communication processes between graves were analysed which deduce insights of decoration styles connected to megalithic monuments.

The main focus lies on pottery of the Funnelbeaker-Westgroup between Hondsrug and Weser. Thousands of single sherds and vessels from several excavated megalithic graves were analysed. Thus metric analyses, preservation conditions, production processes as well as vessel types become perceptible. An important aspect is also the analysis of the numerous decoration styles and ornaments, which is significant for subsequent interpretations. For the analysis quantitative statistics as well as multivariate statistics in association with GIS were used. Natural science analysis complete the data, e.g. XRF spectroscopy, thin sections and microscopic analysis to get more information about the material and structures.

The preliminary results show internal and external cultural influences of a well-established cultural network in the research area on the basis of the pottery inventories of megalithic graves. The richness of different pottery styles and different ornaments on each vessel show that there are separated distributions of progression in specific styles located in limited areas. That allows an identification of individual spatial groups. It will be shown how networks of communication processes influenced the usage of megalithic monuments in the context of the regional neolithic funerary landscape.

RI7 BABIES STORED IN VASES: FOCUS ON A UNIQUE FUNERARY PRACTICE

Johanna Recchia

UNIVERSITÉ PAUL VALÉRY, MONTPELLIER 3, UMR 5140

One of the main priorities in the study of funerary practices is the importance of grave goods in the burial space. Pottery constitutes a portion of the objects regularly deposited in the space reserved for the dead. There are a variety of ways to view the place held by pottery in the mortuary display.

As part of my doctoral work, I was "thrown a bone," or, rather, several bones in the form of very young children interred in storage vessels during the late Neolithic period of the South of France. In such circumstances, the pottery itself assumes the role of a sepulcher intended for very young children. These burial vases are very often located far from areas reserved for the funerary deposits of the rest of the community and are primarily included in domestic spaces. Their exclusion from the funerary realm shows the uniqueness of this practice used to attend to the remains of very young children.

Despite the existence of several occurrences, the phenomenon remains poorly documented. The most convincing comparisons in the archaeological record can be found in neolithic Balkan burials. In order to supplement this research, further exploration was done to find comparable modern and pre-modern funerary events. My work on anthropomorphic vases enjoins me to propose a few observations about the connection between the deposit of these young remains inside storage vessels and the representation of the body during the Neolithic period - the connection between the physical body and the *idéel* representation of the body.

RI36 ARCHAEOLOGY OF MOTHERHOOD IN BRONZE AGE EUROPE

Katharina Rebay-Salisbury

AUSTRIAN ACADEMY OF SCIENCES

The transition to motherhood is one of the most profound changes of identity a woman may experience in her life. Although motherhood and early childrearing are often interpreted as a natural, normal and inevitable parts of women's lives, they are in fact cultural practices that build the foundations of societies.

This poster presents a new project at the Austrian Academy of Sciences that aims to explore social responses to pregnancy, birth and early child rearing in Bronze Age central Europe. It will investigate if and how the social status of women changed as they became mothers and how reproduction was culturally embedded in different societies. It will aim to understand how the conceptualisation of motherhood changed over time, both at a culturally specific level and as a broader (pre-) historical phenomenon.

Innovative archaeological and bio-anthropological methods, including aDNA and isotope analyses will be applied to recently published Bronze Age cemeteries from Austria. The early Bronze Age inhumation cemeteries belong to three cultural groups with different burial practices (Únětice, Unterwölbing and Wieselburg). Middle and late Bronze Age cemeteries include cremated individuals.

The project will explore if all women were expected to become mothers, highlighting that women might have had different pathways in life, and investigate the risk of becoming a mother as well as the social consequences of the transition to motherhood. Funerary practices, grave architecture and artefacts in graves will be systematically related to women's reproductive status, exploring motherhoods as an identity marker.

RI18 THE ARCHAEOLOGY OF MEDIEVAL RURAL SETTLEMENTS AND URBAN HABITATION IN WESTERN SWITZERLAND : FROM REJECTION, TO LACK OF MATERIEL CULTURE.

Marion Liboutet

ETAT DE VAUD

The archaeology of medieval rural settlements and urban habitation in western Switzerland : studies are either scarce or non-existent. The reasons are multiple: from rejection, to lack of materiel culture. How can future research be reoriented ?

RI25 GROMNIK – CASTLE OF SILESIAN KNIGHTS OF THE FIFTEENTH CENTURY (SW POLAND).

Krzysztof Jaworski, Aleksandra Pankiewicz, Ewa Lisowska

UNIVERSITY OF WROCLAW, INSTITUTE OF ARCHAEOLOGY

Situated on the highest top of the Strzelińskie hills (Sudetenland) Gromnik castle is a perfect example of knights defense establishment. It was built by the family von Czirn in 1439 and functioned until 1475. The history of the castle is quite well known from the written sources. Although in the minds of local societies castle is associated with robbers knights sympathized with the Hussite movement, the material culture of the castle allows to see their owners in a completely different light. Discovered during archaeological excavations remains of the stone castle of a very grand shape seems to be too big for an average knight family. The assumption was surrounded by a triple system of moats and embankments with the bastions. The castle also had a circumferential wall closing some chambers and two towers - defensive and representative ones. There had been discovered items belong to heating systems - a large number of stove tiles here. Special attention should be put on the rich and unusual iconography of tiles, which depict mythological scenes: naked figures of Hercules and Aphrodite with clearly marked sexual attributes. Representations on tiles were far from the medieval standards and were rather appropriate to the Renaissance. In addition, the unique position of the castle's residents is also reflected in the large number of coins, jewellery, weapons, glass vessels and luxury ceramics. Both of these findings as well as the less spectacular items of daily use also allow the reconstruction of the economic background of the castle.

RI3 TECHNICAL AND TECHNOLOGICAL ANALYSIS OF VOLGO-KAMIA NEOLITHIC POTTERY

Aleksandr Vybornov, Irina Vasilieva, Natalya Vybornova

SAMARA STATE ACADEMY OF SOCIAL SCIENCES AND HUMANITIES

Technical and technological analysis of 3000 vessels taken from 100 Volgo-Kamia Neolithic sites serves as a research base. The basis of this research is Bobrinskiy's hypothesis about the origin of pottery based on the history of organic and other clay materials usage in the pre-pottery period. Plastic materials refer to the most stable elements of pottery manufacture and to the group of substrate skills. They remained unchanged even under conditions of different population groups' cultural traditions mixture for a long time. Plastic materials in pottery are natural ones which could be used as separate plastic raw stuff for pottery manufacture. On the basis of technical and technological analysis three regions with certain characteristics were selected. In Lower Povolzhye pottery is made from silt, in Middle Povolzhye – from silty clay, and in Prikamie – from clay.

Archaic nature of silty materials in the first area can indicate the autochthony of pottery traditions origin. The appearance of silty clay technology in the second area which is on a higher level of development than pottery of Neolithic population in Lower Povolzhye supposes their non-local origin. The latest technology appeared in Prikamie. This hypothesis is checked by 300 dates. Pottery made from silt in Lower Povolzhye is dated from the first half of VII century BC, pottery from silty clay in Middle Povolzhye – from the second half of VII century BC, and pottery made from clay in Prikamie – from the second half of VI century BC. It proves the proposed hypothesis. Grant 33.1195.2014/k.

RI25 INTER-GROUP CONNECTEDNESS IN THE EARLY BRONZE AGE - SOUTHWEST NORWAY

Knut Ivar Austvoll

UNIVERSITY OF OSLO, DEPARTMENT OF ARCHAEOLOGY, CONSERVATION AND HISTORY

This poster, which is based on the results of my M.A thesis, presents how groups in the Early Bronze Age along the southwest coast of Norway both intentionally and unintentionally ended up constructing regional identities. Earthen barrows from the districts of Etne, Karmøy, Jæren and Lista, Norway, were selected as the archaeological source for this study. Previous research has often used a set, rigid definition of identity, and earthen barrows along the coast of southwest Norway have therefore frequently been portrayed as part of a southern Scandinavian culture. These perceptions are not necessarily wrong, but have neglected the complicated concept that identity is. The importance of historically constituted structures together with external practice show that identity is part of an open-ended process, and that the construction of identity is a multifaceted process that relies on a multitude of focus point. Through a quantitative methodology it has been possible to re-construct group identities in southwest Norway, showing that although these groups can be categorised as part of a Nordic Bronze Age tradition, they were internally diverse, emphasised through the construction of burial mounds, choice of artefacts and diachronic relations.

RI7 CHILDREN'S BURIALS IN THE ENEOLITHIC CEMETERY FROM SULTANA-MALU ROSU (ROMANIA). A CASE STUDY.

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This paper focuses on the Eneolithic children burials discovered in the Sultana-Malu Rosu cemetery, Romania (ca. 5000-4000 cal BC). These burial practices may implicitly reflect, through grave goods or other features (such as body treatment and position within the funerary area), the potential symbolic significance of children and their connection to the household and social groups. Each of these characteristics is a possible active representation of special treatment applied to *Infans* category and could be carefully understood as a message regarding not so much the individual identity, but more likely the collective identity of the family or community. Thus, the deceased children show an "artificial" identity, created by the adults. We will discuss the graves from the viewpoint of their symbolic potential and their position within the society. Also, we will argue the possible causes of paucity in grave goods and their significance when these exist. Another issue targeted is the differentiation between adults and subadults, as the death impact of both categories in the community how it is reflected in the funerary ritual.

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RI18 NOTES IN THE MARGIN: EVERYDAY LIFE IN CENTRAL AND PERIPHERAL GOTHENBURG

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Within the Swedish ancient monuments act the boundaries for the extent of the Medieval or sometimes Early Modern cities are set reflecting the regulated or walled part of the city center. However, some activities or productions were located outside the city walls due to unpleasant smells or fire hazards. Also, housing for workers and poorer people were often located in the outskirts of a town. Consequently, large parts of what constitutes a town were not always located in the central town layers and are therefore excluded from the monuments act. This reflects on the extent of research conducted in outskirt areas. An immediate risk is that people, housing and productions from unregulated areas, always will be excluded from research and thus marginalized and made invisible in official storytelling.

Our case study compares households within the center of the city Gothenburg and within the community of workers in peripheral Majorna. To reach everyday life, similarities as well as differences in inventories in working class households from these districts will be studied – including to what extent international, imported goods were a part of the homes. Historical documentations such as estate inventories and fire insurance protocols combined with archaeological reports will be analyzed.

RI3 CHANGES IN POTTERY PRODUCTION. A CASE STUDY FROM THE KODJADERMEN- GUMELNIȚA-KARANOVO VI ENEOLITHIC SETTLEMENT AT SULTANA-MALU ROȘU, SOUTH-EAST ROMANIA

Ignat Theodor Aurelian¹, Opris Vasile¹, Lazar Catalin²

¹CITY MUSEUM OF BUCHAREST, ²NATIONAL MUSEUM OF ROMANIAN HISTORY

In this paper, we will present some observation made on a batch of 267 vessels from the tell settlement of Sultana-Malu Roșu that belong to Kodjadermen-Gumelnita-Karonovo VI cultural complex (ca. 4500-3900 cal.BC) from Balkans. The vessels in question come from more or less complete assemblages of pots from dwelling type features, attributed to two out of three main important cultural phases of the Gumelnița culture. We will try to explore the significant social changes that can be revealed by statistical analysis of those pots in connection with archaeological contexts and techno-typological elements. In addition, we will try to identify how the socio-economic changes have influenced the pottery production of those past people. In other words, we will demonstrate that the potters have had to adapt to the needs of their community, which in the end led to a higher degree of specialization, not only for the potters but also for other occupational activities and craftsmen identified in this settlement.

This work was performed through the Partnerships in Priority Areas Program - PN II, developed with the support of MEN - UEFISCDI, project no. PN-II-PT-PCCA-2013-4-2302 (T. Ignat and C. Lazar) and "MINERVA - Cooperation for elite career in doctoral and post-doctoral research", contract code: POSDRU/159/1.5/S/137832 (V. Opris)

RI2 THE STEPPE NOMADIC WOMEN-WARRIORS OF THE LATE ANTIQUITY: THEIR COSTUME AT HOME AND IN THE BATTLEFIELD

Sergey Yatsenko

RUSSIAN STATE UNIVERSITY FOR THE HUMANITIES

The usual costume of girls and married women of the early Steppe Iranian-speaking nomads of was studied enough. But sometimes the specific battle costume with weapons was presented on burial statues and in some graves. There were two main types of the nomadic women-warriors costume of the late Antiquity. One of them look male (probably, the most popular variant) and another was the "usual" female with some additional details comfortable for riding (the long slit on the left side of

dress, the wide belt). On the Early Sarmatian or Dahae statues from the Northern Ustyurt Plateau there were both variants and one statue had the virgin plait. Scythian women-warriors in Ukraine had the special type of headdress. There were also some specific principles of décor. For woman from Arzhan 2 of the late 7th c. BC we know the orientation of the gold applications' figures of pelerine to the left ('female') side contrary to her husband. Some women of Sarmatians and Yezhi in the 1st-3rd cc. AD used the gold applications with "labrys" axe motif (which was the traditional Amazons' attribute in Greek art).

RI2 RECONSTRUCTING MASS GRAVE IDENTITIES IN YORK DURING THE WARS OF THE ROSES

Ruth Whyte

YORK ARCHAEOLOGICAL TRUST

Frequently represented in present day media and entertainment, the battles of the Plantagenet and Tudor periods are never far from the public's imagination. Yet how do we add to our wider understanding of identities of individuals involved in the battles of these periods? This poster will reveal the results of osteological analysis and research into twelve individuals from two mass graves, excavated in 2013 by York Archaeological Trust. Recovered just outside the city walls of York, and radiocarbon dated closely to the Wars of the Roses, the two mass graves were found to contain an intriguing assemblage buried in an 'un-Christian' setting. The all-male collection displayed high instances of trauma, and were almost all aged between 25 to 40 years old. What can their remains and the circumstances surrounding their burial tell us about their identities? What are their links to the battles and civil unrest of the period? This poster will begin to interpret and reconstruct the identities of the individuals through analysis of their physical remains, both as individuals and as a collective group. It will also relate this new information to our wider understanding of identities at this highly provocative and contentious period.

RI37 AN EGYPTIAN ELITE BURIAL FROM THE 3RD INTERMEDIATE PERIOD (BUTO)

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An undisturbed elite burial from the 3rd Intermediate Period (late 8th c. AD) in Buto/Tell el-Fara'in in Egypt's Nile River delta may highlight the relevance of this place as a sacred district. The anthropomorphic sarcophagus was covered with 1800kg of sea shells. The coffin lid originally came from a functionary named Paraemhab, whereas the tub was carved from a block of stone from the Old Kingdom. Only a discoloration remains from the inner coffin that was decorated with gold foil and colour. The grave was equipped with high-quality goods like scepter, ushabtis and bracelets. The sarcophagus contained a skeletonized individual in supine position with a cat skeleton draped above the head. The on-site anthropological and palaeopathological examination revealed that the individual was a 30 to 40 year old male who was about 175cm tall and weighed approximately 64kg. There is a healed injury from a blow or projectile in the frontal bone, the survival of which indicates a solid immune system and sufficient provision. A high social rank is also suggested by the above-average stature, a result of a diet high in protein during growth. The body weight indicates a balanced living standard for this period during adulthood. Cats, bred and killed by priests, were a popular component of the funerary rites of higher-ranking personages. The secondary utilization of prestigious sarcophagus parts as well as the high-quality grave goods lead to the assumption that the individual could have been a high-ranking functionary or a so far unknown local prince.

RI7 AN EXTRAORDINARY EARLY MEDIEVAL AND MEDIEVAL CHILDREN'S BURIAL PLACE IN NORTHWESTERN SWITZERLAND

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During the excavation of a former 12th century church in the village Reigoldswil in northwestern Switzerland, a precursory church (8th century) and an early medieval tower house were discovered in association with human remains. A high number of children's burials were found. Some of the graves were located undisturbed under the foundation wall of the first church. One child and an adult male from the 7/8th century were buried in a stone cist.

All skeletons (minimal number of individuals, MNI = 171) have been studied osteologically. The age distribution shows that 60 % of the individuals were non-adults between fetal age and 18 years (n = 102). 68 individuals were under 3 years of age.

At this site, special locations for the burial of deceased children can be identified. The children buried near the stone tower house are probably from early medieval times. Further graves of newborns and infants were found along the walls of the first and second church (8-12th century). Children from the age of 4 years up were buried outside the church with the adults.

According to historical sources the church at this location was never the village's parish church. It was dedicated to Saint Hilary (Hilarius) of Poitiers. He was not only one of the empire saints of the Merovingians and Franks but also the patron saint of the weakly children. This might be the reason for the cumulative children's burials in this place.

RI3 WHEEL-SHAPED EARLY MIDDLE AGE POTTERY: TECHNOLOGICAL PERSPECTIVE

Tajana Sekelj Ivančan, Andreja Kudelić

INSTITUTE OF ARCHAEOLOGY

The paper discusses techniques of pottery making, especially vessels that have a circular imprint on the surface of the base. Such vessels often appear as a grave good in early medieval graves, at the second half of the 8th and early 9th century in the area of central and south-eastern Europe. Their presence was also confirmed during the recent archaeological excavation of the settlement site in north-western Croatia (Torčec – Prečno Pole I and Virje – Volarski Breg/Sušine). In addition to pots with circular imprint on the surface of the base, vessels with a flat base also appear in same context and at the same period.

Archaeological experiment will test the assumptions which are based on the macroscopic analysis of ceramics. It is assumed that for the making of pottery a slow potter's wheel was used which, in many parts, retained until the 20th century. The vessels were made by drawing technique and by using the rotational kinetic energy only for final processing. The paper also discusses the possibility of usage of a fast wheel, based on the records of manufacturing traces on ceramic fragments, with special emphasis on a circular imprint.

RI7 JUVENILE BURIALS DURING PAST EPIDEMICS: EXAMPLES FROM MEDIEVAL AND POST-MEDIEVAL EUROPE

Sacha Kacki, Dominique Castex

PACEA, UMR 5199, ANTHROPOLOGIE DES POPULATIONS PASSÉES ET PRÉSENTES

The European countries have been the scene of recurrent epidemics during the late Middle Ages and the modern period. Besides major economic and social consequences, these epidemic outbreaks have frequently caused disruptions in funerary practices. In response to an abnormally high death rate, the way the cadavers were managed had to be adapted, and several bodies were commonly buried within the same grave, resulting sometimes in the constitution of true mass graves. Numerous archaeological excavations have revealed such burial sites generated during past epidemics, making now possible an in-depth analysis of funerary practices during these mortality crises. None of the studies performed so far, however, have specifically investigated the treatment of subadults in these contexts. Here, we propose to discuss the burial treatment of juveniles during epidemics, through the study of several archaeological burial sites from the Middle Ages and the modern period. Results of this study demonstrate that young children were not always treated equally to their older counterparts (e.g. position of the bodies, interment in single or multiple graves). They also illustrate the variability of juvenile burials according geographical and temporal contexts.

RI37 DOMUM SERVAVIT, LANAM FECIT. TEXTILE TOOLS IN ROMAN BURIAL PRACTICES: SOCIAL INFERENCES AND IDEOLOGICAL MEANING OF A FUNERARY GESTURE. RESULTS FROM THE RESEARCH IN GALLIA NARBONENSIS (SOUTH-EASTERN FRANCE)

Cecilia Rossi

UNIVERSITÉ AIX-MARSEILLE - CENTRE CAMILLE JULLIAN

Inside a grave nothing is left to chance and everything has its own meaning: there are goods intended for the funeral celebrations, goods to guarantee the passage to the Underworld, goods that are aimed to suggest the lifestyle and the public image of the deceased.

The latter category helps us to reconstruct customs and traditions of an ancient society: the analysis reveals the human beings, highlighting their values and models, their role within the household, their position within the community. Pre-protolithic archaeology has already recognized such a great potential; classic studies have it often underestimated, appealing to the existence of written and iconographic sources. The goal of this work is that to demonstrate how the reconstruction of the social and ideological context of Roman age can even increase through an original reading of the simply material culture.

The attention will be focused on a particular category of Roman grave goods: textile tools.

Why these objects were put inside the burial and what was their role in the funeral celebrations? Which social and economic rank were they referring to? If it is real that spinning and weaving activities had then as now a special connection with the feminine sphere, what kind of woman was portrayed? What was the age group these tools were aimed to represent?

With reference to the evidences given by funerary contexts of *Gallia Narbonensis*, these questions will be faced exploiting the ensemble of data conveyed by a multidisciplinary approach to the graves.

RI35 ELDERLY SOCIAL STATUS IN THE FORMATIVE PERIOD (AD 100 - 200 BC) OF THE MESOAMERICAN CITY OF MONTE ALBAN, MEXICO.

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This poster explores the elderly social status among the commoners or minor elites of Monte Alban, which was the capital of the ancient Zapotec state (300 BC - AD 750) and resided a population up to 30,000 during the period of maximum development. The social stratification was instituted and the social inequality was present in the access and distribution of the

resources. The sample comprises 69 burials which 11 (16%) are regarded elderly individuals (four women, one man and six undetermined). The aged body was determined by the osteological age associated with the age-related health conditions of advanced age (cranial suture closure, tooth wear, osteoporosis and osteoarthritis), to the construction of the elderly social status in the burial context. The Zapotec used to bury their dead beneath their house floors, where the tombs presented higher social status as well the wealth of the offerings (jade, shell, mica and others). The majority of the individuals had one or even no offering, all of them were ceramic objects. The exceptions were a woman buried in a tomb with four offerings, including imported ceramics, and other two individuals buried each one with an infant, with 13 and 17 offerings, including jade, obsidian and shell. We can suggest that the elderly social status was depending of the social role in the family group, where in some cases could be the ancestors or in others an ordinary member. The bodily degeneration seems no determine the social status expressed in the presence or even distinguished offerings.

RI37 CATHEDRAL OF THE TRANSFIGURATION OF TVER. THE TEMPLE AND THE NECROPOLIS OF XIII – XVII CC.

Leonid Beliaev, Alexander Khokhlov, Maria Mednikova

INSTITUTE OF ARCHAEOLOGY OF RUSSIAN ACADEMY OF SCIENCES

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Tver situated in 200 km to the north-west of Moscow. In the XIII–XV cc. it was a rival of Moscow in the struggle for supremacy in Rus. Tver`s cathedral was the first stone building (1285–1289) in the North-Eastern Rus built in a 50 years after the Mongol invasion (1230-th). Here the Tver princes and bishops were buried. With changes cathedral stood until the end of the XVII-th, when it was demolished and replaced by a new one. Cathedral of the late XVII-th was destroyed in the era of atheism in the 1930-th. Studies of the both cathedrals remnants and its cemeteries began in 2009. The report reflects the main results of the work, allowing to reconstruct the cemetery history, anthropological characteristics of individual burials and architecture. The architectural history of the cathedral and preserved frescoes allowed to establish a connection between the construction of the pre-Mongol period of Ancient Rus and the architecture of Moscow principality. Until now there is a huge gap between the temples built by the end of 1230-th and the first-preserved buildings of Moscow of the second half of XIV – the end of XV c. in the archeology of Russia. Now we can confidently talk about the continuation and development of Russian-Romanesque white architecture of North-East Russia after the Mongol invasion.

RI6 PLANT CHOICES AND CONSUMPTION PREFERENCES OF THE ENEOLITHIC COMMUNITY FROM SULTANA-MALU ROȘU TELL SETTLEMENT (ROMANIA)

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The latest studies of archaeobotany remains from Sultana-Malu Roșu tell settlement are depicting a community connected with it's environment. Using native plants from *Chenopodium album* (Fat Hen) to *Lithospermum arvense* (Field Gromwell), one can develop an image of life six and a half millennia ago.

Sultana-Malu Roșu is a tell settlement from Călărași county, in the Southeastern part of Romania, situated on the Mostiștei's Valley. This settlement is a Gumelnița culture which flourished between phases A1, A2 and B1, based on the ceramic studies. It has between 2, 50 m and 4, 35 of anthropic layer, with rectangular dwellings (11 houses were searched so far) and beautiful discoveries such as pottery or gold treasury.

The findings from Sultana-Malu Roșu, which were discovered in House no. 2 and House no. 5, are represented by charred plant-remains of *Triticum monococcum* (Wheat) and *Hordeum sativum* (Green Barley) in the form of spikelet forks or base glumes that can suggest the usage of preparation or processing plants before consumption. Also, the findings of different segetal plants such as *Lithospermum arvense* (Field Gromwell), *Polygonum lapathifolium* (Pale Persicaria) or *Fallopia convolvulus* (Black Bindweed) may describe the paleoenvironment of the period studied. Finally we mentioned the discovery of *Vitis vinifera* (Grape Vine) seeds for the first time in Sultana-Malu Roșu site.

RI2 HERITAGE, ETHICS AND PUBLIC SAFETY : WHEN PAST BATTLES ARE STILL DOING VICTIMS.

Thomas Lecroere

HALTE AU PILLAGE DU PATRIMOINE ARCHÉOLOGIQUE ET HISTORIQUE

Long forgotten because "too early" or "well documented by the texts", in recent decades the last wars are subject of a renewed interest from archaeologists. Indeed, the excavations of the battlefields and especially the supporting facilities (troop encampments, prison camps, campaign hospitals) tell us more about the realities of the daily lives of soldiers than any text.

However, the memorial sites rarely benefit of protections usually granted to historical sites and are prey to looting of any kind, and particularly metal detecting. Driven by passion and desire to collection, but also to feed a lucrative market, lovers of militaria pull out of the ground in a chaotic manner all precious testimonies of soldiers' lives.

Through examples from the theaters of European operations of the two world wars, the paper will be an opportunity to highlight a common practice, often ignored by the authorities. In addition to deprive us of essential elements to the knowledge of our shared past, metal detecting on the battlefields raises ethical issues (plunder of war graves) and public safety (discovery of unexploded ordnance).

RI27 BIRTH OF NEW TECHNOLOGIES IN THE MERGER OF TWO DIFFERENT TRADITIONS (UNIQUE KIT TILES OF THE NEW JERUSALEM MONASTERY)

Olga Glazunova

INSTITUTE OF ARCHAEOLOGY RAS

It is well known that after the battle of Poltava Peter I sent two prisoners masters to the New Jerusalem monastery for the reorganization of tile production. During the excavations found previously unknown traces of the activities of these people there were. This is unique set of oven tiles. The source that inspired Ian Fligner and Christian, were painted Dutch tiles. But in the monastery, they were confronted with a completely different technology of relief polychrome tiles. As the result of the symbiosis of two different traditions unique oven was born. A smooth face plate of tile was attached to small plates with a relief image. Taken subjects were genre common to European art of this time, but still unknown in Russia. Prototypes for tiles were the real life scenes of Russian life early 18th century.

RI32 IRON AGE FARMS IN THE NORTH OF FRANCE: RECONSTRUCTING TERRITORIES THROUGH ECONOMIC AND SPATIAL ANALYSIS

Sarra Ferjani

UNIVERSITÉ PARIS 1 - PANTHÉON-SORBONNE

For more than thirty years, the development of rescue archaeology in France allowed the discovery of thousands of Iron Age sites (750-30 BC), particularly residential sites usually considered as "farms".

The reports from these last few years pointed out their great diversity. Some are characterized by only a few pits hardly containing any material and scattered across very wide areas. However, others show a very dense amount of structures and artifacts, relating them to urban areas – open or enclosed. Between these two extremes, the shapes of the settlements display countless combinations. Additionally, even though mixed farming is predominant, numerous sites also reveal traces of hand-crafted productions, social and ritual habits, indicating that they probably didn't all have the same status or functions.

Within some farms, hierarchies emerge between the occupants, and the various analyses have progressively revealed the existence of highly-structured territories inside which contemporary sites could have played different roles, from complementarity to inequality, from self-subsistence to commercial trade.

Through a multi-criteria analysis based on the identification of the various activities practiced on the sites, on their spatial distribution – within and between sites – and on their chronological evolutions, this paper wishes to highlight the social, economic and political role these Iron Age settlements could have played, in North-West France. It may allow us to draw the mechanisms leading to the emergence of the Gallic peoples described by Julius Caesar in 50 BC.

RI12 A CASE OF A SECONDARY MANIPULATION OF HUMAN AND ANIMAL BONES FROM SULTANA-MALU ROȘU CEMETERY (ROMANIA)

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The Eneolithic necropolis from Sultana - Malu Roșu (Călărași county, Romania) contains 84 graves inhumations graves. Most graves contained individuals deposited in a crouched position on the left side, rarely on the right side, and the oriented eastwardly. However, beyond these findings, a number of graves from this cemetery, containing human bones with no anatomical connection (secondary burials or reburials), have been investigated.

From this category, we present the case of grave 28, discovered in 2009. It contained human bone remains in no apparent anatomical connection who indicated two persons (a man and a woman), in association with pottery fragments (Gumelnița culture) and faunal remains. Among the latter, a horn of domestic beef (*Bos taurus*) was discovered. In another area of the necropolis, in a complex (C1) interpreted as an offering pit, another *Bos taurus* horn was found. Interestingly, it represented the pair of the horn discovered in grave 28. This situation suggests the contemporaneity of the two archaeological complexes.

This poster will include archaeological, anthropological and archaeozoological data related to these two complexes (grave 28 and C1).

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.

RI3 APPLICATION OF STATISTICAL METHODS FOR STUDYING OF THE MASS CERAMIC MATERIAL FROM THE EXCAVATIONS OF THE ANCIENT MYRMEKION

Kolosov Vladimir

STATE HERMITAGE MUSEUM

Ancient Myrmekion, one of the so-called "small towns of the Bosporus" has a long history of studying. Settlement is located on the western shore of the Kerch Strait. Its studying began in the XIX century and continued with some interruptions during the XX century. Since 2000 archaeological researches of the Myrmekion Expedition of the State Hermitage Museum headed by A.M. Butyagin have been taking place here.

For the long period of archaeological excavations on the territory of the Mirmekion settlement a huge number of ceramic materials have been discovered.

In the study it is made an attempt to analyze the form of certain categories of molded ceramics. The statistical factor analysis including the method of geometric morphometry is the methodological basis of the research. The contours of the shape of analyzed objects are built automatically by homologous points (landmarks), marked on the objects by the researcher. The degree of similarity between geometric forms is thus submitted as a number. These differences (and similarities) of objects converted to the number are below analyzed by classical multivariate statistical method of principal components.

As a result of the analysis the link between features of shape, material and dating of ceramic fragments were revealed.

RI7 CHILDREN OF THE LITHUANIANS ŠPITOLĖS IN 17TH C.

Povilas Blaževičius

NATIONAL MUSEUM – PALACE OF THE GRAND DUKES OF LITHUANIA

The 17th century in Lithuania is a century of wars, upheavals and asperities. It's obvious that the children were suffered much heavily than adults did. Some of the children had to undergo food or shelter shortage, others psychological or physical traumas related to the losses or the war brutality.

The object of this research is cemetery of Rakaučižna (Ukmergė district, Lithuania). This 17th century funerary monument has evident differences from other cemeteries from the same period. First of all, more than 60 percent are the graves of the children. There are no teenagers, and almost all adults are older than 40 years. Second important aspect – numerous pathologies, including even some tertiary syphilis cases. Based on these facts and historical sources, it can be said, that in Rakaučižna cemetery were buried people from the neighboring Pabaiskas township *špitolė* (an alms-house / hospital, were abandoned or orphaned children, weak old people, older unmarried, poor health women or widows were sheltered).

This study concentrated attention to the graves of the infants and due to the implied specific social situation of these children, analysis of their graves installation nuances and differences is made. Besides that, attention is focused on the location of the children graves, grave goods and health status.

RI16 FORM FOLLOWS FINGERS - ARCHAEOLOGICAL TYPOLOGIES AND THE PERSPECTIVE OF THE PRODUCER

Nadja Melko

UNIVERSITY OF ZURICH

As a part of the project LIMITES INTER PROVINCIAS (University of Zurich) I research in a recently discovered pottery complex in the Roman vicus Kempraten, Rapperswil/Iona, Switzerland, which is located near the provincial border between Raetia and Germania Superior. The produced spectrum of domestic and fine ware is broad and shows different indigenous as well as Roman elements (Shucany 1996, Shucany – Martin-Kilcher – Berger – Paunier 1999). Those elements (pattern, shape and technological aspects) show a complex system of subidentities based on individual, regional, cultural or familiar motives and reflect simultaneously the skills of the craftsman (Stockhammer 2009).

I work on a method to recognize procedural and intentional marks in vessel profiles, which should lead directly to typology. But the craft of pottery is poor in tools and the knowledge is primarily learned and "told" through movements and postures and the social environment and the cultural tradition of the producer influence this embodied knowledge in different ways and become part of the materialized form (Mauss 1975, Pollock 2003, Jørgensen 2013, von Rűden 2014). For this purpose I am in intensive exchange with different potters and the school of ceramics in Landshut, to investigate how the perspective of the producer containing the embodied knowledge and experience match with general serializations (Schiffer – Skibo 1997).

Because practical experiments in cooperation with craftsmen are essential, according photos and videos will enlighten hidden aspects, which you cannot verbalize without visualisation.

RI6 AGRICULTURAL CHOICES IN MEDIEVAL RURAL SOCIETIES: DRIVEN BY ENVIRONMENTAL FACTORS OR DEPENDING ON SOCIAL HIERARCHIES? EXAMPLES FROM THE LORRAINE REGION IN EASTERN FRANCE

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During the last 10 years several preventive excavations conducted by the Institut national des recherches archéologiques preventives (Inrap) allowed studying a rich archaeobotanical material from early (Merovingian and Carolingian) to late

medieval rural sites in eastern France. In most cases the archaeobotanical studies had to focus on carbonized plant assemblages, dominated by cereals, pulses and associated weeds. The medieval settlers cultivated and consumed a wide range of cereals: naked wheat (bread wheat), hulled barley, cultivated oat, rye but also spelt and einkorn, which were only secondary cereals at most sites. These secondary cereals, both hulled wheat species, are well resisting to some environmental constraints like less favourable local soil and climate conditions. Nevertheless, from ethnographic examples we know that these cereals may have also played a role during feasting and other culture driven activities. While most early medieval rural sites were focusing mainly on agricultural production, the excavation of the late medieval site of Chaillon (Meuse, Lorraine) gives evidence of a medieval population mainly focusing on pottery production. The archaeobotanical results from this excavation are quite different compared to the early medieval sites. Are these differences in the used crops due to a social differentiation of the medieval population or are they just a response of a local population of potters, who are not gaining their life mainly by agricultural activities?

RI37 SOCIAL STRUCTURE OF VOLGA-URAL INTERFLUVE PIT-GRAVE CULTURE

Airat Faizullin

ORENBURG STATE PEDAGOGICAL UNIVERSITY

The Volga-Ural region is an epicenter of the Pit-Grave culture, with monuments of the culture's three stages. The diversification of the monuments provides a basis for reconstruction of social structure.

Labour input on earthen barrows construction differs. 298 kurgans are divided into three groups based on the size of the mounds.

Group 1 includes mounds ranging from 8 to 20 m in diameter, with height not exceeding 1m.

Group 2 includes mounds ranging in diameter from 20 to 40 m and reaching up to 3 m in height.

Group 3 includes mounds from 40 to 150 m in diameter, the height from 3 to 8m.

The studied kurgans contain 461 burials.

Based on their design, burial chambers can be simple – A type (small chambers, with area not exceeding 4 m²) and complex – B type (large chambers, with area from 4 m² to 12 m²).

Simple chambers of the group A are more frequently found in small kurgans, whereas complex chambers with steps and rich paraphernalia are characteristic of large kurgans. The fact gives evidence of developed social differentiation.

On the early stage of the Pit- Grave culture labour input on kurgan construction and burials was low. Later there appeared burials of types 2B and 3B and complex tombs with prestigious copper and bronze paraphernalia. Thus, there are rich graves of chiefs, craftsmen, soldiers and oracles.

At the late stage of the Pit-Grave culture the number of the graves 2B and 3B types decreased, but the burial ritual was not altered.

RI2 PREHISTORIC REFRIGERATORS, FORTIFICATIONS OR GEOLOGICAL FORMATIONS? NEOLITHIC “GIANT’S CHURCHES” OF THE BALTIC SEA COAST

Oula Seitsonen

UNIVERSITY OF HELSINKI

Enigmatic monumental stone enclosures dubbed in the local vernacular “Giant’s Churches” have stirred the imagination of Finnish archaeologist for over 200 years, without the researchers reaching a conclusive understanding of their function and importance in the prehistory. “Giant’s Churches” are massive dry-stonewalled structures, ranging in size from 20x10 m to as large as 60x30 m, with stonewalls up to 7 m wide and 2 m tall, and situated on hilltops by the past seashore. They date to ca. 3500-2000 calBC, and have seemed misplaced for the general understanding of the (purportedly peaceful) (Sub-)Neolithic hunter-gatherers of the area. Thus they have been interpreted over two centuries in a variety of ways, ranging from natural formations and burial structures to gigantic refrigerators of seal meat and ceremonial centers. However, already some of the earliest interpretations suggested they were fortresses, which seems like a reasonable explanation also based on the current archaeological record. In this poster a GIS-based approach to evaluate the interpretation of “Giant’s Churches” as Neolithic fortifications is presented, building on a variety of GIS and other analyses. Carried out analyses reconstruct the palaeo-environmental settings of the sites, and evaluate, for instance, their setting for the dominance and visual control of landscape, and model the potential movement and accessibility patterns. Also the association of “Giant's Churches” with the broader archaeological background is briefly reviewed, and some conceivable socio-economic patterns behind the emergence of this phenomenon are discussed.

RI35 ANIMALS, IDENTITY AND EARLY MEDIEVAL COSMOLOGY, OR, WHAT DID THIS SHEEP MEAN TO YOU?

Clare Rainsford

UNIVERSITY OF BRADFORD

The inclusion of animal remains in funerary contexts was a routine feature of Anglo-Saxon cremation ritual, and less frequently of inhumations, until the introduction of Christianity during the 7th century. Most interpretation has focused on the animal as symbolic of identity – of wealth, pagan belief, age or gender status. However, recent trends in archaeozoology have emphasised the need to see the animal as agent, capable of a multiplicity of different relationships with humans. Animals were a fundamental and ubiquitous part of early medieval society, as food resource, transport, protection and pests, carrying connotations of wealth and power, and contributing to creation of landscape. Animals both provided a context for human action and perception and acted dynamically within that context. This paper considers funerary ritual as a complex interaction between identity, agency and cosmology, using new data from 5th-7th century cemetery sites in Norfolk. It is proposed that integration of funerary data with secular and historical evidence can provide a broader insight into animal lifeways and the effect of changing beliefs and worldviews on the human-animal relationship in the Anglo-Saxon period.

RI15 LATE NEOLITHIC AND EARLY BRONZE AGE SUNKEN FLOOR HUTS -INTERPRETING THE CONSTRUCTION USING 3D VISUALIZATION

Linn Nordvall

KULTURMILJÖ HALLAND/HERITAGE HALLAND

The sunken floor huts from the late Neolithic and the early Bronze Age is a quite homogenous feature in the southwestern part of Sweden. The construction itself may vary but the findings within its features are somewhat consistent. It seems they have been used in the same manner despite their different shapes and sizes. This poster aims to present 3D visualization of sunken floor huts that may serve as a complement when interpreting the construction itself of the sunken floor huts.

RI35 (DE-) COLONISING THE BALTIC, A LATE IRON AGE CLASH OF CIVILISATIONS. A CASE STUDY FROM THE CURONIAN LAGOON.

Nina Dworschak

ROMANO-GERMANIC COMMISSION

The Viking-Age cemetery of Kaup/Wiskiauten in Russian Kaliningrad represents an outstanding example in which various social, ethnic and cultural backgrounds accumulated at one burial site. By differentiating between Prussian, Baltic and Scandinavian influences, it is possible to decipher whether heterogeneous burial customs and composite objects are reliable sources of information by which to gauge ethnic or cultural hybridity among the people who made and used them. The degree of connectivity and interaction between 'colonisers' and those we suppose to be the 'colonised' local population south of the Curonian Lagoon are analysed in order to assess the question of how far a material culture case study could meaningfully contribute to the growing corpus of postcolonial theory.

RI35 RECONFIGURING IDENTITIES: HELLENISTIC AND ROMAN PORTRAITS STATUES IN GREECE

Laureline Pop

UNIVERSITÉ DE LAUSANNE

My study explores Greek statuary in the Hellenistic and Roman periods and more precisely – funerary, honorific and votive portraits statues. This practice developed considerably in the Hellenistic period with "private" individual representations both perpetuated and spread under the new Roman state.

My PhD thesis conducted under the direction of Prof. Karl Reber (UNIL), Stephan Schmid (Humboldt Universität) and Anne Bielman Sánchez (UNIL) is an interdisciplinary study encompassing ancient history, epigraphy and archeology. This crossover study will examine the modalities of representation during these periods. Who is represented? How? Where? By whom? And why?

Moreover, it will study the sustainability of this iconographic type at the beginning of the Roman Empire and understand how this state not only used these representations but also influenced them. This research will focus on the "transition" between Hellenistic and Roman times in the Aegean world with particular focus on Delos, Rhodes, Athens and Corinth. This work will also examine the various influences in place and the phenomena of acculturation.

Moreover, this approach will try to question the social identity, representation and modalities of this representation in a cosmopolitan and multicultural period.

This study is expected to address fundamental questions about the political system of cities during these periods with a focus to portraits statues and the importance of these individual representations within this complex system. The results will highlight the different political powers and the various networks in place including familial, political and economic influences.

RI2 TIMING AND TEMPO OF PRE-COLUMBIAN MILITARIZATION IN THE MIDWESTERN AND SOUTHEASTERN UNITED STATES

Anthony Krus

SCOTTISH UNIVERSITIES ENVIRONMENTAL RESEARCH CENTRE

Bayesian chronological modeling is used to investigate the chronology of palisades with bastions during the pre-Columbian period in the Midwestern and Southeastern United States. Nine fortified pre-Columbian settlements in the Midwest and Southeast with bastions have been subject to scientific dating (Angel Mounds, Annis Village, Aztalan, Cahokia Mounds, Etowah, Kincaid Mounds, Jonathan Creek, Moundville, and Southwind). Complete radiocarbon datasets from these sites are presented within an interpretative Bayesian statistical framework. The results provide a glimpse into the history of Mississippian period (AD 1000–1500) fortifications with bastions, and indicate that such fortifications were built and maintained approximately from AD 1200–1400. This finding suggests a greater institutionalized role for defense and warfare in Mississippian societies from approximately AD 1200–1400. Additionally, the investigated Mississippian centers continued to maintain fortifications for generations after their construction, further demonstrating a long lasting societal and psychological transformation.

RI37 THE CEMETERIES OF THE NOVO-DEVICHI AND NEW JERUSALEM MONASTERIES AND ITS FINDS

Leonid Beliaev¹, Svetlana Grigorian¹, Serafim Shuliaev²

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Leonid A. Beliaev, Svetlana B. Grigorian, Serafim G. Shuliaev

The Question of sources of Europeanization of Muscovia before Peter the Great reforms is one of the most important in the history of cooperation between Russia and Europe in XVI–XVII cc. Excavation of the last five years in Novo-Devichi (Moscow) and New Jerusalem (suburbs of Moscow) monasteries allowed to add to the previously known data several highly artistic articles, clearly indicated the influence of European iconography on the personal piety and religious art of medieval Moscow. Four articles have been analyzed. One of them – a cross with a relief depicting the Crucifixion on a background of detailed vine motifs – was found in the course of 2014 works on the cemetery of the Novo-Devichi Convent (XVI–XVII cc.). It was produced in Eastern Europe and brought to Moscow with one of the immigrants from Ukraine, Belarus, Lithuania or Poland. The second article is of a local production, but in the aspect of style it is close to the western or the Moscow-Ukrainian engraving school, particularly to the illustrated edition of the "Primer" by Karion Istomin. On one side of the cross the Crucifixion is depicted, on the other – the scene of beating the demon by the Saint Nikita. Other examples of Russian-European style – unique for Moscow tiled icon "Christ Pantocrator" and "Crucifixion" and the symbolic facade tiles were discovered in the course of excavation in New Jerusalem Monastery (started in 2009).

RI2 DEATH DURING THE SCOTTISH WARS OF INDEPENDENCE: AN OSTEOLOGICAL ANALYSIS OF MEDIEVAL INDIVIDUALS FROM STIRLING CASTLE, SCOTLAND

Jo Buckberry

UNIVERSITY OF BRADFORD

Stirling Castle was a key garrison of the Scottish Wars of Independence, 1296-1328 and 1332-1357AD. In 1997, excavations at Stirling Castle revealed a lost royal chapel and nine burials that were radiocarbon dated to the 14th and early 15th centuries. Earlier skeletal analysis revealed healed sharp force trauma to the frontal of one individual and possible peri-mortem puncture wounds to the cranial vault of a second skeleton. However, re-analysis identified an abundance of peri-mortem trauma – predominantly blunt-force – within this small group. One individual suffered over 80 peri-mortem fractures, many to his post-cranial skeleton. While many of the fractures found in isolation could be attributed to accidents, the sharp-force injuries clearly relate to inter-personal violence.

Pathological conditions identified within the population included dental disease, tuberculosis, rickets and, significantly in this garrison sample, scurvy. A high prevalence rate of developmental variants within the small skeletal sample suggests the excavated population came from a small gene pool and is, perhaps, indicative of marriage patterns in medieval elite populations.

It is argued that these individuals died in encounters relating to the Scottish Wars of Independence. Evidence of scurvy and the predominance of blunt-force injuries may suggest they relate to the documented sieges of Stirling Castle. The significant burial location within a royal castle combined with the high rates of developmental conditions suggests they may be high-status. This research revealed new evidence for the brutality of medieval warfare and highlights the importance of re-analysing curated skeletal material.

This project was funded by Historic Scotland.

RI6 THE USING OF THE PLANTS DURING THE XIV-XVIII CENTURY IN THE NORTH FRANCE

Anna Maria Desiderio

INRAP

Excavations carried out in Vitry le François "Trinity Street " has updated a set of habitats the late Middle Ages to the early XVIII century archeobotanical samples taken in different archaeological structures could show a family agriculture based on the use of " private gardens ". The carpological composition show unusual fruis species such as black eldeberry, clammy or white mustards, juniper. This show as the food could be used also for pharmaceutical practies. Among cultivated fruits and gathering wild seeds of *Vitis vinifera* were found . These seeds deserve a deepening and a comparison with the cultivated grape seed and

eventual use of a wild vine and its use. The aim of this poster will be to compare the difference between the *vitis vinifera* et *vitis vinifera* ssp. *vinifera*.

RI22 THE NATURE OF THE BEAST – UNDERSTANDING SACRED AND SECULAR ICONOGRAPHY IN THE LATE BRONZE AGE ‘INTERNATIONAL STYLE’?

Robert Vigar

UNIVERSITY COLLEGE LONDON

The Late Bronze Age (LBA) Mediterranean and Near East was a region of significant cultural and political interaction, during which an extensive diplomatic network developed between the political elite. Perhaps the epitome of these interconnections was the emergence of a hybrid 'International Style' of luxury objects. Considerable scholarly investigation has focussed on the origins and distribution of this phenomenon, with less emphasis on understanding the symbolic significance of the hybrid-animalistic imagery inherent in the style. There is a lack of discussion around the religiosity of these motifs, despite it being well attested that zoolatrous religions were widespread amongst the cultures of the LBA Mediterranean and Near East. During the LBA, religious ideologies were firmly intertwined with Kingship and political life; the notion of secularism was not widespread amongst cultural groups. If we understand the 'International Style' as representative of a diplomatic political age, hypothetically there should also be an aspect of religiosity inherent therein. However, if there is an absence of religious imagery this may be indicative of the secular nature of the LBA 'International Style', perhaps reflecting a delicate balance of power among the diplomatic elite. Through a detailed analysis of a number of luxury artefacts ascribed to the 'International Style', including Tutankhamun's gold sheath and the Meggido Ivories, this paper attempts to launch a discussion around religiosity and secularism in the hybrid, animalistic iconography and symbolism of the 'International Style'. Doing so can provide a nuanced insight into the political institutions that constituted this age of international diplomacy.

RI2 WAR, BATTLE AND MEMORY: CONFLICTING WORLD VIEWS?

Joakim Thomasson

DEPARTMENT OF ARCHAEOLOGY AND ANCIENT HISTORY

Memorials, monuments, buildings and items in the museum's collection all tell a story about Helsingborg as a vital part in the story of Sweden. This materialised narrative was created by a class of *nouveau-riche* bourgeoisie. They had ambitions to establish themselves and the town in a prestigious position in the late 19th - and early 20th century society. Helsingborg's important past was a solid argument for their aspirations, especially the remembrance of the Scanian wars during the 17th - and 18th centuries. It was here the Danish archenemy was defeated, and the final part in the construction of the nation was achieved.

The dominating narrative has prevented other stories from the wars being present. Excavations in the town as well as in neighbouring villages together with treasure hoards and other material remains reveal traces of other stories.

This paper explores on what grounds these memories have been created, how they form conflicting narratives, their influence on peoples attitudes today and the relations to archaeology and heritage.

RI7 JUVENILE BURIALS FROM THE SITE OF "NJIVE" - IVANDOL IN EASTERN CROATIA

Marija Mihaljevic, Marina Matkovic

MUNICIPAL MUSEUM OF NOVA GRADISKA

Poster is showing a newfound Christian cemetery from the Late Middle Ages and the Early modern period, formed around the Romanesque rotunda on the site "Njive" - Ivandol in Eastern Croatia. At that time, this area was a part of Croatian-Hungarian Kingdom, and was conquered by the Turks in the first half of the 16th century. Excavations were conducted in 2013 and 2014 and a total of 36 graves were found, most of which are children's burials. Paleodemographic analysis of these burials is showing very short life span of children and high mortality due to nutrient-poor diet. The specificity of these burials is that children are buried next to the outside walls of the rotunda, which clearly separates them from the other burials at the site. Although there are no grave goods or any other findings in the graves, burial ritual still can be found in the selection of sites for burial. It is obvious that children have occupied an important place in the life of the people who buried them, because only the children had the privilege to rest next to the most sacred part of the cemetery, which is the rotunda. This fits within the Christian beliefs and efforts to bury the important people and innocent children at the most sacred place (usually within or next to the church). Such burial ritual is confirmed by excavations on several late medieval and early modern period cemeteries in Continental Croatia.

RI31 FUNERARY SPACE IN THE MEDIEVAL AND EARLY MODERN AGE TOWN OF IAȘI, EASTERN ROMANIA — THE CEMETERY OF THE “WHITE CHURCH” AND HOW TO MAKE SENSE OF DISARRAY

Vasile Cotiuga, Tiberiu Placinta, Andrada Bucsa, Radu-Stefan Balaur, Geanina Ghiciuc

UNIVERSITY OF IAȘI

The recent works in the precincts of the Metropolis of Moldavia and Bukovina in Iași led to the identification of a cemetery, ascribed on the basis of written documents to a former church called the White Church from the medieval and early modern age.

The cemetery can be dated to the 16th-18th centuries, on the basis of numismatic evidence collected from the more than 200 tombs discovered. Despite the fact that the cemetery belonged to a church, which also seems to have acted as the metropolitan seat, located in an area that was the centre of the capital of the former Principality of Moldavia during the medieval and early modern periods, and accordingly should have witnessed at least a modicum of control and management of the funerary space and of the implicit funerary practices, the vestiges uncovered fail to demonstrate any such concerns. No planimetry or organised evolution of the cemetery was identifiable in the archaeological record. The haphazard placement of the tombs and the countless reinterments betray a deficient management of the sacred space.

This poster presents the results of the archaeological investigations carried out since 2013 in this site, and attempts to explain the discoveries through a recourse to the analysis of documentary sources in terms of the history of urbanity and church history.

R12 BETWEEN TWO WARS ON THE SAME BATTLEFIELD: THE CASE STUDY FROM THE BORODINO FIELD (MOSCOW REGION)

Tatyana Shvedchikova

INSTITUTE OF ARCHAEOLOGY, RUSSIAN ACADEMY OF SCIENCES

Borodino battlefield located in the upper reaches of the Moscow River and known as the place of battle between Great Napoleonic Army and Russian Army in 19th century was also the place for military activity in World War II. The historical sources found the confirmation during the salvage excavations due to constructing of museum ensembles on this territory in 2010-2012. Evidences of both wars are revealed. Napoleonic sanitary collective burials are represented by two pits containing remains of people and horses. Victims of Second World War were also found in the old trenches. One of the collective burial contained the skeleton of an adult male (25-29 years old) with severe perforating shotgun wound to the head. Additional injuries we find in the bottom part of sacrum on its pelvic surface. Taphonomical analysis and the precise palaepathological investigation let us refer this burial to the Napoleonic times. The second example of injured male (20-25 years old) led us to the 1941 and the evidences of local people regarding partisan shoot by Fascists.

SCIENCE AND ARCHAEOLOGY PAPERS AND POSTERS

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SA4 LITHIC PRODUCTION AND UPLAND HUNTING DURING THE YOUNGER DRYAS IN THE CENTRAL ALASKA RANGE, USA

Brian Wygal, Kathryn Krasinski

ADELPHI UNIVERSITY

A recent archaeological survey in Denali National Park and Preserve in the central Alaska Range, United States focused on a better understanding of high elevation (>900 meters a.s.l.) landuse and resulted in a variety of archaeological sites from late Pleistocene lithic workshops, winter meat caches and hunting blinds to historic era trap lines. Prehistoric hunter-gatherers made extensive use of alpine and montane ecosystems since the Younger Dryas period in Alaska. However, harsh subarctic winters limited access to uplands during long winters making many archaeological sites specific to the late summer through fall months. This presentation presents evidence for the earliest documented use of alpine areas in subarctic Alaska with a focus on tool production, hunting behavior, and the complicated relationship between upland and lowland transhumance during the terminal Pleistocene to middle Holocene periods. Specific case studies will compare lithic assemblages from the Bull River II and Costello Creek alpine sites to surrounding lowland assemblages. A small cluster of charcoal recovered within the cultural horizon from Bull River II returned four AMS dates (uncalibrated) between 10,310 and 10,490 BP. Initial lithic analysis of the assemblages suggests raw material procurement and biface production were emphasized in preparation for upland hunts.

SA18 BASELINE DATA FOR IRISH PALEOMOBILITY RESEARCH: A RADIOGENIC STRONTIUM ISOTOPE STUDY USING ARCHAEOLOGICAL HUMAN, FAUNAL AND MODERN PLANT REMAINS

Niamh Daly

UNIVERSITY COLLEGE CORK, IRELAND

In Ireland, in the last decade we have seen a proliferation of isotopic studies in Irish bioarchaeology addressing questions such as geographic origin, socio-cultural transitions, paleodiet and paleomobility patterns spanning from the Neolithic to Post-Medieval periods (Reilly 2009; Schweitzer 2010; Tobin 2010; Sikora *et al* 2011; Knudson *et al* 2012; Cahill Wilson *et al* 2012; Beaumont *et al* 2013; Lynch 2014). However, in this research there is a significant lack of regional $^{87}\text{Sr}/^{86}\text{Sr}$ signatures in comparison to archaeological human isotopic data. High-quality reference datasets are needed for these applications, but the lack of such regional data for Ireland is a major limitation in current research. When archaeologists use $^{87}\text{Sr}/^{86}\text{Sr}$ ratios to elucidate information on paleomobility patterns a distinction must be made between biologically available strontium and geological substrate strontium. Therefore, the development of radiogenic strontium isotopic baselines for comparative paleomobility data is crucial but often overlooked.

This paper will focus on presenting the results of a case-study from my current PhD research that will focus on the bioavailable $^{87}\text{Sr}/^{86}\text{Sr}$ signatures that I have obtained by using a selection of archaeological human, faunal and modern plant data from the Leinster region in Ireland.

SA20 COMBINING GEOPHYSICS, GEOCHEMISTRY AND TARGETED ARCHAEOLOGICAL EXCAVATIONS TO INTERPRET AN IRON AGE HILLFORT

Matija Črešnar¹, Branko Mušič¹, Matej Dolenc², Nina Zupančič², Manca Vinazza², Igor Medarič², Matjaž Mori²

¹UNIVERSITY OF LJUBLJANA, ²

The Iron Age complex of Poštela near Maribor (NE Slovenia) has been, in the recent years, the subject of intensive integrated research, generating a range of interesting results. Our research was initially focused mainly on the burial mounds and flat cemetery surrounding the settlement; however we have now also started the first research inside the hillfort.

Our first goal was to understand the basic geology of the area, which was studied with the help of lidar data and a subsequent geological and geomorphological field survey, whereas selected crucial areas were researched also with a GPR, using a RTA 50 MHz antenna.

As the next step we have conducted intensive geophysical survey, using a range of different techniques and analytical methods, covering wide areas of the settlement. Some of the anomalies on crucial locations have already been researched further with archaeological test-trenching, however further work is planned. The next major step, to be carried out on selected areas, is geochemical mapping with pXRF, which is adding another important new data layer to the integrated map of the site.

The already wide data range, produced by our ongoing investigations, is already greatly enhancing our understanding of the hillfort. However, we are also dedicated to a broader search for new directions of non/low-invasive approaches in order to advance our archaeological interpretations; but that in any way has to be discussed within the broader scientific community...

(Further co-authors: Matej Dolenc, Nina Zupančič, Manca Vinazza, Igor Medarič, Matjaž Mori)

SA10 THE NATURE OF REGIONAL AND INTERNATIONAL EXCHANGE IN MEDIEVAL ICELAND: GÁSIR AND ITS HINTERLANDS

Ramona Harrison¹, Philippa Ascough²

¹CITY UNIVERSITY OF NEW YORK - HUNTER COLLEGE, ²SCOTTISH UNIVERSITIES ENVIRONMENTAL RESEARCH CENTRE

This paper presents an initial attempt to understand the origins and movements of domesticates across a region and possibly an ocean. Research into the long term human ecodynamics of the medieval Icelandic trading site at Gásir and its hinterlands suggests that there may have been a well-organized, high-quality food provisioning system leaving traces in the Gásir hinterlands area of Eyjafjord, North Iceland. This could have been in response to the international exchange carried out through Gásir. This could have also been in response to a power shift, with local magnates provided with high quality food resources. To answer some of the questions regarding the faunal patterns encountered at Gásir, the results of initial isotopic analyses are used to test the argument for a potential hinterlands effect detected as a result of traditional zooarchaeological analyses. Stable isotope analyses of carbon and nitrogen on pig bone collagen raise many intriguing questions and at present demonstrate that the overall Gásir provisioning effort was likely multi-stranded, and was possibly supplied with both local and foreign food resources. Future research strategies, current limitations of isotopic research, and potential solutions will be addressed.

SA2 RECREATING THE STAFFORDSHIRE HOARD: USING NEW TECHNOLOGIES TO ALLOW GREATER ACCESS TO OBJECTS.

Pieta Greaves¹, Frank Cooper²

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Discovered in a field near the village of Hammerwich, England on 5 July 2009, the Anglo-Saxon Staffordshire Hoard consists of more than 4000 fragments and objects dating to the late 6th-early 7th centuries. Since the find, a research and conservation programme, has been launched and will be underway for many years.

The Hoard was jointly acquired by Birmingham City Council and Stoke-on-Trent City Councils and a new gallery has recently opened at Birmingham Museum and Art Gallery.

Birmingham Museums is partnering with the Jewellery Industry Innovation Centre (JIIC), part of Birmingham City University School of Jewellery, to create as exact as possible replicas of objects which will be displayed in the new Hoard gallery. Plus, capturing these objects digitally has enabled a range of replicas, including enlarged versions, to be produced for handling by visitors, including those with additional access needs. It has also opened up the possibility to re-create objects as they would appear when newly produced and undamaged, an exciting prospect due to the fragmentary nature of the collection.

These iconic objects are being replicated with the help of a number complex digital manufacturing technologies including laser scanning, Computer Aided Design (CAD) and 3D Printing. The replicas are then skilfully finished by hand utilising many of Birmingham's long-standing traditional jewellery craft skills.

This paper explores the process used by JIIC to create the replicas as well as the outreach possibilities of the items created.

SA21 THE OUTCAST DEAD: HEALTH AND DIET OF THE POST-MEDIEVAL WORKHOUSE

Brittney Shields

DURHAM UNIVERSITY

This paper integrates osteological and historical evidence to examine the effects of the workhouse on inmates in 19th century London and to assess whether the 1834 change to the English Poor Laws led to a deterioration in health.

The ultimate foundations of the English Poor Laws were enacted in 1601 by Elizabeth I, and were largely unchanged until 1834. Welfare issues under the Old Poor Laws were managed parochially where paupers either received a monetary allotment or received shelter in the Parish workhouse. The new legalities of the New Poor Laws sought to create a nationalised system of welfare, which culminated with the Union workhouse. The aspects of daily life that were influenced within the institution included extraneous physical labour and changes to diet and the living conditions, whilst instilling the 'virtues of the independent labourer'.

It is hypothesised that the effects of the New Poor law would have exposed inmates to episodes of dietary deficiencies and infectious disease, detectable in the osteological record. In order to examine this, published skeletal data from five London cemeteries associated with workhouses, along with nutritional analysis of seven workhouse diets and historical workhouse

admission records, were analysed. By adopting a multidisciplinary approach, this study demonstrates the detrimental impact of this change to the Poor Laws on the health of London's paupers.

SA20 SOCIAL STRATIGRAPHY IN LATE IRON AGE SWITZERLAND: ANALYSIS OF HUMAN REMAINS FROM MÜNSINGEN

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The Iron Age cemetery of Münsingen in Switzerland with 220 abundantly equipped burials marked a milestone for Iron Age research. The horizontal spread throughout the time of its occupancy laid the foundation for the chronology system of the Late Iron Age. Today, skulls of 77 individuals and some postcranial bones are still preserved and were investigated anthropologically. Collagen was analysed via stable isotope mass spectrometry (carbon, nitrogen, and sulphur). Additionally, some bones showed pathologies or lesions which were examined via imaging and histological methods. The aim of the study was to obtain biological-anthropological information about the Iron Age population. There are significant differences between males and females in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values. This points to a gender restriction in the access to animal protein with males having more access to meat and dairy products. Differences in $\delta^{15}\text{N}$ values were also observed for different age classes. $\delta^{34}\text{S}$ values indicate a terrestrial-based diet with no significant intake of marine or freshwater fish. Seven adults with enriched $\delta^{34}\text{S}$ values might have immigrated to Münsingen, four of which were found in the oldest part of the cemetery. Furthermore, possible changes of the vegetation are indicated by the more positive stable carbon ratios in the later phases. The results lead to the suggestion that especially males buried with weapons might have played a special role in the Iron Age society. Also, skull trepanations in two males suggest that surgical treatment of injuries caused by weapons may have been performed.

SA26 RECONSTRUCTING HOUSEHOLD BEHAVIOR AND CONNECTIONS: ORGANIC RESIDUE ANALYSIS AND THE CONTENT OF VESSELS AT LATE BRONZE TEL AZEKAH

Vanessa Linares¹, Dvory Namdar²

¹ TEL AVIV UNIVERSITY, ² HEBREW UNIVERSITY ISRAEL

This paper is dedicated to understanding domestic behaviors and regional connections through the study of the contents of the Late Bronze (LB) ceramic vessels uncovered in the LB (12th century BCE) destruction layer at Tel Azekah, Israel by way of organic residue analysis.

Tel Azekah, located by the valley of Ella in Israel's lowland (Shephelah), is being excavated by the Lautenschläger Azekah Expedition since 2012. A violent and sudden destruction, the result of unknown circumstances, was exposed in some of the excavation areas. The state of preservation, both of the architecture and material culture items opens the door for investigating household behavior and practices by using residue analysis, among other methods.

The first stage of the research included the assessment of the preservation state of organic residues absorbed to ceramic items unearthed in the different excavated areas at Azekah environment. When positive results were gained organic residue analysis on 40 vessels from the assemblage was applied. The results obtained shed new light on the local inhabitants' livelihood, basic nutrition, and practices. Furthermore, the local inhabitants' level of involvement within the regional and possibly international world were explored.

SA21 DEDICATED FOLLOWERS OF FASHION? BIOARCHAEOLOGICAL PERSPECTIVES ON SOCIO-ECONOMIC STATUS AND HEALTH IN URBAN CHILDREN FROM THE INDUSTRIAL REVOLUTION.

Sophie Newman, Rebecca Gowland

DURHAM UNIVERSITY

The 18th and 19th centuries in England saw not only a decline in living conditions associated with the industrial environment, but also a widening social inequality whereby individuals living in relatively close proximities would have experienced markedly different lives within the expanding cities.

A comprehensive analysis of growth was undertaken on non-adults (0-17yrs) from four skeletal populations from London (c.1712-1854) of varying socioeconomic status. Measurements of diaphyseal length, cortical thickness, and vertebral dimensions (neural canal size and body height) were taken from the Chelsea Old Church (high status), St Benet Sherehog (middle status), Bow Baptist (middle status), and Cross Bones (low status) skeletal collections to compare longitudinal, appositional, and vertebral growth.

Non-adults from the low status Cross Bones site demonstrated deficient growth values, as expected. However, those from Chelsea Old Church also demonstrated poor growth values during infancy. By contrast the 'middling sort' demonstrated better growth, especially those from St Benet Sherehog. Fashionable child-care practises (such as the use of artificial infant feeds,

swaddling, and confining children indoors) may have contributed to poor infant health in high status groups of this time. These data were corroborated by the high rates of rickets seen in the Chelsea group, as well as in Cross Bones. Childhood in the city came with significant health risks for the privileged as well as the poor.

SA7 THE UTILITY OF EXPERIMENTAL ARCHEOLOGY COMBINED WITH NOVEL MICROSCOPIC METHODS IN UNDERSTANDING IMPERIAL ROMAN MORTAR TECHNOLOGY AT THE LIMES DANUBIUS.

Anthony Baragona, Johannes Weber

UNIVERSITY OF THE APPLIED ARTS, VIENNA; IATCS

Experimental archeological methods were used to create brick dust-lime mortar prisms. Materials local to eastern Austria were used in making bricks and quicklime according to traditional methods. Mortar made by combining well-graded brick fragments ("cocciopesto") with quicklime, which had been slaked in a variety of ways, was then subjected to physical testing. Polished thin sections of the mortar were examined by optical microscopy and SEM-EDX and finally by μ Raman spectroscopy, which were in turn compared to polished thin sections of ancient Roman mortar from Vindobona (Vienna, Austria). These techniques were exploited specifically on polished thin sections in order to observe the relationships between constituent parts of heterogeneous mortar in a non-destructive way, preserving contextual mineralogical relationships. This research into mortar technology displays the ingenuity of the fusion culture of Romans and Celto-Germanic peoples at the frontiers of the Roman world.

Physical testing found that hot-slaked cocciopesto mortar was comparable in strength to that made from lime putty and cocciopesto. While pozzolanic activity was found to be lower than in volcanic sands utilized in the center of the Empire, a variety of secondary strength-adding reactions were observed through optical microscopy and SEM-EDX. Similar minerals were observed in the historical mortars, albeit often in an altered state. These minerals were then identified by μ Raman spectroscopy. The inhabitants on the frontiers of the Roman Empire were able to combine their knowledge of Roman building techniques with their talented local labor pool to create a hydraulic, strong and durable mortar from lime and cocciopesto.

SA25 ETHICAL AND EFFICIENT MANAGEMENT OF SCIENCE IN ARCHEOLOGY

Eva Giesen

INSERM

Sound management of research is required in archeology as in any field of science. Not only funding agencies request research of high quality, citizens are today concerned with research outcomes because research has impact on their life, in the short or long run. Experimental science heavily relies on accurate handling of samples, metrology, reproducibility of experimental data and transparency of raw data and calculations/interpretations. All types of scientific approaches rely on documentation of findings and related information, good record keeping, availability of notebooks and other documents of proof. Experimental research, and particularly research in bio-medical science has made tremendous progress in the management of research. Today, guidelines and standards have been written and tested by researchers and are being made available to help manage research and teaching of research. They address questions such as how to set up win-win scientific collaborations, when and how to publish respecting the interests of all stake-holders, what is important when you work for a third party, publishing negative results, ethical and efficient management of relations in a team, with doctorates and research associates, compliance with rules, quality of data and robustness of methodology. Ethical and efficient management of research is a concept which can be translated into management practices through the use of the ISO 9001 standard and enables researchers to manage their teams or institutes in an efficient and sustainable way. It permits certification by an independent body, whenever it is important to develop competitive advantages and gain the confidence of funding bodies.

SA10 REASSESSING THE DIET AND TIMING OF THE MESOLITHIC-NEOLITHIC TRANSITION IN WEST SCOTLAND

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¹SUERC, UNIVERSITY OF GLASGOW, ²SUERC, ³HISTORIC SCOTLAND

Human palaeo-dietary investigations using stable isotope analysis is a well-established technique in archaeological science. When reconstructing past diet using $\delta^{13}\text{C}$, $\delta^{15}\text{N}$ and $\delta^{34}\text{S}$ isotope analyses, the measurement of a geographically and temporally comparable isotopic baseline is important for accurate data interpretation. Dietary habits are typically determined by comparing isotope measurements of food remains with human bone collagen values, assuming certain trophic level shifts, thereby allowing the percentage of marine resources in the diet to be estimated. Thereafter, radiocarbon ages can be corrected for the marine reservoir effect. Traditionally, faunal baselines include a variety of terrestrial, freshwater and marine bone collagen isotope measurements, however baselines are often sparse and geographically unrepresentative. Furthermore, important dietary information from plants, fruit, nuts and shellfish are omitted because the nature of these resources means they do not survive in the archaeological record.

Research conducted at SUERC focuses on reassessing the diet and timing of the Mesolithic-Neolithic transition in Scotland. The timing of the transition between these two periods is not particularly well defined, and the nature of the transition (from a hunter-gatherer lifestyle to subsistence farming) means that dietary habits changed dramatically. We present new $\delta^{13}\text{C}$, $\delta^{15}\text{N}$ and $\delta^{34}\text{S}$ data from archaeological and modern fauna which represents a faunal baseline from which more accurate assertions

about human diet can be inferred. This work will be expanded to include a full range of data from flora and fauna across Scotland, built into a database for the purpose of recalibrating radiocarbon ages from any time period.

SA13 THE SECRETS OF THE ANGLO-SAXON GOLD-SMITHS: THE LATEST RESULTS FROM THE ANALYSIS OF THE STAFFORDSHIRE HOARD

Eleanor Blakelock

BIRMINGHAM MUSEUM TRUST

In 2009 the Staffordshire Hoard was found near Hammerwich, in Staffordshire, England. Many of the objects belong to the 6th-7th century and most appear to have been military in character but there were also a few explicitly Christian items.

As part of the wider research project studying the Staffordshire Hoard a groundbreaking study of the gold was carried out. Over 140 objects from the Hoard and British Museum's collections were analysed using SEM-EDX.

The results from the analysis of these objects have clearly shown in many cases that there is significant but not consistent enrichment of the gold at the surface due to the depletion of both copper and silver. This enrichment treatment was widespread, occurring on a range of object types from across the country, presumably to enhance the appearance of the objects. The analysis has provided more information about the complex construction of these objects.

Metallographic analysis of pieces from the hoard is planned, and alongside a number of experiments, we hope to reveal more about the surface treatment technique applied to the objects.

The results from these studies have revealed more details about workshop practice, and from this it is possible to outline some of the actual decisions made by the goldsmiths in the Anglo-Saxon period.

SA1 THE UNDERLYING TRUTH: ANALYSIS OF THE GOLD FROM THE STAFFORDSHIRE HOARD USING BOTH XRF AND SEM-EDX

Eleanor Blakelock

BIRMINGHAM MUSEUM TRUST

The Staffordshire Hoard was discovered in 2009, in a field near the village of Hammerwich, in Staffordshire, England. It is essentially military in character and consists of more than 3,500 object fragments, many of which are gold.

It is well established that gold alloys can corrode and be altered by the loss of copper and small quantities of silver from their surfaces during burial. The aim of this project was to determine whether there was any surface enrichment and/or depletion of the gold alloy which could be taken into account in the larger gold analysis programme planned.

The unexpected results gathered using a combination of XRF and SEM-EDX analysis however clearly showed that in many cases that there is significant but not consistent enrichment of the gold at the surface due to the depletion of both copper and silver. The loss of silver seen at the surface of the objects suggested some form of artificially induced depletion took place to remove silver from the surface. This finding has re-written our understanding of Anglo-Saxon gold-working techniques and has far-reaching implications for the viability of surface analysis by traditional XRF of gold artefacts from all periods, and museum collections.

SA15 METAL BODY ARMOUR IN THE EUROPEAN BRONZE AGE: MANUFACTURE AND USAGE

Marianne Mödinger

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Recent studies on Bronze Age metal body armour provide a valuable insight into manufacturing techniques and the actual usage of the armour.

The focus of the presentation will be on Eastern European armour and its development, discussing new chronological and typological connections, as well as on functionality and utilization of the armour. A significant number of helmets and cuirasses show clear indications of weapon impact, giving insight into fighting techniques and limits of the armour concerned. To better understand also the materials characteristics and to reconstruct the production of the armour, both non-invasive and micro-invasive chemical and microstructural analyses were carried out (such as XRF, SEM-EDXS, PGAA, PIXE or ToF-ND), in order to detect alloy composition and material characteristics and to reconstruct the manufacture processes of the armour.

SA1 DIETARY, ENVIRONMENTAL, MEDICINAL AND RAW MATERIAL EVIDENCE FOR PLANTS FROM PRE-AGRICULTURAL CONTEXTS IDENTIFIED THROUGH CHEMICAL COMPOUNDS AND MICROFOSSILS EXTRACTED FROM DENTAL CALCULUS.

Karen Hardy¹, Stephen Buckley², Anita Radini³

¹ICREA AT UNIVERSITAT AUTÒNOMA DE BARCELONA, ²BIOARCH, ³BIARCH

The detection of plants from Palaeolithic and many Mesolithic contexts is challenging as macroscopic evidence, in the form of charred remains, survives only rarely. The earlier the site, the more difficult it becomes, and evidence for plant use in the Lower and Middle Palaeolithic is very rare. This has led to a perspective on diet, based on surviving evidence and C/N stable isotope analysis, which is based on protein. Here, we provide a summary of our recent research in which we extract chemical

compounds and microfossils directly from dental calculus. Our findings offer growing evidence from a number of sites ranging from the Lower Palaeolithic to the Mesolithic, to demonstrate that not only is there evidence for detectable uses of plants, but that it is also possible at times to identify the actual plants themselves, using the dual methods of sequential thermal desorption-gas chromatography-mass spectrometry (TD-GC-MS) and pyrolysis-gas chromatography mass spectrometry (Py-GC-MS), together with identification of microfossils. This enables us to differentiate between dietary plants, those with only medicinal value, and non-edible fibrous material that is linked to use of the mouth as a third hand. Additionally, extracted chemical compounds and microfossils, including insect fragments and identifiable pollen grains, can at times provide direct climatic and environmental information. With this new information we are starting to alter the perspective on plant use and diet in the pre-agricultural world as we accumulate increasing evidence to suggest that diet, and applied knowledge of plants, was much broader than has hitherto been understood.

SA16 RECYCLING POTTERY SHERDS AND IRON SLAG AS TOOLS: AN APPLICATION OF ARCHAEOLOGICAL AND EXPERIMENTAL APPROACHES AT THE SITE OF SADIA (MALI, WEST AFRICA)

Chrystel Jeanbourquin¹, Julien Vieugué², Anne Mayor³

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Pottery sherds with retouched or abraded surfaces exist at many archaeological sites, but researchers rarely recognize them as reused artefacts.

The site of Sadia in Mali, occupied from the 8th to 13th century AD, has provided a large assemblage of recycled sherds, some of which are tools (Huysecom et al. 2011, in press). In order to understand the processes of shaping and their function, we have developed an experimental reference set in laboratory and ethnographic context using sherds from this archaeological site. The observation of experimental artefacts has allowed identification of the use-wear signatures of different processed materials (hide, clay, ochre, sandstone). Through comparison, it was possible to reconstruct the function of past reused sherds. Recycling of iron slag was also a common practice as many of the discovered smelting slags have blunt surfaces typical of percussion tools. Similar behaviour practices have thus involved several different kinds of material, showing that a single concept may be applied in distinct technical systems.

In the future, archaeologists should pay more attention to artefacts typically considered as waste, in order to better understand the importance and significance of the recycling process in past societies.

SA2 IDENTIFYING CONSTANTS IN 3D DIGITAL ARCHEOLOGY

Jean-Baptiste Barreau, Yann Bernard

CNRS

In early March 2013, the CNPAO (aka. West Digital Conservatory of Archaeological Heritage) borns in a french archaeometry laboratory. Its aim is, as every scientific technique applied to archeology, to assist the researcher's reasoning through a wide range of 3D images production methods. Having worked on more than thirty archaeological sites, some members of the CNPAO have started thinking about the organization of these methods. It appeared that this organization, its positioning, adaptability and explaining to archaeologists have an as significant impact upon the scientific reasoning as the intrinsic efficiency of imaging tools. The fast evolution of these tools, both in terms of scanning of the existing and modeling of the hypothetical, involves some difficulties which can have very serious scientific and economic consequences for a discipline that has not necessarily financial means. Thus and from the work of the CNPAO, constants emerged on a wide technical spectrum, ranging from digital storage to virtual reality interactions through online database, 3d buildings, landscapes and humans design. But they also concern the methodological choices like archaeologist, 3D engineer or graphic designer's positioning, fundings, possible answers to archaeological issues and involvement in cultural heritage valuation. Through a series of examples, we will try to highlight these constants to allow the archaeologists community having a better access to 3D digital archeology.

SA24 DIET PROFILES FROM ARCHAEOLOGICAL HUMAN HAIR: OGLAKHTY TASHTYK CULTURE BURIAL GROUND

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The Oglakhty Burial Ground dating to 3rd-4th century (Tashtyk Culture) is one of the major archaeological sites in the Minusinsk Depression in Southern Siberia. The latest archaeological data show that the Tagar and Uyük populations had a highly developed pastoral economy, with a rather important role attached to agriculture.

Two human plaits were found in a burial 1. The hair was brittle and it was not possible to select one long hair from the plaits. The length of the hair analyzed in section of two to three centimeters. Analyzed plaits had roughly the same average isotope composition of carbon and nitrogen, but were characterized different distributions of $d^{13}C$, $d^{15}N$ along the plaits. Average isotope values for plait 1 were $d^{13}C=-18.1$ ‰ and $d^{15}N=11.0$ ‰, while average values for plait 2 were $d^{13}C=-17.7$ ‰ and $d^{15}N=11.2$ ‰. Diagrams of $d^{15}N$ and $d^{13}C$ values along the length of plait 1 show that the diet of the individual was

characterized by seasonal variations. In the case of plait 2 no significant variations are observed in isotope values along hair length.

Presumably, milk/meat of domesticated animals and plant food were the main components of the diet system of the populations living in the steppes of Southern Siberia. High values of $\delta^{13}\text{C}$ suggest that the analyzed individuals lived in arid conditions with depressed vegetation or in landscapes characterized by mixed C_3 and C_4 plants. Besides, they seem to have consumed water components (fish) during some months, which is also reflected in observed high $\delta^{15}\text{N}$ values.

SA14 TRACING THE METAL NETWORKS IN THE 5TH MILLENNIUM BC BALKANS

Miljana Radivojevic¹, Jelena Grujic²

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Recent studies on the beginnings of metallurgy in Europe revealed an unprecedented complexity of data demonstrating extensive production and consumption of copper artefacts among prehistoric communities in the 5th millennium BC Balkans. The provenance analyses indicated exploitation of local copper sources discovered across the Balkans, of which Majdanpek and Ai Bunar proved to be particularly prolific. However, although these data stand out in quality and precision, little has been done to address the complexity of networks of early metal movements in the Balkans.

Here we present a new set of provenance data targeting the earliest development of copper mineral use and metallurgy in the Balkans, which show evidence for the exploitation of local sources from as early as c. 6000 BC. Our analysis of networks utilise the provenance database thus spanning c. 2000 years (early 6th to early 4th millennium BC), and includes c. 400 artefacts from around 80 sites in the region. Using tools for network analysis, we show the complexity of early metal acquisition in the region based on both lead isotope and trace element data, subdivided by archaeological periods. The application of networks science on this particular example demonstrates the capacity of such an approach to access patterns of artefacts movements as much as patterns in human behaviour and dynamics of social change at the time.

SA23 CASTING ASIDE ASSUMPTIONS: THE SOCIAL CONTEXT OF BRONZE TECHNOLOGY IN LATER PREHISTORIC BRITAIN.

Sophia Adams, Leo Webley, Joanna Brück

UNIVERSITY OF BRISTOL

Metalworking has long been central to interpretations of European later prehistory. More than any other craft, the manufacture of metal objects is thought to have been bound up with political power, prestige and ritual. Discussion has tended to focus more on ethnographic parallels and inferences drawn from finished metal artefacts than on the actual residues of prehistoric metalworking, despite the ever-growing body of archaeological evidence. This paper presents the early results from a new research project designed to employ this evidence to explore the social context of non-ferrous metalworking across Britain, Ireland and the nearest Continent during the Bronze Age and pre-Roman Iron Age.

To address this issue we are combining stratigraphic and contextual data from developer-led and research excavations with existing published and unpublished archaeo-metallurgical analyses to identify artefacts, residues and structural remains specifically connected with the production of bronze. This paper examines patterns discerned in this evidence from Britain. Current results indicate both regional variations and chronological changes in the organisation and context of metalworking through later prehistory.

SA10 FROM MODERN TO ANCIENT FARMING 'ISOSCAPES': COMBINING PRESENT-DAY CROP ISOTOPE AND ARABLE WEED SURVEYS IN ORDER TO RECONSTRUCT PAST AGROSYSTEMS

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Crop stable isotope values offer a means of characterizing present-day agricultural regimes with a view to archaeobotanical application. Experiments have shown that stable carbon isotope values of crops reflect their water status, and present-day 'traditional' irrigation regimes demonstrate the potential for identifying watering regimes in (semi-)arid regions. Crop nitrogen isotope values reflect the composition of soil N and in particular the level of manuring. Analysis of crops in present-day traditional regimes demonstrates the potential to identify manuring practice in real world examples.

The functional ecology of the weed flora provides a complementary method of characterizing agricultural regimes. Survey of weeds developed under a range of traditional systems has shown that weed flora reflect key parameters such as soil disturbance and fertility. While weeds provide a general index of soil fertility, however, inferring the contribution of water management and/or manuring from weed data is problematic. In combination, weed ecology and crop stable isotope ratios provide a multi-stranded characterization of modern agrosystems, and hence greater robusticity in archaeological application.

We use case studies to demonstrate the potentials (and pitfalls!) of combined crop isotope and weed survey data for characterizing present and past agrosystems in temperate Europe and (semi-)arid regions. Modern analogues are too limited to capture the range of past regimes, and hence a strategy of 'exclusion versus matching' is most reliable. Equally, multi-stranded characterisation of modern agrosystems enhances the potential for reconstructing farming regimes that are now extinct.

SA17 THE VALUE OF COMPLEMENTARITY: INTEGRATING TRADITIONAL AND MODERN WAYS IN ARCHAEOLOGICAL REMOTE SENSING

Martin Gojda

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Aerial reconnaissance programme in Bohemia carried out since the early 1990' by the Institute of Archaeology, Czech Academy of Sciences has influenced (and in many respects also changed) ideas on prehistoric settlement forms and dynamics in the studied. A thousand prehistoric to post-medieval sites evidenced by cropmark aerial survey (CAS) in the traditional, most intensively and continuously occupied Bohemian lowland settlement zone (situated in the valleys of the river Labe/Elbe and its tributaries) complement extensively archaeological source/data base for that core territory of prehistoric Bohemia. The existence of continuous settlement areas documented by large accumulations of cropmark features (datable to the post-Mesolithic era) has been acknowledged by analytical field walking and surface artefacts collection campaigns. After the launch in 2010 of the first Czech ALS project by the University of West Bohemia, detection of earthworks in forested landscapes started to reveal a highly valuable content hidden inside this kind of environment, including small forests placed in the lowland zone. Since then a complementary character of CAS and ALS in terms of site detection started to be tested.

SA21 THE ORDER OF THINGS

Lene Høst-Madsen

SKANDERBORG MUSEUM

Refuse is a valuable resource for research into the lives of the poor and the ordinary people in quickly evolving cities in the 18th and 19th centuries. 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. 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. There is no doubt that the landfill has an infinite number of individual stories that may be of great relevance for the lighting of individual's personal identity in 18th century Copenhagen. But it also when treated right provides important knowledge that can lead to a wider understanding of the city's identity as a whole.

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.

Combined with the written and iconographic sources this material gives a whole new insight to the life of an early modern town.

SA4 OSL AND ARCHAEOLOGICAL DATING OF TERRACE WALLS AND THE EMERGENT OF TERRACE FARMING IN THE JUDEAN HIGHLANDS OF ISRAEL

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Archaeological terraces are the most prominent feature of the agricultural sphere in the hilly landscape throughout the Mediterranean. Using terrace walls for the artificial creation of arable plots of land was a major technological innovation that has completely altered the natural terrain. As such, the dating of these simply built features is of utmost importance.

Archaeological excavations and OSL dating of the soil infill of terraces were carried out in three excavation areas at Mt. Eitan in the Judea Highlands, Israel. Previous survey showed that Mt. Eitan was settled continuously at least from the Middle Bronze Age (ca 3800 years ago) and until modern times. The thirty-two OSL ages show that all extant terraces were constructed in several phases in the past 550-200 years, during the Ottoman period. In places the base of some terraces was dated to Roman or Late Islamic periods, indicating older episodes of terrace building. Ages older than Roman were not found anywhere.

The results raise multiple questions regarding human settlement, land use and sustainability in the Mediterranean highlands in general and the Southern Levant in particular. How were settlements sustained in these seemingly inhospitable regions, prior to terrace construction? Can we tie between political and economical events and discrete episodes of terrace construction? In our lecture we will present the developed field methodology, the first result and discuss their implications.

SA24 RECONSTRUCTING SUBNEOLITHIC AND NEOLITHIC DIETS OF THE INHABITANTS OF THE SE BALTIC COAST (3200-2500 CAL BC) USING STABLE ISOTOPE ANALYSIS

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Previous research involving stable isotope analysis of 18 Lithuanian Stone and Bronze Age graves has been published by Antanaitis et al. (2009). Although no new graves have been discovered on the SE Baltic coast, single human bones from 4

individuals found within refuse layers of Subneolithic Šventoji coastal sites (Palanga city) were analysed for $\delta^{15}\text{N}$ and $\delta^{13}\text{C}$ values in 2014-2015. In addition, 2 graves in the Benaičiai burial ground were also analysed after they were redated from 1020-780 cal BC to 2620-2490 cal BC. Stable isotope evidence from human bones, as well as from a variety of animals from Šventoji sites allows for an intriguing opportunity to directly reconstruct prehistoric diet, giving a different perspective than indirect zooarchaeological evidence. Stable isotope signals confirm fresh/brackish water fish as being the main source of protein for coastal Subneolithic people while marine resources, i.e. seals and marine fish, was of much less importance. Stable isotope intra-individual variation appeared mostly as limited thus demonstrating no radical change of diet during lifetime. These data provide corroborating evidence to support the extraordinarily large number of freshwater fish bones found at the Šventoji sites as well as with the stable isotope bulk sample analysis of 'foodcrusts'. A clear shift towards terrestrial foods is indicated for Benaičiai burial ground. An emergence of this type of diet is roughly contemporaneous with a drainage of highly productive lagoonal lakes at Šventoji as well as with a spread of Corded Ware Culture in 2700-2500 cal BC.

SA13 ANALYSING SCOTLAND'S EARLIEST SILVER: THE GLENMORANGIE RESEARCH PROJECT PHASE 3

Alice Blackwell, Martin Goldberg, Susanna Kirk

NATIONAL MUSEUMS SCOTLAND

Building on six years of research into the archaeology of early medieval Scotland, phase three of the Glenmorangie Research Project is narrowing its focus to examine Scotland's earliest silver (AD300-800). This paper will deliver early findings concerning the manufacture and use of Scotland's Late Roman and Early Medieval silver, and present the research agenda for the next three years.

Silver arrived in Scotland with the Romans but supplies stopped in the fifth century and new sources were not exploited until the Viking Age. During the intervening centuries, silver rapidly became a key material for establishing and communicating power, underpinning the emergence of early medieval kingdoms. Artefacts in the national collection together with recent discoveries provide an excellent opportunity to understand the sources and circulation of this precious metal. This material has, however, been underutilised: little scientific analysis has to date been published and the wider picture of silver use in post-Roman Scotland remains poorly understood.

This paper will report on early findings of the three-year programme of research and scientific analysis currently tracking the changing composition of silver over the first millennia AD. It will focus on the extensive programme of surface analysis of early silver which is currently building a significant dataset that includes rare post-Roman hacksilver and the corpus of massive silver chains. The contribution and limitations of surface analysis will be assessed as will some opportunities for alternative scientific approaches to be employed over the coming months.

SA1 DATING ANCIENT FIELD WALLS IN KARST LANDSCAPES USING DIFFERENTIAL BEDROCK LOWERING.

Carleton Jones

NATIONAL UNIVERSITY OF IRELAND GALWAY

While karst environments present methodological and interpretive challenges to archaeologists, they also provide some unique opportunities. One of these opportunities is the ability to date field walls by measuring divergent rates of bedrock dissolution underneath and adjacent to ancient walls. Field walls are traditionally difficult to date, either by using morphological typologies or through the association of diagnostic or chronometric materials. The method presented here takes as its starting point the observation that in karstic landscapes from Europe to Indonesia, pedestals of higher bedrock have been preserved beneath glacial erratics while the surrounding bedrock has been lowered through millennia of solution. Interestingly, the remains of ancient field walls act in a similar way. In general, therefore, the higher the bedrock pedestal under a wall is, the older the wall should be. A methodology of excavating trenches across ancient walls on the karstic terrain of the Burren in western Ireland, measuring the underlying pedestal heights, and calculating ages for the walls dependent on proposed solution rates for the bedrock was first pioneered in the 1980s, and subsequently developed further in the 1990s. There were, however, shortcomings in these early studies that have now been overcome. The current study refines the methodology even further and importantly, correlates the dating of the field walls with independent archaeological and geomorphological evidence that confirms the usefulness of the method and demonstrates its value as a tool for archaeologists working in karst environments.

SA7 THE MACROSCOPIC AND MICROSCOPIC PROPERTIES AND IDENTIFICATION OF DEGRADED MUD STRUCTURES

David Friesem

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Mud structures are common domestic architectural features since the Neolithic. Because mud-based building materials are less durable than stones or cement, they degrade and thus contribute to formation of many archaeological sites. However, once degraded the identification of archaeological mud structures and their activity remains are very difficult macroscopically. Here I present an ethnoarchaeological study, conducted in recently abandoned mud structures in two distinctive environmental regions: arid South Israel and temperate Northern Greece, in which I studied the taphonomy of earth floors, mud brick walls, thatch roofs and microscopic activity remains. Field observations and excavations were coupled with various microscopic

analyses. It was found that roofs play a major role in preservation of remains deposited on activity floors and that once the roof collapsed, mud brick material degrades and accumulates on top of the roof remains. This process results in the formation of a microscopic complex that includes the floor- activity remains- roof- degraded mud brick material. Additionally, it was identified that mud brick degradation processes are initiated by low energy flows forming a macroscopic talus at wall feet and in some cases even a mound, which can be identified microscopically owing to distinctive patterns of slope deposited sediments. These results present the importance of combining macroscopic and microscopic analytical methods to distinguish between various infill sediments in order to enable better interpretation of archaeological mud structures.

SA3 FIRING TEMPERATURES AND CHEMICAL COMPOSITION OF ROMAN CERAMICS FROM BULGARIA

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Archaeomagnetism is interdisciplinary geophysical method that can be used to solve various problems in archaeology, such as dating and determination of firing temperature of burnt clay materials (ovens, ceramics, bricks, etc.). Knowledge of the firing temperature and chemical composition of the ceramics can provide valuable information about technology of its production in antiquity. The main magnetic characteristic that is used in determination of the firing temperature is the magnetic susceptibility. This parameter strongly depends on the changes in the mineralogical composition, occurring in the ceramic samples with increasing temperature.

In this work the results from a study of ceramic samples found during archaeological excavations of a pottery workshop in the city of Plovdiv (ancient Philipopolis), South Bulgaria, dated to the 2nd-3rd century AD are presented. The chemical composition of the material was determined using energy-dispersive X-Ray Fluorescence and results were compared with the data of some clay deposits near the workshop. The Fe content, which is the most important element for the formation of magnetic minerals, varies in the range of 2-4%. However, no resemblance in the chemical composition of clay deposit and analyzed ceramic pieces can be confirmed with a high probability. This conclusion is validated also by the cluster analysis of the data. According to it all investigated ceramic samples can be divided into two separate groups with clay samples outlying. The firing temperatures of ceramic samples were determined after laboratory stepwise heating of the specimens and measurement of the magnetic susceptibility at room temperature after each step.

SA10 THE APPLICATION OF PB ISOTOPES AS A CULTURAL FINGERPRINT IN HUMAN MIGRATION STUDIES.

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The analysis of strontium and oxygen isotope composition in tooth enamel is well established as a method of placing geographic and climatic constraints on the childhood origin of individuals. However the more markers that can be used to describe an individual the more can be understood about their environment. To this end this study looks at the potential of lead (Pb) isotope composition. Lead has a more complicated geological occurrence than strontium and this leads to a more complex pattern of isotope signatures. The isotope composition will vary depending upon whether a person's exposure is to extracted lead ore (anthropogenic exposure) or naturally occurring lead derived from underlying rocks (geogenic exposure). This talk will focus on the use of lead isotopes and will consider the additional resolution that this technique might bring to migration studies, though the provision of cultural fingerprinting. The study is based on the mass execution pit of Viking age men recently found in southern Britain.

SA15 FAST LIKE A WAR CANOE – PRAGMAMORPHISM IN SCANDINAVIAN ROCK ART

Christian Horn

CHRISTIAN-ALBRECHTS-UNIVERSITÄT KIEL

The Scandinavian Bronze Age is usually presented as a time of far-reaching exchange networks and long distance contacts. The range of reconstructed contacts includes Central Europe and the East Mediterranean. Sometimes authors treat features connected to cosmology, society and sense of self as directly imported just like gifts and commodities. This contribution is based on a quantitative and qualitative analysis of over 3600 anthropomorphic carvings. It will investigate the local background and practices for a particular phenomenon observable on the rocks.

Some human figures, which are identifiable as warriors, were constructed from elements used in the carving of canoes, or have stylistic features of canoes merged with their bodies. It will be argued using a body-centred approach that this shows that warriors equated their bodies or parts of their anatomy with canoes or canoe's constructional elements. It could indicate that the body perception of warriors was linked tightly to canoes and their perceived characteristics, like high speeds. I will argue that this pragmamorphism can be understood from the local context and a century-long practice of raiding, facilitated by fast maritime transport.

SA21 LIFE IN THE ROMAN CATHOLIC ORPHANAGE THE 'MAAGDENHUIS' OF AMSTERDAM IN THE 19TH CENTURY AD.

Elisabeth Smits

UNIVERSITY OF AMSTERDAM

A collection of c. 1500 skulls of orphan girls from the Roman Catholic orphanage, dating from c. 1850-1900 AD, was recovered for analysis at the archaeological institute of the University of Amsterdam.

The preliminary study of the age at death comprises 76 children. The ages vary between two and twelve years. Thus far the pathological lesions of 50 girls have been studied. The skulls of the orphans show a range of pathological features associated with deficiencies in the diet, congenital syphilis, periods of bad health during formation of the teeth, anaemia and dental decay. These ailments are not separate entities but often are related. Dental decay was a major problem showing in the fact that 80 % of the deceased children suffered from caries and ante mortem tooth loss. Tooth enamel was present in 24% of the children. Malformation of enamel especial in the first permanent molar, also known as mulberry molar, might be associated with congenital syphilis. This phenomenon was recorded for 38% of these children. Anaemia– an iron deficiency– can be secondary to several diseases and was observed in 38% of the individuals. An infection might be one of the major causes here. Scurvy or vitamin C deficiency was present in 26% of the cases.

SA20 TAPHONOMY MATTERS. 3D FIELD RECORDING AND THE UNDERSTANDING OF SITE FORMATION PROCESSES: A CASE STUDY FROM SOUTHERN FRANCE EARLY IRON AGE

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The investigation of Mediterranean French Iron Age settlements has for a long time been characterized by a strongly formalistic approach. In a region where architectural techniques are dominated by a stone and mud bricks architecture, analysis uses to focus on remains in primary situation: lower parts of walls, structures in situ, etc... As a consequence, the archaeologists' attention was mainly driven on settlements where architectural remains were deemed to be well conserved. These sites are mainly to be found in the lowlands close to the sea, where erosion is less violent than in the mountainous hinterland regions. This selective process led in our opinion to a fragmentary vision of the regional Early Iron Age. Our team aimed at bringing a bit of diversity in the overall picture through the excavation of the EIA hinterland settlement of Malvieu (Saint-Pons-de-Thomières, Hérault). During this excavation it appeared that remains in secondary position gave a new vision of IA architecture. We had to develop a method allowing first to record these observations, and then to interpret and communicate them to the scientific community. This method involved the use of a light 3D scan, allowing a stratigraphic unit-focused recording, and of a software favoring its swift use. This research drove us to build a new kind of graphic/explicative discourse in order to analyze site formation processes. This paper offers a presentation of our results as well as a proposal for forthcoming researches, that we would like to be able to discuss with our colleagues.

SA12 HUNTER-GATHERERS USE OF SPACE IN TROPICAL ENVIRONMENT: AN INTEGRATED STUDY COMBINING SOCIAL ANTHROPOLOGY, ETHNOARCHAEOLOGY AND GEOARCHAEOLOGY

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Spatial analyses are commonly used in archaeology to study different patterns of human use of space, as it holds a key for understandings patterns in which humans behave, organize and perceive themselves and their world. Human use of space is culturally dictated and therefore differs amongst various social groups. It may also change with transitions altering a culture. This is particularly emphasized when looking at distinctive ways of living such as hunter-gatherer groups in contrast to agriculturalists or industrial societies. Here I present an integrated study of hunter-gatherers use of space combining social anthropology, ethnoarchaeology and geoarchaeology. Long term ethnography was conducted on a dwelling site of contemporary hunter-gatherers in the forests of South India. In addition, field observation, excavation and sampling of microscopic remains took place on a recently abandoned site of the same group. Microscopic analyses including chemical composition and soil micromorphology were conducted later in the laboratory. Preliminary results present the unique spatial deposition patterns of macroscopic and microscopic materials resulting from the unique ways of living and use of space of hunter-gatherers in tropical environment. The integrated nature of this study, combining social anthropology and laboratory based analyses, enabled us to attribute microscopic signatures and material spatial distribution to hunter-gatherer's world views and ways of living such as immediacy, mobility and being-together.

SA17 FORWARD MODELLING REMOTE SENSING (GEOPHYSICAL) DATA FOR LANDSCAPE RECONSTRUCTIONS ACROSS THE TRANSITION ZONE

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Over the past four decades an increasing number of geophysical techniques have been applied to archaeological studies mainly with regard to investigation of structured archaeological sites containing substantial features such as walls, ditches, pits and burnt structures. More recently, the use of geophysics has extended to the investigation and reconstruction of past landscapes, both onshore and offshore. Few of these investigations however have attempted to link the onshore and offshore

landscapes across the intertidal zone partly as no single geoscientific technique can provide all the data to accomplish this, rather, different techniques are appropriate under different scenarios. Geophysical techniques that have consistently found application are seismic, electrical (in particular Electric Resistivity Tomography – ERT) and electromagnetic (in particular Frequency Domain Electromagnetic ground conductivity – FDEM).

This paper will discuss the role of forward modelling to allow geological scenarios of different sets of palaeotopographies to be articulated. The geological scenarios are then used as a basis to create geophysical test sections based on standard ranges of geophysical properties that can be forward-modelled for comparison with field data. This approach is tested at two coastal sites in the UK where typical sequences with archaeological significance are encountered in the transition zone. The results are used to assess the approach of integrated geophysics and different ground truth methods both locally and as a methodological approach for coastal sites more generally.

SA21 THE OTHERS SHALL BE OUSTED FROM OUR TOWN... FROM TB TO SD - TRACING A TAINTED HISTORY OF A SWEDISH SLUM DISTRICT

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Once a thriving new town of the Swedish Empire, in the 19th century several districts of Jönköping faced rapid social decline. Seriously overpopulated, with cheap dwellings built into former stables and warehouses, it became the insanitary setting for disease and unrest. The cholera in the 1830s killed about 1/6th of the population, while the Bread Riots of 1855 were caused by starvation as a consequence of the Crimean War. Movements of social and religious reform found a great following, but the living conditions were not improved.

In the 1930s, the decaying blocks were characterized as one of the worst slum districts in country, with very high rates of T.B. among its population. In a 20th century census, based on racial biology, a large number of the inhabitants were classified as “travelers”. The “*Tattarkrallerna*” riots in 1948 resembled ethnical cleansing, something that local media encouraged. Today, when these blocks are either demolished or gentrified, xenophobic right wing movements like the SD (*Sverige Demokraterna*) have used this setting for their rallies.

Recent research in archaeology, history and archaeobotany has made it possible to evaluate the living conditions and the tainted past of these slums; an alternative tale of the Age of Industrialization!

SA4 TERRACED LANDSCAPES OF THE LOWER ENGADINE, SWITZERLAND

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Recent archaeological and palaeoecological research into the evolution of alpine pastoralism in the Silvretta mountains (Switzerland/Austria) has shown that this highly adapted system of resource use was already in place during the Bronze Age, and probably originated during the Late Neolithic. The origins of agriculture in the surrounding valleys are less well known.

In this paper we present new interdisciplinary investigations of the well preserved agricultural terraces of Ramosch, Lower Engadine, Switzerland, and their possible connection to palaeoclimatic changes. While historical sources allow to trace their use to medieval times, when the modern settlement of Ramosch was founded, previous geoarchaeological as well as palaeoecological studies indicate that the terraces on the upper reaches of the northern slope of the Inn valley are much older. This is in line with archaeological evidence of Bronze Age and Iron Age settlements and fortified sites at the same altitude. Building on this earlier research, and starting from the assumption that pastoralism and agriculture were complementary aspects of a vertical system of resource use, our new project aims to identify early human impact on the landscape, and to reconstruct the emergence and evolution of the terraces triggered by cultural or climatic changes. We also focus on geomorphological properties of terraced sites, such as aspect, slope and soil characteristics, to explain the spatial pattern of terraces. The employed methods include archaeological and geophysical survey, soil and sediment analysis, stratigraphic excavations, and chronometric dating, the first results of which will be presented in this paper.

SA4 EVIDENCE FOR THE CREATION OF HUMAN DOMINATED HIGH ALTITUDE LANDSCAPES IN THE SOUTHERN FRENCH ALPS

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There is now little doubt that the end of the Neolithic and start of the Bronze Age (centred on 2,200 BC) witnessed fundamental changes in human-environment interaction in many parts of the Alps. Whilst some consider this period to be characterised by a “supra-regional” climatic pejoration (Magny, et al., 2012, Brisset, et al., 2013), we wish to examine the evidence from the Southern French Alps.

In this contribution, we present a synthesis of palaeoenvironmental and archaeological evidence and consider how our landscapes responded to climatic and anthropogenic processes at around 2,200 BC – this will include an assessment of how people responded to changes in the landscape (via activities and practices).

Our combined data demonstrate an important change in these high altitude landscapes at this date. Lake sediments have recorded; (1) more frequent floods and (2) soil erosion that still characterises the geosystem today. Theoretically, these changes would have reduced resource availability, and possibly rendered landscapes less attractive for pastoralism. However, our data demonstrate the development of animal husbandry during this period. In fact, the first structures appear just prior to this event, and these changes did not discourage the continued development of high altitude pastoralism. However, it does seem possible that in certain places, the combination of new forms of human activity, combined with abrupt climate change, did have an irreversible impact on landscape. Although we might characterise this as a "tipping-point" in landscape trajectories, inherited sediment stock remained sufficient to allow pastoralism to continue up until today.

SA23 KINGS OF METAL? THE ROLE OF METALLURGY IN THE EASTERN BELL BEAKER GROUP

Matthias Merkl

LANDESAMT FUER DENKMALPFLEGE BADEN-WUERTTEMBERG

From the beginning of Bell Beaker research, metallurgy has often been seen as one of the principal factors affecting the formation and distribution of the Bell Beaker phenomenon. This presentation aims to clarify the role of metallurgy in the Eastern Bell Beaker group. It aims to explain whether the central European Bell Beaker phenomenon is characterised by culture-specific, beneficial metallurgical expertise. Therefore, a large database of trace element analyses is evaluated to shed light on these questions.

Since the elemental composition of copper artefacts is chiefly affected by both production processes and structure of the ore, a similar configuration of artefacts reflects similar metallurgy. Therefore, trace element analyses of Bell Beaker objects are compared with those of copper finds from other Chalcolithic contexts in central Europe in order to find out whether the spread of the Bell Beaker phenomenon in central Europe was based on privileged metallurgical knowledge. It will be argued that if metal workers of other archaeological groups of the 3rd millennium BC dealt with distinct copper types, this would give an insight into the relationship between them and the Eastern Bell Beaker group.

Finally, it will be discussed whether the individuals buried with Bell Beakers and metal-working tools can be identified as copper prospectors, workers or trades who brought with them metallurgical knowledge to the area of research.

SA11 TEXTILE WORKERS AT RISK? THE IMPACT OF OCCUPATIONAL BEHAVIOUR ON A SMALL URBAN POPULATION IN BELGIUM BETWEEN 1200-1860 AD.

Marit Van Cant¹, Marit Van Cant²

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The osteological analysis of 96 skeletal individuals from the small urban population of (post)medieval Deinze (Belgium) revealed the effects of human biology and the influences on general health when living in an urban environment. It is indeed suggested that living in a town has an impact on stature, development and immunity, and thus culminating in a mortality increase.

The observed high mortality of subadults (24%) does not contradict the historical sources that suggested a peak in infantile death in Deinze in the eighteenth century, and presumably even occurred before. A significant exposure to environmental stress was seen in the prevalence of dental enamel hypoplasia and infectious diseases such as tuberculosis and ear infections, which in turn might have had an influence on the lower female average stature of 158 cm, in contrast to a higher average stature seen in (post)medieval rural populations. But when surviving childhood, the higher average age at death for both males and females seems to indicate that their immune system did get accustomed to tackle these ailments.

The occurrence of respiratory diseases may have been caused by the work related environment of the Deinze inhabitants, such as the tapestry manufacturing, which is suggested to imply a susceptibility to acquire TBC bacilli. Moreover, involvement of rib trauma was mostly diagnosed in females, and could be due to severe coughing.

Summarized, bioarchaeological analyses in conjunction with historical evidence, enable us to have a profound insight into the impact of (poor) living conditions on the health of past populations.

SA8 CHANGING MODES IN HUMAN-POULTRY INTERACTION IN SCANDINAVIA, C. 100BC – AD1000

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DEPARTMENT OF ARCHAEOLOGY AND ANCIENT HISTORY

Why changing modes of human-poultry interaction in Scandinavia? Domestic fowl is unusual from the early period and it seems to be more common during the Viking Age. It seems to take a long period of time before chicken were held and became common on farms. Several of the early birds are from burials, perhaps this has to do with that the animals were not primarily important in animal husbandry and for egg / meat. By exploring the contextual differentiation in the archaeological depositions of poultry different attitudes and values to the birds will appear. Horizons of understanding circulate around aspects of gender, identities and a Midgaard mentality. With sociological and anthropological approaches the changing modes in human-poultry exploitation will be discussed between the daily life and metaphoric meaning.

SA13 METALWORKING IN EARLY MEDIEVAL RURAL COMMUNITIES IN THE NORTH OF SPAIN (BASQUE COUNTRY)

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This paper focuses on the integration of archaeological and archaeometric data regarding ironworking activities in the Basque Country during the Early Medieval Ages with regards to the rescue archaeological projects developed in recent times on several medieval villages such as *Zaballa*, *Zornoztegi* and *Aistra*, located in Alava. These sites typically span over large areas and several centuries (6th-12th) and unequivocally correspond to rural communities devoted to agrarian activities. Specifically this project analyses an exceptionally large assemblage of ferrous domestic implements such as billhooks, knives, sickles, scissors, horseshoes, and other kind of ferrous household utensils recovered from stratigraphy.

The paper is organised in three main sections: firstly, a general overview of the sites and the contexts is introduced followed by the archaeometric results which constitutes the core of the study. The assemblage was analysed by OM and SEM-EDS microscopy at the Wolfson Laboratory of the Institute of Archaeology (UCL) following standard protocols in order to characterise the structure and type of iron alloys, as well as to assess the quality of the metal and to identify technological traditions and possible recycling of the metal. Lastly, the production systems are discussed with stress on the rarity of these type of metal collections and the interplay between metallic implements production and local communities in Early Medieval Ages.

SA24 THE MILWAUKEE COUNTY INSTITUTION GROUNDS POOR FARM CEMETERY: A CASE STUDY IN THE APPLICATION OF STRONTIUM ISOTOPE ANALYSIS AS AN ELEMENT OF A MULTIFACETED ARCHAEOLOGICAL APPROACH TO HISTORIC CEMETERIES FOR THE CREATION OF INDIVIDUAL IDENTIFICATIONS

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Based on Wisconsin's Territorial Act of 1838 and state statutes enacted in 1849, provision for the welfare of the poor became the legal responsibility of local government. When the Milwaukee County Poor Farm, established to provide "indoor relief" began operation in 1852, associated records do not document a cemetery associated with the farm. Nonetheless, from 1878 through 1974 more than 7000 individuals from Western European immigrant and local/nonlocal native-born American populations were interred at the Milwaukee County Grounds cemeteries. Archaeological excavations in 1991 and 1992 and again in 2013 resulted in the recovery of over 2800 individuals from one of four forgotten and unmarked cemetery locations.

Archaeological evidence from the 2013 excavations and analysis of Milwaukee County archival material reveal that burial practices on the county grounds were more complex than the original burial records suggest, thus necessitating a multifaceted approach for the secure identification of these individuals. Improvements in strontium isotope testing have led to its increased applicability for the study of population movement and coupled with historic documentation research, material culture analysis, geospatial analysis, and skeletal analysis provide potential for the identification of individuals in this cemetery. Sample material will be obtained from select individuals with robust preliminary identifications. The natal strontium signatures of each dental enamel sample will be compared with the expected local strontium levels of Wisconsin and the known strontium levels of the geographic regions ascribed to individuals in the burial record, thus supporting or rejecting identifications. Contributing authors are Shannon Freire and Brooke Drew.

SA11 SURVIVING THE PLAGUE FOR BETTER OR WORSE

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In the mid fourteenth century Europe was hit by the most devastating epidemic ever, the Black Death. Both rich and poor were affected and the population of Europe dropped by at least one third and perhaps by as much as two thirds. The cause of the disease has long been disputed but in recent years aDNA analyses have proved that it was the plague bacteria *Yersinia pestis*. In the interdisciplinary project "Environment, Society and the Black Death" we have studied the impact of the demographic disaster using palaeoecological, archaeological and osteological parameters. This presentation will be based on the osteological parameters and focus on the questions: Where are all the plague victims buried? How did the population decline affect the living conditions for following generations? Did the agricultural change from crop growing to animal husbandry after the plague result in increased consumption of meat and milk products for a majority of the population? We used stature to study living conditions before and after the disaster and stable isotope analysis to study possible changes in diet. In addition we used church books from the last plague in Sweden in 1710 to give some insight into how the plague may have spread from parish to parish and how the population recovered. Methods and main conclusions will be presented.

SA23 THE METAL OBJECTS FROM THE ENEOLITHIC SETTLEMENT OF SULTANA-MALU ROȘU (SOUTH-EAST OF ROMANIA): INTEGRATING MORPHOLOGICAL CHARACTERISTICS WITH SOCIAL CONTEXT

Adelina Darie, Gheorghe Niculescu, Migdonia Georgescu, Catalin Lazar

NATIONAL MUSEUM OF ROMANIAN HISTORY

The tell settlement from Sultana – Malu Roșu stands out as one of the richest and spectacular settlements from the Kodjadermen-Gumelnița-Karanovo VI cultural complex (ca. 4500-3900 cal BC), partially because of the discovery of metal objects. During the excavations, several copper and gold objects were discovered.

The richness of the archaeological inventory, especially the gold treasure, can lead to the specificity of this site. This study focuses on the morphological, functional attributes, the technological analysis of the artefacts, and the results will be integrated in the archaeological context (e.g. houses, pits, rubbish areas, etc.) in order to identify the socio-economical meanings of the metal objects. Also, the XRF analysis performed on these artefacts will be discussed and integrated with the other data, in order to achieve additional information (e.g. raw material sources). Furthermore, in order to determine the impact of the metal artefacts to the past humans we will make a general review of the metal finds from the Kodjadermen-Gumelnița-Karanovo VI contemporary communities in the Balkans.

Taking into account the particular properties of these metal objects (at morphological, technological, aesthetical and visual levels), certainly they develop different symbolic meanings to those past people. Most probably these meanings are related to the social, artistic, religious, ideological and economical aspects of the life cycle of the prehistoric communities.

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

SA14 METAL ARTEFACTS CIRCULATION IN THE ENEOLITHIC PERIOD FROM SOUTHEASTERN ROMANIA. A CASE STUDY

Adelina Darie, Gheorghe Niculescu, Migdonia Georgescu, Catalin Lazar

NATIONAL MUSEUM OF ROMANIAN HISTORY

The aim of this presentation is to investigate the metal objects discovered at Sultana – Malu Roșu tell settlement from the Balkans. The site belonging to the Kodjadermen-Gumelnița-Karanovo VI cultural complex (ca. 4500-3900 cal BC) is located in a plain area. The location of the site is not one of the metal exploitations, which indicates that the copper and gold items arrived here through trade.

The analysis will explore the different aspects of gold and copper artefacts from this site, starting with the technological and morphological characteristics, and ending with the symbolic meanings of these objects. Also, in order to identify the raw material sources, the compositional analysis will be used.

Furthermore, this study will investigate the similarities and differences between metal artefacts from Sultana – Malu Roșu compared with those found in other Kodjadermen-Gumelnița-Karanovo VI cemeteries and settlements in Romania and Bulgaria (e.g. Varna I, Pietrele, Durankulak, Rousse, Căscioarele, etc.). Based on the data obtained we will be able to outline the regional exchange network of the metal artefacts in the northern Balkans.

Last but not least, our analysis will try to identify the social, ideological, symbolical and economical meanings of these metal artefacts, but also how they reflect the individual and collective identities of the past communities.

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

SA25 'HARD' SCIENCE AND THE INTERPRETATION OF A VIKING AGE MASS GRAVE ON RIDGEWAY HILL, WEYMOUTH, DORSET

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'Hard' Science and the interpretation of A Viking Age Mass Grave on Ridgeway Hill, Weymouth, Dorset

Louise Loe¹, Angela Boyle², Helen Webb¹, Jane Evans³, Carolyn Chenery³ and David Score⁴

In 2009 Oxford Archaeology made the completely unexpected discovery of a mass grave of executed Vikings on Ridgeway Hill, Dorset. The discovery was made during enabling works on the construction of the Weymouth Relief road, by Skanska Civil Engineering, for Dorset County Council. The grave, a re-used Roman quarry pit, contained the skeletal remains of up to 52 males, predominantly young adults. All of the men had been beheaded: their skulls were found piled on one side of the grave and their beheaded bodies had been apparently thrown in from all sides.

The Ridgeway Hill grave is the largest medieval context of mass execution from the country. However, without the application of 'hard' science the significance of the discovery would probably not have been appreciated and, perhaps unusually, the wrong conclusions would have been drawn. This would have certainly been the case less than 20 years ago.

This paper will describe OA's discovery and analyses of the Ridgeway Hill mass grave. It will illustrate the integral part played by 'hard' science, in particular, radiocarbon dating and stable isotope analyses, and discuss how a multidisciplinary approach led to a more accurate interpretation of the feature and a clearer understanding of its significance.

SA8 FROM GENOTYPE TO PHENOTYPE: IDENTIFYING SELECTION OF DESIRED PHENOTYPIC AND BEHAVIOURAL TRAITS IN THE DOMESTIC CHICKEN

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Originally native to Southeast Asia, the domestic chicken has been spread across the globe via human agency, fulfilling multiple roles from food resource to religious practices, entertainment and ornamentation. As a result, strong human-driven selection for desired phenotypic and behavioural traits occurred throughout the history of the chicken, radically changing its gene pool. Identifying those traits and their role in chicken domestication has, until now, heavily relied upon modern populations.

Using the case study of the yellow legs in chickens (caused by the recessive allele of the BCDO2 gene), this paper will first demonstrate the possibility to reconstruct the selection history of a particular trait through the use of nuclear DNA from both ancient and modern populations. Most importantly, it will highlight the fact that concrete inferences about the past cannot be made from modern data alone. The paper will then explore other phenotypic and behavioural traits such as growth (IGF1 gene, TBC1D1 gene), pea-comb (SOX5 gene) and metabolic regulation and reproduction (TSHR) and attempt to understand the timing of their selection. This thus will help to better understand the process of chicken domestication and their subsequent history, but will also shed light on the daily interactions between this domestic bird and human societies, a theme too often neglected in light of 'bigger' questions.

SA7 PREVENTIVE ARCHAEOLOGY OF BUILT SPACE : EXAMPLES OF CONSTRUCTION TECHNIQUES AND SPREAD OF PRACTICES OF USING EARTH AROUND THE ORDINARY MEDIEVAL HOUSE, SOUTH-WEST OF FRANCE

Astrid Huser

INRAP

Through preventive archaeology of built space, entire neighbourhoods have become the objects of real "autopsies" before rehabilitation or demolition. A concrete, vivid and precise history is outlined in a profusion of innovative information around medieval everyday life and its endless transformations.

At a period when stone and lime are expensive materials, ordinary civil building employs cheaper and repetitive techniques, such as the use of local earth and wood in south-west France. Entire districts are built in timber framing and wallow placed on solin of stone and massive earth (fortified cities of Carcassonne, Limoux), mud bricks on solin for the harbour estate of Agde, whereas mud bricks, massive earth and wallow are used in the strong place of Lézignan Corbières...

The methods of construction linked to the use of earth are more varied than is apparent and have specific functions : earth as mortar and filler, massive earth, wallow as simple litter, wallow on beds of vegetables, mudbricks made out of various materials. Precise analyses and dating by radiocarbon enable to validate their medieval use. This method, used experimentally on straw in mudbricks, must be systematized regarding earth techniques in order to gain a precise knowledge of their utilisation. Poorly known until recently, their area of distribution increases as archaeological operations continue in the south-west of France...

Astrid huser, Inrap, specialist of built space, UMR 5140

SA25 INTEGRATING SPATIAL AND PALAEOENVIRONMENTAL APPROACHES TO LAND-USE IN MEDIEVAL IRELAND

Mick Corcoran

UNIVERSITY COLLEGE DUBLIN

The focus of this paper will be an ongoing project undertaken by the author, as part of their PhD research. This project explores new pathways to understanding, firstly, how people used and negotiated landscapes in medieval Ireland and, secondly, how decisions about land-use were influenced by broader environmental and climatological influences. The project's approach is multiscalar, using techniques of spatial survey (e.g. aerial imagery, historic mapping & LiDAR) and palaeoenvironmental analysis (pollen, testate amoebae & measurements of peat humification) which are integrated and managed using a GIS. The output is a series of land-use models that can be used to assist in the interpretation of the archaeological record. This, in turn, can help to advance the discussion of change and continuity in the use of landscapes beyond its current state, which is hampered by a lack of new data and interpretive frameworks.

This paper will present aspects of the project's methodology and the preliminary findings. It will also discuss the practical considerations with the use of the approach outlined above – its advantages and disadvantages as an analytical / interpretive model and the potential ways that this approach can be developed further.

SA16 TOWARDS AN ARCHAEOLOGY OF FAILURE: FLAWED AND RECYCLED ARTIFACTS FROM LATE BRONZE AGE THEBES, GREECE

Anastasia Dakouri-Hild

UNIVERSITY OF VIRGINIA

Salvaging failed objects can lead to the 'continual coming into being' of artifacts (Herva & Nurmi, *Beyond Consumption*, 2009). The various stages and intentions represented by such complex biographies may not leave archaeologically detectable traces behind, depending on whether the objects were completed or not in the end. Finishing processes will eliminate clues regarding the prior material identities of reworked things, but the work episodes leading to the incipient lives of artifacts can be teased apart if the work was never completed. If the potential for failure is part and parcel of design, the concept of failure in itself is not necessarily self-evident. After all 'failure' and 'success' are value judgments regarding what is acceptable, proper, ready, and what is not. This paper examines some methodological problems in studying failed/recycled archaeological materials, from recognition, to systematic analysis and interpretation, looking at a case-study of a workshop-related deposit of unfinished, flawed and recycled artifacts from Late Bronze Age Thebes, Greece. The value of 'emic failure' to archaeological interpretation and inference is also discussed: an actor's choices and implicit beliefs can be comprehended better through what she rejects rather than what she keeps: "the word changed, the sentence deleted, and other alterations that may be traced through successive drafts' failures to contribute to the end worked towards" (Petroski, *To Engineer is Human*, 1992, 77). Thus, artifacts classified as failures from an emic perspective can facilitate an understanding of the constellations of knowledge that guide decisions and present a range of conceivable choices.

SA17 ENDANGERED ARCHAEOLOGY IN THE MIDDLE EAST AND NORTH AFRICA

Robert Bewley

OXFORD UNIVERSITY

This project, Endangered Archaeology, is assessing the threats to archaeological sites using satellite imagery and aerial photographs. The paper will present the approach, initial results and future strategies for the project. An open-access web-based information system is being designed to allow basic information about each site to be easily accessible for anyone interested in preserving archaeological sites in the region.

The archaeological heritage of the Middle East and North Africa is of huge global significance. It includes very large, and often unrecorded landscapes, with significant prehistoric and historic sites, dating from all periods, up to and including twentieth century sites.

The biggest threats to these archaeological sites are agricultural activities, conflict zones, looting and the huge increase in urban expansion, as a result of the quickly rising populations.

Building on the work done by Aerial Photographic Archive for Archaeology in the Middle East (APAAME) and the Aerial Archaeology in Jordan project (see www.apaaame.org) the project has initially chosen a number of key areas in Saudi Arabia, Syria, Iraq, Jordan, Libya and Egypt to begin its work.

Where significant sites are threatened by modern development (road building, town and village expansion, agriculture and looting) the team will work with the local authorities in managing the threats and risk to archaeological sites.

The project has been funded by the Arcadia Fund (www.arcadiafund.org.uk) based at Oxford University in collaboration with Leicester University, UK.

SA9 BEER BREWING IN EARLY BRONZE AGE MESOPOTAMIA: COMBINING SUMERIAN TEXTS WITH EXPERIMENTAL FOOD CHEMISTRY

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Beer made from barley served as a main diet in the cities of Mesopotamia in the third millennium BC. Cuneiform administrative documents indicate the exact proportions of the ingredients used for brewing beer. In a years-long collaboration between a sumerologist (Sallaberger) and a biochemist (Zarnkow) on this topic, experiments helped to clarify the processes of beer-brewing, to elucidate the Sumerian terms for the ingredients and to test the efficiency of the ancient technology. Recently, a final series of experiments confirmed the identification of some technical Sumerian terms, and for the first time our reconstruction how beer was brewed in Mesopotamia can be presented.

Mesopotamian beer is a fascinating product since it makes use of three different processes to solve the starch and convert the sugars to alcohol: germination for the component malt; fermenting by yeasts and lactic acid bacterias; and mashing and brewing for the final product beer - and all three processes were performed without additional heating.

Furthermore, the solid substances of the mash could be dried and in this way one obtained an instant beer. Mixed with water this very quickly produced a refreshing drink.

SA6 IS TIMBER RE-CYCLING AFFECTING OUR INTERPRETATION OF THE MARINE CRANNOGS IN THE FIRTH OF CLYDE?

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At one point there existed at least four wooden platforms, often referred to as marine crannogs, in the inter-tidal zone of the Clyde estuary (Firth of Clyde). From a limited program of radiocarbon dating we know that they would have been constructed sometime in the late first millennium BC, or the beginning of the first millennium AD, however their exact chronological relationships to one another remain elusive. This in turn hinders their interpretation: had they been contemporaneous, their history would be indicative of a specific event of intensified activity in the Firth. If, on the other hand, they were distributed across several centuries, a different interpretation, focussing perhaps on the changing courses of the channels in the then unregulated Firth, would have to be pursued.

While in principle this chronological question could be resolved through a straightforward programme of radiocarbon dating and Bayesian modelling, there is an underlying challenge associated with these sites. Previous radiocarbon dates indicate the presence of different age groups within the timber assemblage. While this may indicate the presence of multiple construction phases, such interpretation would counter the archaeological evidence. The alternative explanation is that some of the construction timbers were re-cycled. Without an answer to this question the chronological relationships between the sites cannot be established. The paper will present the results of a Bayesian modelling and radiocarbon wiggle-match dating programme designed to resolve this ambiguity by high-precision dating of select timbers from specific contexts from the sites of Erskine and Dumbuck.

SA6 UN-MIXING VIKING DIETS: UTILISATION OF THE BAYESIAN MODELLING PROGRAM FRUITS TO UNDERSTAND FRESHWATER AND MARINE RESERVOIR EFFECTS IN NORTH-EAST ICELAND.

Kerry Sayle¹, Derek Hamilton¹, Gordon Cook¹, Hildur Gestsdóttir²

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Stable isotope values for ¹³C and ¹⁵N in bone collagen are routinely utilised to separate terrestrial herbivore, freshwater fish and marine fish as protein components of human diet. A previous study of the Lake Mývatn region of north-east Iceland revealed that an overlap existed between the δ¹⁵N values of terrestrial herbivores and freshwater fish, whilst freshwater biota displayed δ¹³C values that were comparable to marine resources. Subsequent research has shown that there are clear differences in δ³⁴S stable isotope values between animals deriving their dietary protein from terrestrial, freshwater and marine reservoirs in this region. The aim of this on-going research is to use δ³⁴S values to more accurately determine the diet of humans within the region and to utilise these results to assist in the interpretation of radiocarbon (¹⁴C) dates of individuals who may have consumed a non-terrestrial diet. This paper explores the use of a multi-stable isotope approach to model marine and freshwater reservoir effects on human skeletal remains within a Bayesian statistical framework. We have applied this to a dataset of 46 human skeletons excavated from a medieval churchyard at Hofstaðir, 5 km west of Lake Mývatn, in an effort to produce a more robust, accurate, and precise chronology for these earliest settlers of Iceland.

SA16 EXPLORING USE AND RE-USE OF TEXTILES AT THE LATE ROMAN PORT OF BERENIKE, EGYPT

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As in many other pre-modern settings, the Roman and Late Roman textiles were largely expensive and difficult to acquire commodities. Considering their high monetary value, they often functioned as pledge for obtaining money. Likewise, they were passed on to subsequent generations, and filled in great numbers the trousseau of any well-to-do bride.

As such, textiles were often used and re-used until complete decay and discarding. Such is the situation of the largest amount of textiles discovered in the Late Roman refusal heaps of Berenike, one of the southern Roman ports of Egypt. Unlike the majority of Late Roman and early Islamic textile finds in Egypt, which come from burial settings, the Berenike textiles were all discarded on the refusal heaps encroaching large sections of the earlier Roman town. Thus, the peculiar context of the Berenike textiles represents one of the very few cases in which we can track use, re-use, as well as function alteration of textiles.

By analysing several examples—such as a number of high quality textiles reused as household cloth, in addition to pieces whose mending might have changed their initial function—I aim to discuss the use, re-use and functionality changes within the Late Roman textile corpus at Berenike, and propose several patterns of textile use on site.

SA22 CAN PRESERVATION CONDITIONS OF SUBSURFACE DEPOSITS BE DETERMINED RELIABLY?

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Assessing the preservation conditions of deposits is an essential part of ensuring the accessibility of buried archaeology for future generations. As well as lab tests to identify soil qualities scientifically, preservation qualities are often judged in the field using observation methods. This is a requirement in Norwegian archaeology, outlined in a national standard (Requirements on environmental monitoring and investigation of cultural deposits, NS9451:2009). Observational assessment involves the consideration of a wide range of factors that lead to a Preservation Quality score of 1 ("lousy") to 5 ("excellent").

The process is based on subjective judgement, and has never been tested for reliability. The implications of unreliable data are highly significant, as further resource-intensive interventions may be recommended, or poor preservation conditions left unimpeded.

An experiment will be carried out to investigate and quantify the extent of reliability of observational deposit assessments. The process will be a simulation of the method described in the Norwegian standard, used outside Norway and similar to approaches in other European countries. Thirty professional archaeologists will assess the same six soil samples, providing scores for the preservation quality and other factors.

Since there is no 'right' or objective answer to assessing the preservation conditions, conventional statistics cannot be used. Data will be analysed using several reliability indices that will provide a scale to plot the degree of reliability. Levels of reliability considered acceptable for decision-making in other fields will be noted. Supporting data will also be analysed to consider causal factors and approaches to reduce reliability.

SA6 THE GEOCHRONOLOGY OF MOUND KEY: AN ANTHROPOGENIC ISLAND IN SOUTHWEST FLORIDA, USA

Victor Thompson¹, William Marquardt², Alexander Cherkinsky³, Amanda Roberts Thompson⁴

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Mound Key was once the capital of the Calusa Kingdom, a large polity that controlled much of southern Florida just prior to and during European contact. Mound Key, like other archaeological sites along the southwest Gulf Coast, is a large expanse of shell deposits and other anthropogenic sediments. The challenges that these sites pose are largely due to the size and aerial extent of the deposits, some of which exceed nine meters above modern sea level. Additionally, the complex history of the depositional sequence at these sites present additional issues in determining their chronology. Here, we examine the development of Mound Key as an anthropogenic island through a large-scale radiocarbon dating program and systematic coring of the deposits. These data lend insight into the temporality of site formation. We use these insights to discuss the nature and scale of human activities that worked to form this large island. We present the case that certain deposits at Mound Key accumulated through complex processes that represent a diversity of human actions including midden accumulation and the repurposing of older deposits.

SA26 SOIL MICROBIOLOGY METHODS FOR IDENTIFICATION OF ANCIENT MANURING

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Problem of identification of ancient fertilized fields has been widely discussed in literature. In our work the possibility of using soil microbiology methods for establishing ancient manuring was shown.

Ancient manuring practice was traced in soils around two medieval sites located within the Kislovodsk basin (Northern Caucasus, Russia). Both settlements studied had the one period of occupation, dating back to AD 500–800. Neither before nor after that period was there any anthropogenic activity that influenced soil properties.

To trace the fact of manuring the urease activity of soils and the abundance of thermophilic bacteria were studied. Urease breaks down urea and is known to preserve in soil for indefinitely long period of time. Thermophilic microorganisms develop in manure during the composting, when temperature reach up to 60–70°C, and they do not occur in unmanured soils.

The urease activity and the abundance of thermophilic bacteria in off-site archaeological arable soils were maximal in 500-m area from settlements. We believe that increase of urease activity and number of thermophilic bacteria relates to input manure.

Soils in close vicinity to the sites contained large amounts of pottery fragments which income to soils with ancient manure. Strong correlation between urease activity, abundance of thermophilic bacteria, and amount pottery fragments in soils was established.

Urease activity and abundance of thermophilic bacteria in off-site soils can be used as indicators of ancient manuring.

The author gratefully thanks Dr. A. Borisov and Dr. D. Korobov for their help and advice in carrying out the work.

SA2 STANDARDS FOR 3D DOCUMENTATION IN ARCHAEOLOGY

Franco Niccolucci, Achille Felicetti, Nicola Amico, Paola Ronzino, Sorin Hermon

PIN

The use of 3D in archaeology is currently hampered by a plethora of formats devised to improve software performance or resulting from proprietary applications, such as scanners or CAD software. The specific needs of cultural heritage, including the possibility of sharing and re-using the data are generally not taken into account. Most systems consider only the geometry and shape of the digital objects, regardless of other relevant information. They are usually designed for stand-alone use of the output and do not envisage the creation of shared archives of 3D models. The present paper surveys the 3D formats and standards currently in use, and compares the most popular ones. It then proposes a simple and viable solution that takes into

account the requirements of archaeological research and aims to overcome this fragmentation and to foster data interoperability, by defining good practices that include standards, recommended formats and embedding of the semantic information that is indispensable for resource discovery and enabling re-use of the models. The proposed solution actually builds on an industry standard for 3D, extending it to incorporate the information required by archaeological documentation. Such a solution is also suitable for long-term preservation. Tools to manage information compliant with such standards are also suggested. Finally, guidelines for fast and efficient visualization of the 3D models, availing of state-of-the-art open source software, are indicated. The paper includes a number of examples from real cases.

The actual paper authors are 5: Franco Niccolucci, Achille Felicetti, Nicola Amico, Paola Ronzino and Sorin Hermon.

SA4 LIFE IN THE MOUNTAINS: HUNTER-GATHERER SETTLEMENT STRATEGIES AND TECHNOLOGIES AND THE CHANGING ENVIRONMENTS OF THE CAIRNGORM MOUNTAINS, SCOTLAND.

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The identification and study of hunter-gatherer activity in montane landscapes is difficult. Since 2013 an interdisciplinary project including archaeological and palaeoenvironmental work has been exploring Mesolithic activities in one of Britain's most dramatic upland landscapes – the Cairngorm Mountains in Scotland. This work is providing new data on Mesolithic settlement strategies and technologies as well as detailed understandings of the changing environment. Excavations have taken place at two Mesolithic sites, with survey ongoing. Initial results indicate activity in the later 6th and early 4th millennia cal BC – the latter of particular interest as the period when agricultural practices begin to emerge in Scotland. It is already clear that different sites served different functions, and that there is considerable variation in the use of the uplands. Given the presence of archaeological material of similar date downstream, this project provides an important opportunity to fill a gap in the presumed wider pattern of the Mesolithic lifestyle. In addition, it offers an unparalleled chance to explore differences between inland, upland inhabitation of the landscape and other areas of Scotland during the Mesolithic/Neolithic transition. Furthermore, with some Mesolithic sites identified at >500m asl the relationship between climate change and human activity, the impact of human activity on the environment and *vice versa* can also be examined. This project also contributes to developing management strategies for early Holocene archaeology in mountain landscapes, especially in the face of modern day climate change and land use pressures.

SA11 DID THE HEALTHY DIE? A REAPPRAISAL OF THE RELATIONSHIP BETWEEN HEALTH AND MORTALITY IN TIME OF PLAGUE

Sacha Kacki, Dominique Castex

PACEA, UMR 5199, ANTHROPOLOGIE DES POPULATIONS PASSÉES ET PRÉSENTES

Over the past two decades, plague burial grounds have been the focus of an increasing interest in archaeological and anthropological sciences. Besides possible identification of the pathogen that caused the death, anthropological studies have provided much knowledge about the way the corpses were buried and the age and sex distribution of the epidemic victims. However, some important questions still have to be answered, such as what was the precise epidemiological pattern of plague in ancient times. Whereas some scholars have claimed that the epidemic was so virulent that it killed people indiscriminately, others have postulated that plague was selective with respect to pre-existing health. To contribute to this debate, a large-scale analysis of plague burial sites from several European countries was undertaken. Health status of plague victims, as measured by the presence of skeletal stress markers and signs of infectious diseases, was compared with the one of skeletal samples linked to normal mortality. Results demonstrate a strong correlation between some skeletal lesions and age-at-death in non-epidemic cemeteries, whereas no significant influence is found for plague cemeteries. It shows a low influence, if any, of pre-existing health on risk of dying during these past epidemics, what suggests that plague was an indiscriminate killer.

SA11 MORTALITY PROFILES AND PROBABILITIES OF DEATH AS ARCHAEOLOGICAL EVIDENCE FOR PAST EPIDEMICS

Pascal Sellier

CNRS

For identifying past epidemics, the archaeological record provides us with three kinds of evidence. Typified disposals of the dead (interpretations for mass grave or accumulation of individual burials in a short period of time) and molecular biochemistry (for some of the possible pathogens like *Yersinia pestis*) are two of those criteria. Mortality profiles can also supply valuable information as far as paleodemography is concerned as a tool used to demonstrate epidemic episodes (these profiles are not used to reconstruct the demographic pattern of the original population).

This work demonstrates that the essential criterion is the computation of probabilities of death (and not mere percentages of dead from different age-groups), especially for non-adult age classes. Probabilities of death, and the entire mortality profile they produce, can be used as a key-argument to discuss epidemics as major cause of death, as well as potentially identify other causes of massive simultaneous deaths, like famine or war. Historical data but also standard life-tables are, in many

cases, most valuable for demographic comparisons, allowing for the calculation of cause-specific probabilities of death. Our focus is to discuss the specificity of certain mortality profiles according to various germs and epidemics (plague, scarlet fever, epidemic typhus, typhoid fever, flu, etc.), in relation, when possible, to archaeological cases.

SA12 AN INTEGRATIVE APPROACH TO THE STUDY OF IRON AGE LIVING SURFACES AT ASHKELON, ISRAEL: THE MACRO AND MICROSCOPIC ARCHAEOLOGICAL RECORDS

Michael Toffolo

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Co-authors: Daniel Master, Wheaton College; Elisabetta Boaretto, Weizmann Institute-Max

Near Eastern tells feature some of the densest stratigraphic sequences in archaeology, providing an invaluable source of information on urbanism, early polities and human cultural development. These sequences are the result of continuous degradation and replacement of mud brick constructions, which build up over time to create a palimpsest of several interconnected architectural phases. Given the complex nature of such archaeological settings, it is often difficult to determine the function of a specific building or built space based only on the artifacts and spatial relationships between different architectural remains, i.e. by looking at the macroscopic archaeological record. This becomes especially apparent when diagnostic artifacts are absent. The problem may be tackled through analysis of the microscopic record. The chemical compounds that make up the sedimentary matrix in which artifacts and architectures are buried are the result of past human activities that can be traced. In the last two decades, analytical techniques have become an important tool in investigating building materials and occupational accumulations at the microscale. Their application to the study of Near Eastern tells has led to new approaches in answering old research questions. At Ashkelon, Israel, we used FTIR spectrometry, phytolith analysis and soil micromorphology to identify Iron Age living surfaces within different archaeological contexts. We show that datasets gathered from multiple microscopic proxies, when properly integrated with the information obtained from artifacts and architectures, can contribute to interpretation of the archaeological record and ultimately determining past human activities.

SA20 ENCOUNTERS AND TRANSFORMATIONS IN IRON AGE EUROPE: ARCHAEOLOGICAL SCIENCE IN THE ENTRANS PROJECT

Ian Armit

UNIVERSITY OF BRADFORD

'Encounters and transformations in Iron Age Europe' (ENTRANS) is a HERA-funded collaboration between the Universities of Bradford (UK), Ljubljana (SLO) and Zagreb (CRO). Its primary aim is to examine cultural encounters between Early Iron Age populations in south-east Europe and the East Alpine region. A major aspect of the project is the blending of scientific methods with the more traditional archaeological approaches which have characterised much research in the past. The project has three broad themes, comprising art; landscape and the human body. The landscape theme involves large scale Lidar survey and innovative approaches to geophysical prospection that are already reshaping our understanding of Iron Age landscapes in heavily forested landscapes in particular. Work on the human body includes osteoarchaeological analysis of both inhumation and cremation graves, as well as the application of a range of stable isotope analyses. Other elements of the project include organic residue analysis of ceramic vessels from both domestic and funerary contexts. This contribution introduces the scientific dimensions of the ENTRANS Project with a particular focus on the 3D visualisation of situla art and the insights it can bring into themes of Iron Age identity and iconography.

SA20 METAL MANAGEMENT AT THE OPPIDA IN TEMPERATE EUROPE

Alzbeta Frank Danielisova

INSTITUTE OF ARCHAEOLOGY CAS, PRAGUE, V.V.I.

During the last years several new projects aimed at non-destructive prospection of Bohemian oppida sites and new evaluation of finds from the original excavations were conducted. These projects have brought new and mostly ground breaking results. Beside, for example, a completely unknown type of fortification discovered by geophysics, the most interesting findings have been achieved in the field of archaeometallurgy and non-ferrous metal management. These findings have been achieved using methodologies such as metallography, XRD and XRF analyses. In this presentation I would like especially to focus on the outcomes of the analyses of non-ferrous metal artefacts assembled during long-term prospections of the south-Bohemian oppidum of Třisov. Metal detector surveys have produced more than three thousand metal artefacts that significantly expanded the existing inventory of finds and offered entirely new interpretational possibilities regarding the spatial structure, the spectrum of specialised activities (especially *chaine-opératoire*) and the long-distance contacts. The analysis of metal composition using XRF technology was conducted on the whole assemblage including artefacts, casting refuse and technological objects. Among others, the results evidence 1) fabrication procedures of bronze, lead, and silver alloys and production of specific types of artefacts, 2) a routine treatment of the metal artefacts including imported luxury items, and 3) potential foreign origin of silver. These findings can make us reconsider the role of metal imports at the oppida and cast a new light on the nature of management of non-ferrous metals and long distance contacts politics of the late Iron Age period in temperate Europe.

SA13 ALLOY COMPOSITION AND RECIPES: TECHNOLOGICAL SPECIALISATION IN THE VIKING AGE MÄLAR VALLEY

Daniel Sahlen

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Decorative artefacts of copper-alloys and precious metals had an essential social function in the Viking world, through which wealth, status and social ties were displayed. Previous studies of these crafts have particularly looked at larger production contexts and high quality products, while minor production sites have only seen occasional interest. As a consequence the non-ferrous metallurgy of the Viking Age is often portrayed as a highly specialised craft, but the presence of minor production sites throughout the Viking world suggests that this is only part of the story.

This presentation compares artefacts of copper-alloys from different production sites in the Mälär valley and investigated if materials from some sites indicate a more specialised and skilled production, by looking at the variation of alloy composition and recipes. The Mälär valley in eastern central Sweden, a central area in Late Iron Age and Viking Age Scandinavia, provides evidence of non-ferrous metallurgy from a range of sites. These included the early urban sites of Birka and Sigtuna, where extensive productions of non-ferrous metal have been documented, but also a range of smaller sites where the evidence indicates more sporadic production. Does the difference in size and production output also indicate a difference in material specialisation?

SA3 CHALCOLITHIC ARCHITECTURES OF FIRE: AIDRAUGHT, SPACE AND AGENCY

Dragos Gheorghiu

NATIONAL UNIVERSITY OF ARTS – BUCHAREST

The South Eastern European Chalcolithic represented a period of intense utilization of pyro-technology, at different dimensional scales.

Focusing on the Chalcolithic period in the Lower Danube Area, this paper attempts to establish the existence of a relationship between the use of pyro-instruments, the shape and functioning of burners, ovens, up-draught kilns, wattle and daub houses and tell settlements, in other words between humans, objects and spaces.

Similar processes of air circulation [and subsequently of fire] being present in different household ceramic objects, in kilns, as well as in built spaces, could infer the existence of a technological paradigm of fire control. In the archaeological record the spaces of the occurrence of this fire control were diverse, ranging from the hive-like shape of burners to the [burned] surface of houses or even of settlements.

The agency of people with the shape and space of pyro-technologies, like visual ergonomics and kinaesthesia of working places or of burned pieces of architecture, will be approached from the perspective of experimental archaeology.

SA16 QUANTIFYING ROMAN GLASS RECYCLING

Patrick Degryse

KU LEUVEN - BE 0419.052.173

Using newly developed isotopic analysis methods, the primary provenance of Roman glass can be investigated, reflecting the place and resources where glass was molten from its mineral raw materials. From the ARCHGLASS dataset presented here, the Roman glass economy can be reconstructed.

A limited number of glass factories in the eastern Mediterranean and north Africa were melting sand to glass in the Hellenistic period, while in imperial – early Roman times, the origin of primary natron glass lies in the western as well as in the eastern Mediterranean and possibly in North Africa. Apparently, investments were made in several glass making units all over the Empire, and several north African flux sources may have supplied flux for these factories. In late Roman – early Byzantine times, natron glass making falls back on glass making sites in the eastern Mediterranean, such as the factories known from excavations in Syro-Palestine. Apart from primary raw glass making and secondary glass shaping, also recycling of glass was common. Elevated concentrations in minor and trace elements commonly associated with colouring agents, such as Mn, Co, Ni, Cu, Zn, Sb and Pb, are often interpreted as the result of recycling. With the knowledge of the different original chemical signatures of the mineral raw materials used and the primary glasses made, glass mixing and recycling can be quantified. From our dataset, it is estimated that around a quarter to a third of the samples investigated show clear traces of recycling.

SA15 STANDARDISED WAR GEAR IN IRON AGE SCANDINAVIA: THE CASE OF THE HAVOR LANCE

Thomas Birch

INSTITUT FÜR ARCHÄOLOGISCHE WISSENSCHAFTEN DER GOETHE-UNIVERSITÄT FRANKFURT AM MAIN

Large scale war booty sacrifices from across southern Scandinavia, dating from the Roman Iron Age (0-375 CE), contain some of the best preserved evidence of weaponry from Northern Europe at this time. The major weapon deposits contain spears, lances, shields, swords, knives and other *militaria*, sometimes representing a colossal sum of iron.

The research presented here, as part of an enquiry into the provenance of iron being used, focuses in detail on a group of lances identified as the 'Havor' type. As well using standard archaeometric approaches, this investigation highlights the

innovative use of geometric morphometric analysis (shape analysis), as applied to this corpus of 120 known Havor lances (found across three major sites). The method allows the qualitative aspects of the lance, the shape, to be interrogated quantitatively, simply using desktop materials such as scaled photographs and drawings.

The combined results from metallurgical and shape analyses portray the Havor lance type as a highly standardised weapon, likely produced in a single workshop using iron sourced from across wider Scandinavia. The standardised production of weapons corresponds with the highly organised nature of armies, or war bands, engaged in military offensives.

SA16 RECYCLING SCRAP METAL IN EARLY MEDIEVAL ICELAND

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Recent excavations in Iceland have uncovered evidence for iron production and metalworking dating from the period of settlement (870-930 CE). Whilst iron production and ironworking sites have become better understood, relatively little remains known about the origin and working of non-ferrous metals.

The presentation presents new results from analysing copper-alloy fragments and molten debris associated with technical ceramics, from different archaeological sites in Iceland. With an absence of evidence for copper extraction, the archaeological context and analyses of non-ferrous metals empirically confirms existing hypotheses that non-ferrous metals were heavily recycled in Iceland, likely from imported objects. Although not necessarily surprising, the results provide a new basis for discussing the availability and access to raw materials for non-ferrous metallurgy, perhaps signalling an adaptive response to local environments lacking certain materials.

The work presented is part of a larger investigation studying crucible metallurgy in Iceland, a collaboration with the Hungarian Academy of Sciences in the form of a CHARISMA project (Cultural Heritage Advanced Research Infrastructures: Synergy for a Multidisciplinary Approach to Conservation/Restoration).

SA24 DEATH STUDIES AND ISOTOPIC DATA: THE NEW PANDORA'S BOX FOR THE STUDY OF THE MESOLITHIC BURIALS AT THE SHELL MIDDENS OF THE TAGUS (MUGE) AND SADO VALLEYS, PORTUGAL?

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In this paper we present new isotopic data ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$) on human bone collagen of 38 radiocarbon dated individuals buried in two shell midden sites of the Tagus (Muge) valley and five sites of the Sado valleys, Portugal.

Here, in the south-western Atlantic coast of Europe the rise of sea levels during the Atlantic climatic optimum (ca. 8350–6300 cal BP) resulted in the formation of large estuaries. Today, far from the sight and influence of marine waters, these Late Mesolithic shell middens can be very large archaeological sites, many of them with well preserved human remains.

The new isotopic data supports previous evidence of an overall mixed diet from aquatic and atmospheric reservoirs. However, the individuals buried in the Tagus (Muge) valley show a strong component of marine diet, while ca. 100 km south, the hunter-gatherers of the Sado valley show a diet intake almost exclusively from atmospheric reservoirs. Furthermore, the new isotopic data seems to suggest that groups of middens may be the burial ground of distinct groups, at least on a dietary level.

Ongoing geoarchaeological analyses suggest that this dietary diversity is likely to be the result of environmental constraints. But, is the new data indicative of regional identities as well?

Here, we present a case study where isotopic data opened up to new interpretative possibilities to the study of the mortuary practices of these hunter-gatherers, whose diversity – real or apparent – will be discussed.

SA8 FINE FOOD FOR THE DEAD : CHICKENS IN GALLIC GRAVES

Michaël Seigle

UNIVERSITY LYON 2 - LABORATOIRE HISOMA (UMR 5189)

Pliny the Elder defines chicken as « a breed designed by nature for the purpose of awakening mortals for their labours and interrupting sleep » (Natural History X, 24). It is obvious that the whole antique literature considered this bird as a « sun herald » and as a « men awakener ». Furthermore, in the Gallic society, in which men believe in the soul immortality in an afterlife, chicken could be considered as a symbol of revival, of the waking up of the soul. That is why chicken's presence in Gallic graves is not very surprising. However, whereas the species is discreetly present in many archaeological sites through what was Gaul, it represents one of the major animals deposited in graves, after pig, cattle and sheep and goat. Moreover, chicken is frequently cooked and placed in a prominent position. These facts seem to confirm the importance of chicken in Gallic everyday life and, particularly, in rituals. This importance is corroborated through time by the greatest rank acquired by chicken in Gallo-Roman graves, until the species becomes the most represented one in funeral context. Chicken's presence in

burials also highlights its likely importance in funeral banquets, given in honour of defuncts and shared between the living and the dead. The first ones being more numerous, it is obvious that a great part of these offerings come down to them. Thus, chicken appears as a very specific offering, gradually considered as a symbol of revival, particularly due to christianism.

SA23 EARLY IRON AGE GOLD FROM SOUTH-WEST GERMANY: NEW EVIDENCE BY TECHNOLOGICAL STUDIES AND MATERIAL ANALYSES

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This contribution shall highlight some results of the new investigations on the Early Iron Age gold metallurgy north-west of the Alps, which were achieved recently within a French-German research project. Methodologically, the project was based upon three main columns: the archaeological classification of the objects, their technological examination, and the material classification based upon scientific analyses by XRF and LA-ICP-MS.

The investigated gold objects mostly belong to grave assemblages, particularly of wealthy graves from the late 7th to the beginning of the 5th century BC. Most of these finds are jewellery objects with a prestigious character, which belong to the personal adornment of the deceased. But also decorative gold items were examined, like e. g. the gold sheets that embellished the dagger, shoes and drinking-horns from the famous Hochdorf burial.

The multidisciplinary approach that was pursued within the recent work proved to be essentially helpful for recognising local traditions and innovations as well as foreign stylistic and technological influences on the artisans' craftwork. Particularly the combination of technological and material analyses is a powerful tool (*a*) to investigate technological aspects in more detail and (*b*) to trace material circulation, which helps to reconstruct patterns of production and consumption.

In this way some new insights could be obtained, especially concerning technological innovations during the Late Hallstatt period, like diffusion gilding and soldering. Moreover, new indications for workshop identities and the consumption of heirlooms could be found. Selected examples of these studies will be shown within the presentation.

SA4 ON AND OFF? CENTRAL ALPINE BRONZE AGE SETTLEMENTS IN THE LIGHT OF CLIMATE AND SOCIAL DEVELOPMENTS

Philippe Della Casa

UNIVERSITY OF ZURICH

The Alpine environment, with its fragile and particularly climate-dependent ecosystem, is an excellent ground for investigation into the relationship between early human settlement and mid-term climate evolution.

With regard to the Bronze Age, we know of at least two climatic deteriorations, that occurred during the middle (Löbden) and at the end of the late Bronze Age (Göschenen I) respectively. Both have been evidenced with various climatic proxies such as vegetation history and timber lines, dendroecology and glacier movements.

In our area of research – the Swiss Central Alps – Bronze Age settlement seems to follow dynamic cycles that are only partially correlated to climatic evolution: while settlement expands during the middle Bronze Age, it regresses towards the end of the period, or even disappears completely in certain valleys – so at least the actual state of the research. The paper investigates possible environmental, economic and social reasons for these intriguing developments.

SA15 UNLOCKING BRONZE AGE COMBAT: FIELD EXPERIMENTS AND USE-WEAR ANALYSIS

Rachel Crellin¹, Andrea Dolfini², Marion Uckelmann³, Raphael Hermann²

¹UNIVERSITY OF LEICESTER, ²NEWCASTLE UNIVERSITY, ³DURHAM UNIVERSITY

The last two decades have seen renewed interest in prehistoric warfare; this has allowed a reappraisal of the role of warfare and interpersonal violence in Bronze Age Europe, but more research is needed to understand how weaponry was used in combat both quantitatively and qualitatively. Championing a use-wear analysis approach backed by rigorous field tests, our project seeks to investigate the macro- and microscopic marks left on swords, spear-heads, axe-heads and shields in Bronze Age combat encounters. The aim is to understand how these weapons were used, in what kind of combat situations, and with what weapon strikes and body motions. In order to do this we are carrying out a two-stage research project. The first phase involves fully controlled and replicable field tests with replica weapons, which are carried out in order to create a reference collection of marks. The second phase is concerned with the use-wear analysis of a sample of Late Bronze Age swords and spear-heads from museums in the UK. We intend to interpret the ancient marks in the light of the reference marks created in our combat tests. In this paper we will discuss our experimental methodology and highlight what we see as the advantages and limitations of the experiments we have conducted. We will offer insight into what we have learned about carrying out tests to create reference collections of combat marks. We also briefly discuss some of our preliminary findings to illustrate the kinds of results possible from such experiments.

Website: <https://sites.google.com/site/bronzeagecombat/>

SA8 AN ANALYSIS OF DUCK AND GOOSE BONE ASSEMBLAGES FROM ROMAN BRITAIN USING NEWLY DEVELOPED MORPHOMETRIC IDENTIFICATION CRITERIA.

Ged Poland

THE UNIVERSITY OF SHEFFIELD

Duck and goose bones are regularly recovered from Roman archaeological contexts across Europe and their use is discussed by a number of Roman authors including Pliny the Elder, Varro, and Columella. However, very little is known about the economic and cultural importance of these birds during the Roman period in Britain despite an ever growing number of documented assemblages. The topic is rarely discussed because the identification of duck and goose taxa can be very difficult, even when a comprehensive comparative reference collection is used.

To help address this issue work has been undertaken to develop identification criteria for the most common duck and goose taxa from Britain using traditional morphometrics and multivariate statistics. Identification criteria have been developed using linear measurements of postcranial bones from 757 modern reference specimens covering 20 species of duck and 7 species of goose.

This paper discusses the analysis of duck and goose bone assemblages from Roman contexts in Britain using newly developed morphometric identification criteria. Topics include the use of ducks compared to geese, the importance and variety of wild birds used in Britain, the presence or absence of domestic birds, inter-site variation in the use of ducks and geese, and the use of ducks and geese through time. This research is being undertaken as a part of an ongoing PhD project at the University of Sheffield (UK).

SA5 DID EARLY HOLOCENE CLIMATE EVENTS AFFECT NEOLITHIC FARMING SOCIETIES IN THE NEAR EAST?

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Effects of climate on societies are a much discussed topic in archaeology, and especially relevant for semi-arid regions such as the Near East. The potentially most pronounced cold-arid climatic episode of the Holocene occurred at around 8200 years ago ('8.2 ka event'). A similar event, albeit of a smaller magnitude, took place at around 9200 years ago. Due to the abrupt nature of these climatic changes (their onset occurred in less than a decade), a severe impact on societies is expected. The effects of especially the 8.2 ka event have been much discussed, and scenarios for the Near East vary from widespread site abandonment and migration to continuity of occupation. The aim of our study is to further this debate by a comprehensive re-assessment of chronologies, to assess the synchronicity of social and climatic changes.

We re-assessed all available radiocarbon evidence for the relevant time period (9500-7500 cal BP), strictly quality-checking dates and where possible using Bayesian models, and combining dating evidence with archaeological information. Our results show that no systematic, large-scale site abandonment or migration took place at the time of either the 9.2. or the 8.2 ka event. At some sites, change occurs, which represent climate adaptations, but a large variability is present. We conclude that early farming communities were resilient in the face of climatic and environmental deterioration.

(Authors: Pascal Flohr, Roger Matthews, Wendy Matthews, Stuart Black, Dominik Fleitmann)

SA20 ORGANIC RESIDUE ANALYSIS OF POTTERY VESSELS: IMPLICATIONS FOR THE UNDERSTANDING OF IDENTITY AND MOBILITY IN EARLY IRON AGE EUROPE

Beatriz Bastos, Carl Heron

UNIVERSITY OF BRADFORD

The ENTRANS Project aims to expand our knowledge regarding the nature and impact of cultural encounters during the European Iron Age. The study of ceramic vessels was recently included in the project, in order to further understand cultural practices in the East Alpine region. Organic residue analysis is an important tool in archaeological research for determining the presence of food and other organic substances in pottery vessels. It has the potential to significantly impact our understanding of Iron Age societies and the interactions between them. This investigation focuses on the analysis of visible and absorbed organic residues of ceramic vessels, as well as examines typology and decoration styles, from Late Bronze Age and Early Iron Age sites in Slovenia and Croatia. This paper discusses preliminary results of residue analyses of ceramics from settlement and funerary sites. The principal aims are to explore aspects of diet and the provenance of resources by comparing the results of residue analysis with contextual data (e.g. faunal and floral remains). The identification of non-local resources aids our understanding of the source and nature of the cultural and social changes that took place between the Late Bronze and the Early Iron Age. Differences between settlement, funerary and ritual sites are also considered, by identifying how the vessels were being used and the specific resources that were processed or stored in them. With this project, we will further realise the potential of organic residue analysis as a major tool for the understanding of Iron Age societies.

SA2 THE MICROPASTS PROJECT: THE POWER OF 3D, DIGITAL ARCHAEOLOGY AND CITIZEN SCIENCE

Adi Keinan-Schoonbaert

UCL INSTITUTE OF ARCHAEOLOGY

Digital applications in archaeology, heritage and museum sectors are becoming increasingly geared towards 3D modelling, as well as crowdsourcing. It is not by chance that recently, these two distinct and separate trends have become interlinked. On the one hand, high volumes of archaeological objects and worldwide monuments, sites and cultural landscapes are in need of enhanced documentation and better presentation to the public. On the other, computer vision techniques and photogrammetry applications are becoming low-cost and more accessible, with easy-to-use software and handy mobile phones or consumer-based cameras, resulting in more professionals and non-professionals being increasingly interested in and engaged with 3D modelling. The MicroPasts project has been successfully addressing these two growing trends – by crowdsourcing the creation of 3D models of museum objects. Operating mainly as a crowdsourcing platform, MicroPasts has been engaging hundreds of volunteers in the 3D modelling of archaeological artefacts, from Bronze Age axes to Egyptian funerary figurines. This is done in two stages: first, through online crowdsourcing applications, contributors draw object outlines on digital photographs, 'masking' out the background and preparing them for 3D modelling; and second, contributors create the 3D models themselves, using MicroPasts tutorials and ongoing support on the community forum. This paper will look into the benefits of crowdsourcing a large number of 3D models and the potential of the 'crowd' in contributing to enhanced museum web-based presentation, education, academic research, community outreach, online catalogues of museum objects, and site management databases.

SA9 SACCHAROMYCES CEREVISIAE FERMENTATION EFFECTS ON POLLEN: ARCHAEOLOGICAL IMPLICATIONS

Crystal Dozier

TEXAS A&M UNIVERSITY

Pollen are the reproductive agents of flowering plants; they are utilized by archaeologists because sporopollenin, the inner structure of pollen grains, is resistant to decay and are often morphologically distinct to species. Wine, beer, and mead have been identified in the archaeological record by palynological assessment due to indicator species (such as *Vitis* or *Filipendula ulmaria*) or due to a pollen profile similar to that recovered from honey, a common source of sugar in a variety of fermented beverages. While most palynologists have assumed that pollen grains are resistant to alcoholic fermentation, a recent study in food science implied that pollen was a yeast nutrient because pollen-enriched meads produced more alcohol. The experiment presented here explored the potential distortion of the pollen record through fermentation by brewing a traditional, pollen-rich mead with *Saccharomyces cerevisiae*. In this experiment, the pollen grains did not undergo any discernible morphological changes nor were distorted in the pollen profile through fermentation. Any nutrition that the yeast garners from the pollen therefore leaves sporopollenin intact. These results support palynological research of residues and confirms that at least the fermentation process does not distort the pollen profile of the original substance. The talk concludes with the potentialities and limits of palynological study to assess fermentation within the archaeological record.

SA15 EXAMINATION OF PERI-MORTEM LESIONS ON HUMAN BONES FROM THE BRONZE AGE BATTLEFIELD IN THE TOLLENS VALLEY, MECKLENBURG-WESTERN POMERANIA, NORTHEAST GERMANY – AN INTERDISCIPLINARY APPROACH

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The Bronze Age battlefield site in the Tollense Valley, Germany, has yielded thousands of human bones, partly with traces of violence, animal bones and archaeological artifacts. Several of the human bones exhibit blunt forced trauma and sharp lesions, e.g. strong impression fractures or sword blows. Fine cut marks and notches have also been identified. Detailed macroscopical and microscopical analyzes were performed to find out whether these minor traces could be caused by arrowheads or stabbing weapons. Micro-CT imaging was used for obtaining information on the nature of bone lesions and healing reactions critical for the reconstruction of interpersonal conflict scenarios in the past. The results were compared with injury pattern caused by experiments with replicas of different Bronze Age weapons. Different types of arrow shot injuries and fine cut marks caused by stabbing weapons were identified on the experimental bones. Comparable injuries patterns are very common in the Tollense bone assemblage. Therefore the use of bows and arrows, daggers, lances, swords and wooden clubs are evident. This indicates considerable interpersonal violence. The osteological analysis combined with archaeological experiments and micro-CT imaging highlights the scenario of conflict with use of distance and close-combat weapons. The range of weaponry and numbers of victims indicates a high intensity of Bronze Age group conflict of supraregional significance.

SA3 THE ANCIENT NEOLITHIC OVENS OF PORTONOVO (ITALY): ARCHAEOLOGY, ARCHAEOOMETRY, EXPERIMENTAL RECONSTRUCTION

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Fire structures hold an important set of information concerning domestic and/or productive activities, both individual and collective, carried out within a settlement. This contribution presents a new evidence of underground ovens which were found in the ancient Neolithic site of Portonovo Fosso Fontanaccia in the Marche region, central Italy. Here 22 ovens, dated to 7500 cal BP, were uncovered, six of which were intact. The ovens feature circular bases, from 1.80 to 2 m in diameter, a height of about 0.50 m, a single central opening. The inner lining was made by firing the natural sediment, and sometimes by adding a clay coat. Two ovens contain three burials, and the remains of a cremated female were found in an open area between two clusters of ovens. According to the temperature analysis and the botanical remains found inside three ovens, food processing is the most probable function rather than pottery firing.

This contribution concerns the methodological approach to this kind of evidence, from the stage of the excavation, on-field documentation, archaeometric analyses, and the experimental reconstruction of one oven. Our aim is to understand the timing, methods, tools, energy investment for the realization of these structures, the lifespan, their function and, possibly, their symbolic value.

SA7 MACROSCOPIC OBSERVATIONS ON MINOAN EARTHEN CONSTRUCTIONS

Marta Lorenzon

UNIVERSITY OF EDINBURGH

The aim of this paper is to investigate earthen architecture using the approach of mudbricks as an important component of material culture. Macroscopic and microscopic observations are the leading evidence to assess variation in the manufacturing and construction process in Minoan Crete. This research seeks to combine evidence from geoarchaeological and architectural analyses into a new framework so that the results can help us extend our knowledge of earthen construction and its employment during the Bronze Age.

Therefore, the overall goal of the paper is to consider how it is possible and efficient to combine dissimilar datasets in investigating earthen building techniques and materials. The geoarchaeological and architectural records provide different perspectives about the same archaeological data: the building. Those perspectives should be ultimately combined to obtain a complete picture of the social context, which is tightly linked with the architectural product and an important factor around which technical and manufacturing skills were interchanged and developed.

The paper will highlight the changes in technology, construction practices and skills transfer, which could have had a large impact on the socio-economical structure of Bronze Age Crete. Preliminary results will focus on the comparison between sites and offer fresh insight in diachronic and synchronic terms.

SA5 THE COMPARISON OF THE MIDDLE HOLOCENE (CA. 6,000 – 2,600 CAL. BP) PALEOCLIMATIC PATTERNS IN THE AMUQ PLAIN (SOUTHERN ANATOLIA) WITH THE UPPER EUPHRATES AND TIGRIS BASINS (EASTERN AND SOUTHEASTERN ANATOLIA) THROUGH MACROPHYSICAL CLIMATE MODELING

Bülent Arikan

ISTANBUL TECHNICAL UNIVERSITY

Macrophysical Climate Model (MCM) is one of few paleoclimatic-modeling tools that has been available to researchers. In comparison to other paleoclimate models, MCM has higher spatial resolution and the results are synoptic (i.e., local). Research in different parts of the Near East suggests that the results of MCM agree well with the results from multi-proxy based paleoenvironmental reconstructions. The model output provides quantifiable figures at centennial resolution.

The Amuq Plain, located at the northern terminus of the Jordan Rift Valley, has long been a hub for social interactions and a region of high biodiversity. Consequently, the Plain has been densely settled and its resources have been used intensively. The upper Euphrates and Tigris basins in eastern and southeastern Anatolia represent more arid but equally well-watered regions as the headwaters of Tigris and Euphrates are in these basins. Although biodiversity is not as high as the Amuq Plain in either basin, they have been settled intensively for rich resources they offered societies.

Paleoenvironmental research has shown that significant climatic changes happened during the mid-Holocene yet it is hard to generalize changes in crucial climatic variables across northern Mesopotamia. Even today, Amuq Plain, Euphrates and Tigris basins have their distinct climatic patterns. In my paper, I will present the results of MCM for each area mentioned here and attempt to provide a comparative approach to changes in key climatic variables such as temperature and precipitation. The social and economic implications of such changes will also be addressed.

SA9 WINE BEFORE DIONYSOS: A NEW APPROACH FOR THE SURE STRUCTURAL IDENTIFICATION OF WINE RESIDUES IN ARCHEOLOGICAL ARTEFACTS

Nicolas Garnier¹, Sultana Maria Valamoti²

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Detecting ancient wine has been at the core of discussions concerning the origins and the diffusion of viticulture in the Old World. As regards residue analyses, many approaches have been proposed since 40 years. Spot tests and spectroscopy such as IR-TF have been revealed inefficient to bring almost pertinent chemical arguments and surinterpretation designed to address the lack of scientific rigour. As ancient organic materials are degraded, preserved as tiny and often invisible traces, resulting from mixing, heating, biochemical processes, only *separative and structural* analyses (GC-MS or LC-MS) could afford pertinent results.

Tartaric acid, recognized as a relevant biomarker of grape, forms during winemaking and ageing highly insoluble tartrates, therefore well preserved. Their insolubility presents a real technical challenge for their extraction and identification by structural analysis. Here we show a new method for extracting ancient wine biomarkers from archaeological potteries, giving extracts 10 – 500 times more concentrated than using the classical extraction method, indicating that organic residues are more deeply impregnated into the clay structure than previously thought. The very sensitive detection (< 1 µL eq. wine/g sherd) and the secure identification of wine biomarkers by GC-MS in a Neolithic jar from the Dikili Tash (Northern Greece) allowed the earliest solid evidence of winemaking in the north Aegean and Europe, confirmed by archaeobotanical identification of pressed grapes consisting of pips, skins and pips still surrounded by skin found in association with this jar. This method constitutes an essential tool for a better understanding of winemaking and contexts of consumption.

SA2 FROM POTSDHERDS TO INTERACTIVE OBJECTS. RECONSTRUCTING ANCIENT POTTING TECHNIQUES AND ENGAGING THE PUBLIC THROUGH 3D TECHNOLOGIES

Loes Opgenhaffen, Muriel Louwaard, Ivan Kisjes, Martina Revello Lami

UNIVERSITY OF AMSTERDAM

The past two decades have seen increasingly rapid advances in the field of three-dimensional digitization, which is nowadays commonly used for the study, preservation and valorisation of various cultural heritage objects. Despite widespread and successful practice, the many possibilities offered by 3D technologies have not been equally exploited in all archaeological fields. Pottery studies, in particular, have mainly used 3D systems for documentation purposes, in order to accelerate the traditional practice of visual recording and develop automated typologies, largely overlooking other promising applications.

In this paper, we seek to demonstrate that the full potential of 3D scanning technology applied to archaeological ceramics goes way beyond accurate documentation procedures. For this purpose, we have undertaken a multidisciplinary research project, involving ceramic analysts and IT specialists, on a wide range of pottery material (from Iron Age burnished wares, to Hellenistic black gloss and Roman Terra Sigillata) from several sites and museum collections in Greece, Italy and the Netherlands. On the one hand, the application of 3D technologies enabled us to determine vessels capacity, calculate the density of ceramic material, examine in greater detail surface texture and macrotraces, leading ultimately to a better understanding of the very process of making a pot, manufacturing methods and potters' technological choices. On the other hand, the possibility of carrying out part of the study in museum open spaces allowed us to involve the public in actual research and experimental sessions, proving the communication advantages of integrating technologies such as 3D printing and augmented reality.

SA10 THE APPLICATION OF MULTI-ISOTOPIC ANALYSIS TO RECONSTRUCT ANIMAL MANAGEMENT IN NEOLITHIC SWITZERLAND

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How does one approach the economy of a Neolithic wetland site using multi-element isotopic analysis? In our project we applied strontium, oxygen, carbon and nitrogen isotope analyses to faunal remains from several archaeological sites in Switzerland. The lower Lake Zurich basin is an archaeological micro-region that permits the study of a long chronological sequence spanning the 4th to the 2nd millennium BC, while the site of Arbon Bleiche 3 is a single-phased settlement on the shores of Lake Constance with a fifteen-year long occupational phase (3384 to 3370 BC) providing the opportunity to capture a 'snapshot' in time. We realize that an investigation of the prehistoric economy and especially Neolithic animal management in the pre-Alpine foreland necessitates a clear understanding of the settlements themselves as well as the attributing site catchments, including the mountainous landscape in the vicinity. With this in mind a large number of archaeological cattle teeth and bones from the settlements were analysed alongside an extensive comparative data set of modern environmental vegetation and water samples from the vicinity. These analyses will help reconstruct 'isotopic regions' and trace animal management and cattle herding strategies, potentially related to seasonally varying patterns including alpine summer pasturing.

SA9 CONSIDERATION ABOUT THE USE OF VITIS VINIFERA IN THE ENEOLITHIC PERIOD FROM BALKANS

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The human attraction for grapes and its products, especially wine, has a long history. The earliest record of consumption of grapes was in the Pre-Pottery Neolithic period in the Fertile Crescent.

In the northern area of the Balkans, evidence for the use of *Vitis* appears much later, and is not very abundant. During the Eneolithic period (ca. 5000-3800 cal. BC), in the Cucuteni culture the discoveries of charred pips of *Vitis vinifera* in different sites (e.g. Poduri) suggests that they used and consumed this species. Also, Gumelnița communities used and consumed this plant, as proven by the charred remains of *Vitis sylvestris* and *Vitis vinifera* discovered in different sites from Romania and Bulgaria (e.g. Hârșova, Sultana-Malu Roșu, Căscioarele, etc.).

Considering the fact that most of the discoveries are remains of gathered plants implies a consumption of these fruits as secondary products to their diet, or a pastime activity. It is possible that the fruits of *Vitis vinifera* would have been preserved, but those of *Vitis sylvestris* might have been collected only for direct consumption.

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

SA25 QUANTITATIVE DATA ON THE DISTRIBUTION AND CONTROL OF THE WATER OF ROME'S ANIO NOVUS AQUEDUCT

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A reliable and clean water supply has always been a primary concern of human communities. Calcium carbonate deposits (CaCO_3 , called *travertine*) formed by the water flowing in past water systems, are a faithful record of the flow, timing and chemical and microbial composition of that water. The lack of reliable, quantitative data on water distribution in ancient Rome confounds the investigation of the social control and use of water. This paper represents the first step in remedying this problem by using travertine to reconstructing qualitative changes in flow rate over time and produce the first estimation of the actual flow of one of Rome's major aqueducts.

Travertine in the Anio Novus, ancient Rome's highest and furthest-reaching aqueduct, exhibits multi-scale stratigraphic characteristics, including mm-cm scale ripple bedforms. Ultrahigh-resolution measurement and quantitative modeling suggest that the early phase of the Anio Novus' operation included multiple large-scale variations in aqueduct water flux over a period of decades, punctuated by at least six hiatuses during flow interruptions probably related to maintenance and repair.

Uniform flow simulations were carried out using published gradients corrected by GPS measurements analysed in ArcGIS. Cross-sectional flow areas were reconstructed from surviving travertine deposits within the Anio Novus' channel. Flows reaching Rome in the aqueduct's final phase were significantly smaller, at $1.4 \pm 0.4 \text{ m}^3/\text{s}$, than previous estimates. Lack of maintenance and/or changes in water use may have contributed to this difference. The roughness of even minimal travertine reduced the maximum flow rate by ~25%.

SA4 "INHOSPITABLE ALPS?" – 10,500 YEARS OF HUMAN ACTIVITY IN THE EASTERN ALPS COMPARED TO HOLOCENE CLIMATE EVOLUTION

Christoph Walser, Karsten Lambers

UNIVERSITY OF BAMBERG

This presentation focuses on the settlement development in the Eastern Alps and how it correlates with the use of alpine upland sites (> 1800 m a.s.l.). In terms of culture and economy this region was highly interlinked ever since.

In order to answer these questions using different geostatistical and quantitative approaches a dataset comprising more than 2450 archaeological sites covering the time span from the Mesolithic Period to 1000 AD has been compiled.

Roman authors called the Alps "*montes horribilis*". This antique perspective shaped the image of this mountain range being a rather unfavorable environment for people to dwell and still influences people's perception. Presumably, society and economy have been quite sensitive to changing environmental conditions. To what extent a changing climate determined human activity in the alpine zones will be discussed in the next step. Therefore, the results of these analyses mentioned above will be compared to Holocene climate phases derived from alpine proxies.

The author's studies show that there is generally a positive correlation between the number of upland and valley sites. The data also reveals a change in the upland land use strategy towards pastoralism from the Younger to Late Neolithic Period onwards.

Regarding the impact of climatic deteriorations a certain temporal correlation can be seen for the Early Holocene. With the establishment of a diversified economy climatic changes seem to play a minor role regarding the settlement development and the exploitation of the areas around and above the tree-line, especially from the Bronze Age onwards.

SA4 SCHNIDEJOCH (2756 M A.S.L., WESTERN BERNESE ALPS, SWITZERLAND). DID HOLOCENE GLACIER ADVANCES CLOSE THE ALPINE PASS FOR HUMAN TRANSHUMANCE?

Albert Hafner, Martin Grosjean

UNIVERSITY OF BERN

A series of more than 70 radiocarbon dates confirms that the Schnidejoch pass (2756 m a.s.l.), linking the Bernese Highlands with the River Rhone valley, was in use at least from 4800–4500 BC on. The pass was of easy access when the glaciers from the nearby Wildhorn mountain range (peak on 3248 a.s.l.) were in a retreating phase e.g. as is the situation today. During holocene phases of advancing glaciers the pass was blocked for humans accompanied by herding animals. The presentation reviews the publication of Grosjean et al. (Ice-borne prehistoric finds in the Swiss Alps reflect Holocene glacier fluctuations, *JOURNAL OF QUATERNARY SCIENCE*, 2007, 22.3, 203–207) on a larger basis of radiocarbon dating and discusses the position of the pass within a system of prehistoric settlements, camp sites and passes.

SA16 RETHINKING RECYCLING AFTER THE ROMANS: THE IMPORTANCE OF CONSIDERING RECYCLING IN INTERPRETING GLASS IN EARLY ANGLO-SAXON BRITAIN

Victoria Sainsbury

UNIVERSITY OF OXFORD

The nature of archaeology is that we are arguing from an incomplete record, but recycling means that large parts of past material culture never entered the ground. The significance of this in terms of interpretation of the data we do have can be great. Recycling has long been acknowledged as a key part of the Roman glass industry and, after 410, it was assumed that all glass produced in Britain, and indeed much of Northwest Europe, was heavily dependent on recycled Roman cullet. While this central place of recycling in glass is acknowledged, what affect this should have in terms of how we interpret the archaeological record, whether using traditional archaeological understanding or scientific techniques, is often ignored. Glass recycling can denude sites, muddy chemical signatures and can have huge social and economic implications. Using the example of glass in early Anglo-Saxon Britain, the importance of considering recycling in interpretations of both the direct archaeological record and glass composition is discussed. By considering the context and form of glass in Anglo-Saxon sites, as well as the patterns seen in the chemistry of these glasses, it seems likely that glass vessels were both more common than previously thought in post-Roman Britain, and that the relationship between the reliance on recycled Roman glass versus fresh raw glass is more complex than previously thought.

SA8 THE ROLE OF THE MINOR BIRD DOMESTICATES IN ROMAN AND MEDIEVAL ITALY

Chiara A. Corbino¹, Claudia Minniti², Ged Poland¹, Umberto Albarella¹

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While the chicken (*Gallus gallus*) has played the dominant role as the key farmyard bird in the history of humanity, duck and goose have also had their importance, but the history of their breeding is poorly understood. We know little about the times and modes of the origin of the domestication of these species, as well as their successive developments. In Europe, the great challenge in the understanding of the archaeology of these birds is that, unlike chicken, their wild ancestors – the greylag goose (*Anser anser*) and the mallard (*Anas platyrhynchos*) – are native to the region and the distinction of the bones of the domestic and wild forms is very difficult. This is compounded by the great variety of goose and duck species living in Europe, some similar in both size and shape. In Britain a very late development of the breeding of both species (particularly the duck) has been suggested. Domestic ducks may well have been virtually unknown in Roman Britain, with goose breeding playing a negligible and highly circumscribed economic role. This paper will, however, focus on Italy and will review the evidence to suggest that although duck breeding may have been late to develop in that country too, goose breeding was already well established in Roman times. The analysis will be aided by the application of a new system developed by our research team, which attempts to improve the degree of anatid species identification in Europe through morphometric analysis.

SA2 OUT OF THE ARCHAEOLOGIST'S DESK DRAWER: COMMUNICATING ARCHAEOLOGICAL DATA ONLINE

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During archaeological excavation process a huge amount of data is collected and archived by professional. Moreover, since last decade, a great deal of archaeological data is 'born digital' (image and range based 3D models acquired exploiting different techniques and platforms; high resolution images; digital textual archives; etc.). The vast majority of archaeological information is not shared and dissemination of research outcomes is still mostly based on traditional pre-digital means like journal articles, books and scientific publications. Often happens that the public is cut off at this stage of the archaeological research process.

This paper intend to show a mash-up methodology created for communication purposes in archaeology exploiting web resources and open source technologies. The case study is represented by a Mitreum recently excavated in Ostia Antica site (2014) by the University of Bologna in the framework of the Ostia Marina Project. The Mitreum was fully digitized by means of terrestrial laser scanning, photogrammetry and high resolution images. Interactive 3D models and giga-pixel images have been created and made available on the web for public disclosure through a portal.

This approach shows how to involve public and professionals in the archaeological research since initial stages, exploiting digital interactive tools, and keeping in mind the Intellectual Property Rights (IPR) related to the shared data. Archaeologists can have direct access to specific category of data on-line. The public can interact with digital applications filling the gap between them and the knowledge of heritage sites.

Co-Author: prof. Massimiliano Victor David, University of Bologna (Italy)

SA20 WHERE ARE MY DATAS ? ARKEOGIS, HOW TO AGREGATE ARCHAEOLOGY, GEOGRAPHY AND ANALYSES ONLINE

Loup Bernard

UNIVERSITÉ DE STRASBOURG / CNRS

Where is my data? It is a great thing that archaeology is becoming a truly European science and that the research community has increased in the last decades. At the same time, scientific archeology (from geographic studies or 14C to isotopes) has increased our understanding and our problematics of the environment of our archaeological sites. The problem today is that too many publications, papers, books, web-sites, databases are available, and that it is no longer possible to even end with a near exhaustive state of art. In order to develop cross-border research between French and German archaeologists and paleo-environmentalists in the upper Rhine-valley, an ERDF founding made it possible to develop ArkeoGIS, an online free software GIS which aggregates over 40 databases describing over 40 000 sites, artefacts or analysis, in a bilingual interface. After a few years of existence, with the tool being shown to be effective, it is now tested in the western Mediterranean and reveals itself as a great tool to aggregate paleo-environmental and archaeological data. It is also a good tool to interconnect online datasets in a quick way, helping the different specialists to implement their datasets.

SA20 THE IAPODIANS IN IRON AGE EUROPE: A STABLE ISOTOPE AND RADIOCARBON DATING PROGRAM IN NORTHERN CROATIA

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co-authors: Brendan J. Culleton, Sarah B. McClure, Douglas J. Kennett, and Jacqueline Balen

In this paper, we report results from ongoing research on the Iapodian culture, a distinct group centered in the Lika region of modern-day Croatia. Despite excavations in the area since the late 1880s, the scope of Iapodian involvement in regional interaction spheres, larger trade networks, and the general Iron Age world is unclear, and has yet to be systematically analyzed with modern methods. Preliminary isotopic results from Iapodian samples demonstrate an increase in millet consumption, unusual for this time period in other parts of Europe, and a decline in overall dietary quality over time. Using new radiocarbon dates and stable isotope analyses, we seek to understand the role of millet in Iapodian subsistence and the timing of its appearance in archaeological contexts alongside other changes in material culture. We conclude with a consideration of where and how millet may have traveled to Lika, and what implications this may have for characterizing contact, trade, and exchange between the Iapodians and their neighbors.

SA24 CHANGES IN CLIMATIC CONDITIONS, SUBSISTENCE STRATEGIES AND MOBILITY PATTERNS IN THE EARLY AND MIDDLE NEOLITHIC IN THE POLISH LOWLANDS. THE CASE OF THE SETTLEMENT IN KOPYDŁOWO

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The paper aims at discussing the trajectory of development of the Neolithic communities in the Polish lowlands in terms of their climatic conditions, subsistence strategies and mobility patterns, as revealed by the results of recently studied materials from the Linear Band Pottery Culture and Funnel Beaker Culture settlement in Kopydłowo. It is located in southern part of Kujavia, which is one of the major centers of early farming in the European lowlands. Changes in these domains have been examined by a wide range of methods including oxygen, carbon, nitrogen and strontium isotopes as well as lipids and mtDNA of cattle and pigs. The results will then be systematically scrutinized against other datasets such as pottery, lithics, site architecture, domestic and inhabited space and settlement pattern. They will be further discussed in relation to current scenarios of the development of early farmers in this part of the lowlands. Results of the Kopydłowo research project offer the most comprehensive overview of these variables in the Polish Neolithic.

SA1 TESTING THE SCALE OF HUMAN MOBILITY AT THE THIRD MILLENNIUM BC MEGA-SITE OF MARROQUÍES BAJOS (JAÉN, SPAIN) THROUGH 87SR/86SR AND Δ18O ISOTOPE ANALYSES.

Marta Díaz-Zorita Bonilla¹, Pedro Díaz del Río², Javier Escudero³, J. Beck⁴, J. Escudero⁴, H. Bocherens⁴, M. I. Martínez-Navarrete⁴, J. M. Vicent⁴

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Marroquíes Bajos is a third millennium BC mega-site covering over 110 ha located in the fertile Upper Guadalquivir river basin (Jaén, Spain). Demarcated by five concentric ditches and an adobe wall surrounding the fourth ditch, its radiocarbon chronology suggests an initial foundation in the first half of the third millennium, extensive investments of communal labor in

the multiple ditch and wall system starting *circa* 2450 BC, and a dramatic decrease in human activity at around 2000 BC. The evidence at Marroquíes is part of a broader process of large-scale aggregations and communal labor investments that can be observed throughout the third millennium BC in southern Iberia. The new lifestyle at such mega-sites was characterized by an increasing archaeological evidence for managerial hierarchies, and brought with it difficult new demands, like navigating complex interpersonal relationships, establishing property ownership, and organizing labor.

The interpretation of these large scale population aggregation processes has mainly relied on archaeological proxies such as shifts in settlement patterns or in the scale of communal labor investments. Our project aims at evaluating human mobility analyzing the actual agents involved in these historical events. In order to do so we have sampled one of the largest prehistoric populations in Iberia based on 120 human and faunal individuals using strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) and oxygen ($\delta^{18}\text{O}$) isotope analysis. Through our case study we will discuss if these scientific techniques can help to understand population dynamics during key prehistoric political economic transformations.

SA19 THE MUSEUM COLLECTION AS ARCHAEOLOGICAL ASSEMBLAGE

Andrea Vianello

INDEPENDENT RESEARCHER

Scientists usually sample materials and artefacts for their researches. But this is done with the understanding that the sample is representative of the total and under controlled conditions as much as possible. Having a reliable context is also considered as critical. As a result, scientists prefer to analyse materials from current or recent excavations, in the belief that this practice will avoid most problems. In fact, archaeology can only retrieve a small to tiny percentage of the original artefacts, and time selects and distorts both quantities and types of preserved materials to a degree that none of the other fields of application of scientific techniques has to deal with regularly. Current excavations are often partial, and besides, even completed excavations are rarely systematic. In addition, archaeologists like to cherry-pick materials that they find unusual or spark their interest, introducing an artificial bias.

It is obvious that scientific research in archaeology can really achieve valid data for interpretations only as comparable data sets grow to a larger size. Individual publications of small data sets is essential, but the recognition of patterns or other useful aspects needs to be tested and validated from multiple similar assemblages, or any information will be very limited and applicable to the few artefacts and materials analysed. Existing museum collections can provide large amounts of materials from multiple sites with little bias added if the materials have been preserved without particular selection, and allow reaching a good size of tested materials for nearly any class of materials.

SA24 SEAFOOD AND C4 PLANTS IN ANCIENT DIETS: STABLE ISOTOPE ANALYSIS OF BONE APATITE AND BONE COLLAGEN

Robert Tykot

UNIVERSITY OF SOUTH FLORIDA

While well established that bone collagen isotope values primarily reflect dietary protein, and that cereals and other plant foods dominate agricultural societies' diets, many studies do not include analyses of bone apatite, which represents the whole diet. Without isotope data for both, it is difficult to semi-quantitatively assess the importance of C4 plants in the diet, and nearly impossible to address the introduction of millet or maize which would have been a small fraction of dietary protein. There have been concerns raised about the reliability of bone apatite isotope values, due to degradation, contamination, and sample preparation, although laboratory studies have developed reliable preparation methods to deal with these issues. Separately, different offsets have been used in the evaluation of bone apatite carbon isotope values (e.g. +9.5‰, +12‰), making it difficult to compare interpretations from different studies.

In this presentation, both the necessity and reliability of bone apatite isotope data are addressed, based on research in both the Mediterranean and the New World. Unpublished data for several Neolithic thru Bronze Age sites in Italy are integrated with results for contemporary and later period sites in Sardinia, Spain, Portugal, and Rome, to address the importance of millet and seafood in the diet. In parallel, the introduction and significance of maize in the Americas is interpreted using isotope data from sites in Florida (USA) and many Andean countries in South America. The need for faunal and floral data to establish baselines, and the use of multivariate graphs and statistics are also discussed.

SA19 ADVANTAGES AND LIMITATIONS OF USING NON-DESTRUCTIVE PORTABLE X-RAY FLUORESCENCE SPECTROMETERS (PXRF) IN MUSEUMS: STUDIES OF METALS, CERAMICS, LITHICS, AND PAINTINGS

Robert Tykot

UNIVERSITY OF SOUTH FLORIDA

Many methods of elemental analysis have been successfully used on archaeological materials to address their overall composition or specific elements to identify the source of their geological components. But in many cases, only non-destructive analysis is allowed, and perhaps only allowed within the museum. In recent years, non-destructive portable XRF instruments have become widely used, on virtually any size artifact, and producing data for one hundred or more objects per day.

Presented here are the advantages and disadvantages of using a pXRF in such circumstances, based on my experience for eight years on thousands of metal, ceramic, lithic and other artifacts in museums and storage facilities around the world.

Issues have been raised about the sensitivity, precision and accuracy of these devices, and how to compare pXRF data from different brand instruments as well as with other analytical methods. This may be resolved by using the same analytical settings, analysis of standard reference materials, and the calibration software utilized. Limitations of non-destructive pXRF include performing surface analysis on potentially heterogeneous materials like ceramics, and its detection limits not as low as regular XRF instruments..

Examples of the research presented here, emphasizing the advantages and limitations for specific materials and archaeological questions, include the composition of copper and other metal alloys; sources and trade of lithics (obsidian, chert, marble) and ceramics (pottery, figurines); and the use of paint pigments. These analyses have been conducted within museums in Croatia, Ethiopia, Greece, Italy, Kuwait, Malta, Norway, Peru, and the United States.

SA18 STABLE ISOTOPE ANALYSES CONFIRMING THE FAT/PROTEIN RICH DIET OF A 17TH CENTURY NORTHERN FINNISH VICAR, NIKOLAUS RUNGIUS

Tiina Väre¹, Milton Núñez², Nicci Arosén³, Gunilla Eriksson³, Markku Niskanen², Sanna Lipkin², Sirpa Niinimäki², Matti Heino², Jaakko Niinimäki², Annemari Tranberg², Rosa Vilkama², Saara Tuovinen², Timo Ylimaunu², Titta Kallio-Seppä², Juho-Antti Junno²

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Nikolaus Rungius (ca. 1560-1629) was the vicar of Kemi parish in Northern Finland in the early 17th century. A computer tomography (CT) study of his mummified remains revealed that he had suffered from diffuse idiopathic skeletal hyperostosis (DISH) – a condition often connected with old age, fat/protein rich diet and overweight. The CT scan and certain features of the remains indicated overweight. Ethnohistorical sources also reveal that the contemporaneous diet – particularly that of the higher society strata – was abundant in both fat and proteins. In addition, a zooarchaeological analysis of middens in nearby areas, indicate a common contemporary diet consisting of game, livestock, dairy products, and fish. The dietary significance of agriculture was at that time minor in Northern Fennoscandia. Wild berries and root vegetables were the main plant components, though porridge and bread of grain traded from the south were also consumed. This is supported by the analysis of stable isotopes of carbon and nitrogen in the nail and hair keratin of 17th-19th century individuals in the region. The $\delta^{15}\text{N}$ values of nail keratin of vicar Rungius clearly point to higher fat/protein intake than any of the other analyzed individuals.

SA6 ESKMEALS REVISITED: THE IMPACT OF AMS DATING

Clive Bonsall¹, Catriona Pickard¹, Maria Gurova², Graham A. Ritchie³

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Mesolithic sites at Eskmeals on the northwest coast of England were excavated between 1974 and 1983 when radiocarbon dating was routinely done by radiometric methods. Because of the large samples required very few archaeological contexts produced sufficient material for dating and some of the radiometric ages obtained have low precision. Nevertheless, a chronological model of Mesolithic settlement was constructed based on archaeological and palaeoenvironmental data. Subsequent advances in radiocarbon dating have made possible the dating of single-entity samples of carbonized hazelnut shells and wood charcoal recovered by flotation from soil samples stored since the excavations. The new dates challenge aspects of our original chronological model of Mesolithic settlement at Eskmeals.

Co-authors: Clive Bonsall, Graham A. Ritchie, Catriona Pickard, Maria Gurova

SA1 HOW RADIOCARBON DATING HAS CHANGED OUR MIND: THE HIDDEN FACE OF THE FUNERARY MEGALITHIC RITUALS IN SOUTHERN IBERIA

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DEPARTMENT OF PREHISTORY AND ARCHAEOLOGY (UNIVERSITY OF GRANADA, SPAIN)

The development of AMS dating has supposed a deep revolution in absolute chronology. The possibility to date small samples has expanded the pool of datable materials. Particularly, the use of anthropological remains is shifting our insight of the ritual burials providing the most reliable age estimate. The megalithic phenomenon in southern Iberia is clearly taking advantages increasing the number of this type of radiocarbon dating. Surprisingly, many of these new dates fall in cultural times previously unthinkable when the typological properties of megalithic burials and related grave goods were the main chronological criteria. The continuity in the use of collective graves during prehistoric and even historical times emerges as a relevant feature of this ritual phenomenon. Their temporality has dramatically changed feeding new narratives that emphasize cultural continuity and the relevance of community organization and collective (relational) identities.

SA24 DIET AT LATE CHALCOLITHIC ÇAMLİBEL TARLASI, NORTH CENTRAL ANATOLIA: AN ISOTOPIC PERSPECTIVE

Catriona Pickard

UNIVERSITY OF EDINBURGH

Carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) stable isotope analysis of bone collagen from 57 human and 146 faunal samples was conducted with the aim of reconstructing human diet at the Late Chalcolithic (mid-4th millennium BC) site of Çamlıbel Tarlası, north-central Anatolia. The analyses indicate that the diet of the inhabitants of Çamlıbel Tarlası was based largely on C_3 resources. Comparison of human and faunal $\delta^{15}\text{N}$ values suggest that animal proteins were likely to be of secondary importance to diet, with cultigens such as wheat and barley and potentially pulses taking the role of dietary staples. Age-related variation in stable isotope signals were identified, with children potentially consuming a greater proportion of plant foods than adults. Furthermore, infant and younger child $\delta^{15}\text{N}$ values point to the introduction of weaning foods after 1 year of age, with a long total nursing period evident.

SA23 PREHISTORIC METALLURGY IN SOUTH-EASTERN SWITZERLAND (OBERHALBSTEIN, GRISONS)

Rouven Turck, Philippe Della Casa

UNIVERSITÄT ZÜRICH

Since 2013, archaeological features of prehistoric mining, melting and smelting technologies are systematically investigated in the Oberhalbstein (Grisons, Switzerland). The exploration of copper and its technological, economic and social significance is at the centre of research. The project is currently supported by the SNF. Scientific support is given by the DACH-project "Prehistoric copper production in the eastern central Alps" in cooperation with Innsbruck (Inntal, A), Bochum (Mitterberg, A) and Mannheim/Heidelberg (scientific analysis). In the valley several settlements dating to the Bronze Age, dozens of undated slag ores and places of copper mineralisation were known for decades. Numerous actual finds, some new information about chaîne opératoire (metallurgy chain) and unexpected dating (especially to the early iron ages) of a couple of sites lead to new questions: When did mining activities in the valley start? How were metallurgical activities organised? Is the copper production part of a local or a supra-regional importance? How metal distribution was organised? Can we detect temporal changes in the case of use of raw material, local settlement strategies and metal exchange? What is the significance of the valley in context of prehistoric alpine copper production?

Actual state of research including preliminary results of fieldwork and analysis will be presented in the paper.

SA1 THE CONTRIBUTION OF ARCHAOMETRIC STUDIES ON POTTERY TO THE UNDERSTANDING OF SOCIAL STRUCTURES. A CASE-STUDY FROM CALCHOLITHIC NE ROMANIA.

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The Cucuteni Culture belongs to the Chalcolithic period of Central and South-East Europe (approx. 4525/4500-3350 cal. BC) and it is a part of Ariuşd – Cucuteni – Trypillia cultural complex, which covers areas of today's Romania, Republic of Moldova and Ukraine. Our paper is dedicated to the complex archaeometric characterization of selected pottery shards originating from the Cucuteni settlement from Hoisesti - La Pod (Iasi County, Romania). The concerted use of SEM-EDX, FTIR, XRD and XPS spectroscopies aimed both on the surface and on the bulk of the artefacts will provide chemical, morphological and structural data which will be used to assess the production technology employed in the manufacture of the pottery. This information will be correlated with an integrative model that takes into account the influence of social structures and natural environment factors in order to test our previous assumptions regarding the existence of specialized potters.

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SA9 WINE CONSUMPTION AT DIFESA SAN BIAGIO (MONTESCAGLIOSO, MATERA, SOTHERN ITALY)

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Alessandra Pecci, ERAAUB, Universitat de Barcelona; DIBEST, Università della Calabria

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Difesa San Biagio (Basilicata, South Italy) is an ancient indigenous village of the hinterland of Basilicata, approx. 20 km from the Greek colony of Metaponto, located in the ionian coastal plain. In recent years the archaeological area is the subject of archaeological researches by the Post Graduate School of Archaeology of Matera - University of Basilicata and of IBAM-CNR. The latest research in the field, have unearthed some dwellings with a rectangular plan, referring to the village of the Hellenistic period, as well as mobile artifacts related to the agricultural production systems of the site.

As part of a broader project aimed at clarifying the daily life and food practices at the site, ceramic vessels were sampled and analysed in order to identify the residues preserved in the pores of the ceramic walls. The vessels analysed belong mostly to the Hellenistic period, with some more ancient materials. Residue analysis was carried out with gas chromatography-mass spectrometry following the methods proposed by Mottram et al. 1999 for lipids identification and by Pecci et al. 2013 for wine markers. The results of the analysis allow to identify wine traces in several vessels, suggesting that wine was imported using amphorae coming from different regions, was stored in pithoi and consumed at the site in ceramic vessels such as cups.

SA14 MORPHOMETRIC APPROACHES TO PALSTAVE TYPOLOGIES IN MIDDLE BRONZE AGE BRITAIN.

Robert Kaleta

UNIVERSITY COLLEGE LONDON

This paper explores the potential of 2D and 3D geometric morphometric approaches to the study of typological variation in the later Bronze Age palstave axes in Britain (c.1500/1400-1020 cal BC). While the basic axe forms (flat, palstave, socketed) have long been defining tools for broad prehistoric chronological divisions in the UK and Northern Europe, their finer categorisation also helps identify some regional typo-chronologies used to investigate the Bronze Age period. Palstaves are particularly suitable for this purpose due to the morphological and decorative variation present amongst them. Previous attempts to classify this variation are highly regionalised and largely based on visual assessment leading to incompatible and potentially overly subjective typologies. This paper will outline a framework for a quantitative assessment of shape properties using elliptical Fourier analysis, a landmark free method of classifying and comparing palstave shapes. The approach utilises outline data derived from 3D models of palstaves alongside traditional drawings from publications and unpublished index cards to reassess the shape variation and construct a new axe typology. Refining the typology and integrating it with the spatial and material sciences allows us to investigate the movement of artefacts at different scales, from the circulation of metal as a commodity to the creation and curation of regional typologies. Ultimately, a multidimensional investigation of the palstave typologies will enable a better understanding of the complex relationships between form, metal supplies, trade, and regional identities.

SA11 THE USE OF LIME AS DISINFECTANT DURING EPIDEMICS

Eline Schotsmans, Sacha Kacki, Dominique Castex

UNIVERSITY OF BORDEAUX

The use of lime in burials has been recorded throughout history for different reasons. In times of epidemics lime has been used as a disinfectant or to reduce smell. Its application is related to the miasma theory which goes back to Greek and Roman medicine and remained popular until the 19th century. A miasma was considered to be a poisonous vapour or mist that caused illness or disease. Infection was thought to affect people who inhaled those bad vapours. Therefore the miasma theory was used to explain the spread of contagious diseases. With the evolution of medicine and science, the germ theory developed and major contributions from epidemiologic studies in the 19th century made it clear that germs were in fact transmitted from person to person. However, until the end of the 19th century many people remained convinced of the miasma theory and took measures against bad smells. Those hygiene regulations consisted of purifying houses with limewash or adding lime to burials 'to prevent the escape of miasma from the remains'.

This presentation will discuss the methods for analysis and characterisation of lime. Furthermore it will look into the use of lime in burials related to epidemics, the underrepresentation of lime in plague burials from the Middle Ages and its presence in single and multiple burials from the Modern Age and contemporary period.

SA1 THE BOOM OF ARCHAEOGENOMICS – NEW APPROACHES IN THE RESEARCH OF THE EUROPEAN NEOLITHISATION

Anna Szécsényi-Nagy¹, Kurt W. Alt², Eszter Bánffy³, Balázs Mende⁴, David Reich⁵, Wolfgang Haak⁵, Gabriella Kulcsár⁵, Viktória Kiss⁵, Mária Bondár⁵, Krisztián Oross⁵, János Jakucs⁵

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The archaeogenomic research underwent a significant progress in the last few years. After sequencing the first ancient genome in 2010, the next generation sequencing techniques became rapidly adapted to the degraded nature of ancient DNA, and were applied in various fields of archaeogenetic research. Besides the expensive whole-genome shotgun sequencing approaches, recent innovations target specific regions in the human genome by capture reagents.

The cost reduction and increased efficiency enable our team to reanalyse large prehistoric sample sets from the Carpathian Basin, which were previously typed for small DNA fragments of mitochondrial DNA and Y chromosome. Next generation techniques facilitate more detailed analyses of these uniparentally inherited systems, allowing a much precise classification of the individuals under study. The technological innovations also open up new scientific perspectives through the analysis of the nuclear DNA, which can contain information about all ancestors of a studied individual. However, the selection of the samples and the archaeological interpretation of the genomic data are very challenging, which encourage our team to carry out interdisciplinary dialogues both in the planning and in the evaluation phases of the new genome project.

We present in this talk our previous and ongoing prehistoric archaeogenetic projects from the Carpathian Basin, highlighting the technical advances and their possible implications in the study of prehistoric archaeology.

SA11 IS IT TIME TO ABANDON ATTRITIONAL MORTALITY PROFILES?

Alison Atkin

THE UNIVERSITY OF SHEFFIELD

This paper will focus on the analysis of mortality profiles and their usefulness in the study past epidemics. It will present selected results from my doctoral research project, which investigates the medieval plague epidemic from a palaeodemographic perspective. The sites investigated were not those from England with known mass graves at Hereford Cathedral and East Smithfield, but rather 'typical' cemeteries located outside of London in cities such as York, Winchester, and Norwich.

Detailed population modelling, combined with model life table data, historical documentation, and epidemiological factors of the plague, suggests that the distinction between attritional and catastrophic mortality profiles may not be as clearly defined as previously thought. This has broad implications for the identification of past epidemics, and the interpretation of their impact on past populations, including understanding the continuity of - or changes to - burial types and funeral treatments during such events.

This paper will also discuss the potential for demographic modelling for the study of past epidemics by detailing and demonstrating some of the methods used for this doctoral research.

SA12 GEOARCHAEOLOGY OF NEOLITHIC VILLAGES IN FRANCE: AN INTERDISCIPLINARY APPROACH TO SPATIAL ANALYSIS IN EARTHEN CONSTRUCTION CONTEXTS.

Julia Wattez¹, Marylise Onfray², Alessandro Peinetti³, Thibaud Paulmier⁴

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Preventive archaeology has recently recognized remains of earthen constructions in middle and Late Neolithic settlements. These remains (walls, constructed floors, collapse layers), first identified in southern France and afterwards in the north, provided new insights into the buildings and the settlements organization, in weakly to well-stratified sites.

This interdisciplinary approach, a crossing between conventional archaeology and geoarchaeology (especially soil micromorphology), improves our perception of such settlements: from dwellings and small excavated structures to ditches, which delimit the village from its surrounding territory.

Micromorphological analysis shows that cob was the mainly used construction technique, using the materials coming from local pedological and sedimentary contexts. Microstratigraphic analysis shows that earthen material plays an important role on site formation processes (eg. occupation soils, pits and ditches infilling). The characteristics of raw materials are one of the main reasons of difficulties in the identification of occupation surfaces, during the archaeological excavation.

The analysis in thin sections enables us to discriminate micromorphological features related to various activities, which helps to understand the use of space in household units : buildings, pits, outdoor areas.

This approach has been carried out in Neolithic arid contexts (Middle East), but is completely new for temperate environment. It gives new perspectives on spatial patterning within Neolithic settlements. The aim of this paper is to present the first results of this functional approach, illustrated by some case studies in Provence, Languedoc and the Paris Basin.

SA20 CENTRAL SYSTEMS AND LOCAL IDENTITIES IN PRE-ROMAN DACIA – AN ASSESSMENT BASED ON NON-INVASIVE PROSPECTIONS OF ARCHAEOLOGICAL LANDSCAPES

Maria-Magdalena Stefan¹, Dan Ştefan²

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The emergence of proto-urban settlements and practice of collective cults in specially designed places were seen as significant elements in the process of authority centralization characterizing the Late Iron Age Europe, including the Lower Danube area and Transylvania (parts of Pre-Roman Dacia), inhabited then by North-Thracian communities. This study will investigate how various regional authorities active in the two centuries before the Roman conquest fitted or resisted the general trends of power centralization and religious standardization. Issues to be followed are: spatial relation between central places and open settlements, nature and functionality of enclosures, dynamic use of landscape, environmental and visual features of Dacian sacred places, structuring of authority as embedded in the spatial organization of sites and strategic routes.

The analysis will combine the results of two different post-doctoral grants the authors have been involved into, during the last two years, each focused on a different environmental and cultural micro-region of the Dacian world (North-Eastern Wallachia and Eastern Transylvania), both however using integrated non-invasive technologies: geophysics, remote-sensing and 3D mapping/visualization of the archaeological landscapes based on various types of imagery including UAV, historical cartography, field surveys, all filtered through the lenses of landscape archaeology approaches.

The Research in South-Eastern Transylvania was funded by the project – 'MINERVA - Cooperation for an elite career in the doctoral and post-doctoral research', contract code POSDRU/159/1.5/S/137832, project cofounded from the European Social Fond through the Sectorial Operational Programme for the Development of Human Resources 2007-2013.

SA25 THE PEOPLE OF EBORACUM: A BIO-CULTURAL ASSESSMENT OF HEALTH STATUS IN A ROMANO-BRITISH TOWN

Lauren McIntyre

ELMET ARCHAEOLOGICAL SERVICES LTD

This doctoral study presents new health status information from a comprehensive study of the Roman inhabitants of York, England. New and pre-existing osteological evidence was combined with archaeological evidence in order to examine differences in health according to social and occupational status categories within the population. The results of this biocultural study show that compared to similar Romano-British urban sites, inhabitants of York had significantly elevated prevalence of ante-mortem and peri-mortem trauma, the zoonotic infectious disease brucellosis, and os acromiale (non-union of the acromial epiphysis of the scapula). Comparatively high rates of joint dislocation, spondylolysis, non-specific infectious disease, porotic hyperostosis and osteochondroma were also observed. Some of the observed pathological conditions with elevated values at York may be the result of poor comparative data, osteological rarity of a condition, or a combination of complex causal factors. Elevated prevalence of traumatic injury to some skeletal elements of the cranium and post-crania was significantly associated with an unusual group of burials from sites located on Driffield Terrace. This research also highlights the importance of collating and analysing data from multiple archaeological sites across a single settlement.

SA20 SCIENCE ON THE BORDER - PROJECT BORDERARCH-STEIERMARK

Marko Mele¹, Matija Črešnar²

¹UNIVERSALMUSEUM JOANNEUM, ²UNIVERSITY OF LJUBLJANA

Not many landscapes in Europe are almost untouched by progress and building activities and enable good preservation for archaeological sites. Such areas can be often found along borders between countries, like in our case between Slovenia and Austrian Styria. With the "creation" of "United Europe" the borders became partly dispensable and the area ready to be researched.

In 2014 partners from both countries started the EU funded project "BorderArch-Steiermark". Its mayor goal was to register and research archaeological sites along the border, that were partly unknown to the scientific world. In one year over thousand archaeological sites have been registered, few scientifically researched and published in a monographic publication.

Our paper focuses on results of our research, especially on the Iron Age hillfort at Bubenberg/Novine pri Šentilju and its surrounding landscape, which is divided by the national border between the two countries. The foundations of our research were laid by the analysis of lidar data, giving us a clearer idea of the area surrounding the hillfort, which seems to take a crucial role on an important north-south route between the Mura and Drava river plains. Wide areas of the site were in the next step studied with geophysical methods. The results were then used as references for positioning of test trenches. The study however did not end with the excavations, as we conducted also other analysis on the excavated material, as CT scanning of vessels from cremation burials, microscopic analysis of pottery, analysis of macro-organic remains etc.

SA16 RECYCLING THINGS AND IDEAS: CASE STUDIES AND THEMES IN STUDYING REUSE IN THE PAST

Peter Bray¹, Aurélie Cuénod², Chloë Duckworth², Patrick Degryse³

¹RLAHA, UNIVERSITY OF OXFORD, ²UNIVERSITY OF LEICESTER, ³KU LEUVEN

Recycling touches upon all aspects of archaeology, but it often suffers from its perceived 'invisibility' in the material record. Reuse, reforming and mixing of material alters its composition and shape, and can therefore directly affect conceptions of source, provenance, technology and chronology. The malleability and reuse of material challenges simple ideas of identity, value, economy and exchange.

Through a number of case studies this paper will briefly introduce the main themes of the session. These will include the challenge of defining 'recycling', which often consists of a range of interconnected processes. There is an interesting tension with modern experience as the current focus on ecological concerns and economic scarcity may not be applicable to many archaeological case studies. Despite the profound effects of reuse, it is often difficult to securely identify and even more difficult to quantify. This paper will discuss new methodological approaches that blend lab-based scientific evidence with field and museum datasets. Overall, the investigation of recycling itself acts as a case study for broader developments in archaeology that emphasise the importance of working across disciplines. As our case studies will discuss, this is an exciting process that is often not straightforward.

SA16 CHARACTERISING THE FLOW OF COPPER: INTERPRETING METAL RECYCLING IN EUROPE FROM THE EARLY BRONZE TO EARLY MODERN AGES

Peter Bray

RLAHA, UNIVERSITY OF OXFORD

This paper introduces a new integrated methodology that blends scientific, chronological and archaeological data to characterise the flow of copper-alloys. Traditional scientific models for identifying metal provenance tend to try and link object-characterisation with specific ore-sources or source regions. These 'static' provenance studies deemphasise the huge amount of variation in the record caused by processes of remelting, mixing and reuse.

Creating a more realistic approach to metal flow relies on a series of research strands, involving a wide range of collaborators: integrating the massive amount of available legacy data; analysing the mechanisms by which copper-alloy chemistry changes through remelting; creating links with models of archaeological societies; and developing new data-analysis tools that explain metal-use on a series of scales, from the artefact, through assemblage, onto continental structures.

Due to this work we would argue that the recycling of copper-alloys has been central to metal use during all periods since its introduction. This paper aims to demonstrate this by discussing the changing nature of metal flow through Europe from the Early Bronze to Early Modern Age. Alongside specific results on early metals, the benefits and challenges of working across archaeological disciplines will also be discussed.

SA13 AN INTEGRATED APPROACH TO THE CHANGES IN THE MANUFACTURE OF THE LATE ANTIQUE CROSSBOW BROOCH

Vince Van Thienen

GHENT UNIVERSITY

Combining scientific approaches with cultural interpretations in archaeology is often avoided for its difficulty. This study attempts to overcome this difficulty by combining metric, chemical and spatial data with a traditional object based material culture study, composed from archaeological, historical and iconographical information, creating an integrated approach to answer questions of change in the manufacture of Roman metal artefacts.

This paper focuses on the late antique crossbow brooch, which finds its roots in the Roman 3rd century AD and continues to flourish as an exceptional metal artefact of the Roman elite society up to the 6th century AD. The integration of metric and chemical data with an object biography model allows us to investigate change in material culture using both quantitative and qualitative analyses, addressing the main question of what social and technological processes are responsible for the changes in the manufacture of the crossbow brooch?

Based on data collected from almost 200 crossbow brooches from northern Gaul, interpretations can be made by exploring variation and standardization as an indication for cultural transmission. Furthermore, insight in the changes and choices in production and manufacturing processes can be acquired by adding the compositional information gathered with portable XRF. This can, together with spatial analyses, be fitted into the object biography to relate to historical attested events, providing us with a better understanding of the larger technological and social transformations throughout the Roman period.

SA10 IDENTIFYING SHEEP TRANSHUMANCE AND MOBILITY - LESSONS FROM AN ISOTOPIC STUDY OF KNOWN MODERN ANALOGUES

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¹DURHAM UNIVERSITY, ²UNIVERSITY OF BRADFORD, ³NIGL, BGS

Strontium isotope ratio analysis of molar enamel is a powerful technique to investigate the geographical mobility and origins of animals. However, interpretation is currently hampered by our limited knowledge of how strontium ratio variations measured in enamel are related in time to changes in location. In this study, modern sheep were reared from birth until slaughter under controlled conditions. At the age of approximately six months they were moved during the course of a single day from one geological region to another. Analysis of intra-tooth enamel samples from first and second molars has clearly demonstrated that an abrupt change in $^{87}\text{Sr}/^{86}\text{Sr}$ input value as a result of relocation is manifest in sheep enamel as a gradually changing $^{87}\text{Sr}/^{86}\text{Sr}$ profile. Comparison between $^{87}\text{Sr}/^{86}\text{Sr}$, $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ intra-tooth enamel profiles suggests the incorporation of strontium recycled as a result of bone remodelling. The study illustrates how the presence of "old" strontium could lead to the misinterpretation of $^{87}\text{Sr}/^{86}\text{Sr}$ profiles recorded in archaeological herbivore enamel.

SA15 CAN THE 'VALUE' OF WARFARE IN THE LATE BRONZE AGE BE INFERRED FROM PRESTIGIOUS METAL CRAFTWORK?

Anne Lehoerff

LILLE UNIVERSITY

The subject of warfare has been an emergent theme over the last fifteen years, having been long neglected despite the obvious relevance of some archaeological objects. Since archaeologists have addressed this sensitive issue, they have posed new research questions and implemented suitable methods of study. Weapons, of course, are the key. Studied for decades in terms of typo-chronology, there are now other questions that are being brought to bear; how were they made, how were they used and so on.

This paper will present the results of study of a number of iconic cuirasses, still not fully published (Marmesse, Saint-Germain-du-Plain, Grenoble), along with the practices associated with these objects from their manufacture to their deposition. Special emphasis will be given to a consideration of the criteria and possible models that may address the concept of 'value' in the combined theme of warfare and the craftsmanship devoted to it.

SA20 A CHANCE TO SEE THE WOOD FOR THE TREES: LARGE SCALE DEVELOPMENT PROJECTS AND SCIENTIFIC APPROACHES TO THE STUDY OF IRON AGE LANDSCAPES IN CENTRAL AND SOUTH-EASTERN SLOVENIA

Philip Mason, Dimitrij Mlekuž

ZAVOD ZA VARSTVO KULTURNE DEDIŠČINE SLOVENIJE, CENTER ZA PREVENTIVNO ARHEOLOGIJO

The paper seeks to examine the impact of scientific approaches to archaeological research on large scale investor funded development projects on our understanding of the Iron Age landscape in central and south-eastern Slovenia. This covers a range of approaches, such as LiDAR, which offers the potential to reveal new evidence of earlier activity in the heavily forested uplands and lowland karst landscape in the region, as well as revealing new details of known sites and complexes. The second main area of application of scientific approaches concerns analyses within an excavation context with particular emphasis on pedological, palynological and radiocarbon analyses.

Particular attention will be paid to the use of the above methods in archaeological research on two major large scale linear development projects – the field survey, evaluation and excavations on the Črnomelj Western Bypass (2004-2009) and the LiDAR prospection and field survey on three subsections of the 3rd Developmental Axis (Novo mesto-Maline; Maline-Črnomelj south; Maline- Metlika) (2010-2013). The application of these methods has served to reveal unsuspected patterns, types and details of settlement, land use and landscape formation in areas within the region that were formerly considered to be empty or marginal in the Iron Age.

SA24 ASSESSING THE 4.2 KYA EVENT IN THE IBERIAN PENINSULA AND ITS RELATIONSHIP TO CULTURE CHANGE USING A LARGE DATASET OF RADIOCARBON DATES AND ASSOCIATED DELTA 13C VALUES**Katina Lillios¹, Antonio Blanco-González², Lee Drake³, António López Sáez⁴**¹UNIVERSITY OF IOWA, ²UNIVERSIDAD DE VALLADOLID, ³UNIVERSITY OF NEW MEXICO, ⁴CONSEJO SUPERIOR DE INVESTIGACIONES CIENTÍFICAS

The fourth through second millennia BC (Copper and Bronze Ages) of the Iberian Peninsula was a dynamic period, characterized by the emergence of hierarchical societies and, in some regions, their subsequent fragmentation/devolution. Traditional explanations for their histories, prior to the use of radiocarbon dating, invoked exogenous populations coming from the eastern Mediterranean. With the application of radiocarbon dates, the primacy of exogenous cultural developments was undermined, and internal social dynamics were sought, including the development of metallurgy, agricultural intensification, and trade. Surprisingly lacking in contemporary models, however, is an understanding of the role of climate or environmental changes during the mid-Holocene of the Iberian Peninsula, and specifically the 4.2 kya event. The recent compilation of a comprehensive database of radiocarbon dates for the Iberian Peninsula (totalling over 7000 dates), allows us, for the first time, to evaluate the relationship between population dynamics and ecological change during Iberian prehistory, and to compare this relationship regionally. Radiocarbon dates can serve as a proxy for population dynamics, and delta 13C values, which are often generated as part of the analytical process, provide a proxy for climate (precipitation). This paper addresses 3 questions. 1) How do delta 13C values compare with other measures of environmental change, such as pollen cores, during the mid-Holocene?, 2) Do delta 13C values provide evidence of a 4.2 kya event?, and 3) Is there a relationship between fluctuations in delta 13C values and cultural changes or demographic shifts?

SA12 APPROACH ON PPNA SITE OF KLIMONAS IN CYPRUS: MICROMORPHOLOGICAL ANALYSIS OF CONSTRUCTION TECHNIQUES AND THE USE OF SPACE.**Pantelitsa Mylona¹, Julia Watzetz², Jean-Denis Vigne³**¹MUSÉUM NATIONAL D'HISTOIRE NATURELLE- UMR 7209: ARCHÉOZOOLOGIE, ARCHÉOBOTANIQUE: SOCIÉTÉS, PRATIQUES, ENVIRONNEMENTS., ²INRAP, UMR 5140, ÉQUIPE AMS, ³MUSÉUM NATIONAL D'HISTOIRE NATURELLE PARIS- UMR 7209: ARCHÉOZOOLOGIE, ARCHÉOBOTANIQUE: SOCIÉTÉS, PRATIQUES, ENVIRONNEMENTS.

The recent excavations at the site of Klimonas (2009-2014) in the south of Cyprus provide important information for the understanding of the first habitants of the island. The excavations revealed a circular building of 10m of diameter semi excavated into the bedrock, characterized by three occupation phases. This building had a collective character in parallel with the PPNA collective buildings of Near East. This building was constructed with earthen clods, which poses questions concerning the ways of earthen construction. Moreover, a second question concerns the use of space inside and outside of this structure. The aim of the study is to present the interdisciplinary approach developed in order to answer the aforementioned questions. The geoarchaeological approach adapted is based on soil micromorphology in order to precise the construction technique of this building as well as to define the use of space during its occupation. The preliminary results show a way of construction characterized as cob. The occupation floors and the variations of percentage of micro-artifacts observed can help us to propose an evolution of construction techniques and the use of space.

SA12 INTEGRATING MICROSTRATIGRAPHY AND PHYTOLITH ANALYSES TO EXPLORE MIDDLE STONE AGE 'HEARTHS' FROM THE HAUA FTEAH, LIBYA**Robyn Inglis¹, Samantha Jones²**¹UNIVERSITY OF YORK, ²INSTITUT CATALÀ DE PALEOECOLOGIA HUMANA I EVOLUCIÓ SOCIAL

The use of space within Palaeolithic sites is integral to wider debates on the behavioural and cognitive capacities of Later Pleistocene hominins. Site maintenance activities recognised at sites such as Kebara in the Levant, Abric Romani, Spain, and

Vanguard Cave, Gibraltar, include cleaning, ash dumping and hearth re-use by Neanderthals, whilst at Sibudu, South Africa, potential cleaning of bedding areas by burning was undertaken by *Homo sapiens*. Studies of these combustion deposits have pioneered integration of microarchaeological techniques to assess temperature of heating, fuel use etc. as well as the construction of hearths, and form an important interface between scientific analysis of archaeological contexts and their behavioural and cognitive interpretation. This study investigates burning features observed in the Middle Stone Age layers of the Haua Fteah, Libya. Containing the key cornerstone chronology of North African prehistory, and excavated during the 1950s, it has recently been re-excavated by the ERC-funded TRANS-NAP project. Whilst sedimentation is dominated by geogenic processes, the Middle Stone Age layers, which yielded *H. sapiens* remains in the 1950s, also contain burning events exposed in profile, as well as numerous fragments of vesicular 'slag'. Whilst the horizontal extent of these features was not recorded during the original excavations, this paper outlines the combined micromorphological and phytolith analysis of two features. Alongside SEM analysis of the 'slag,' this paper discusses how these burning features formed, the fuels used, and the implications this analysis has on understanding the diversity of Middle Stone Age combustion and site maintenance activities.

SA12 TRANSDISCIPLINARITY AND MULTISCALE ANALYSIS SERVING RECENT RESEARCH IN BRITTANY (FRANCE): EXAMPLE OF THE RURAL EARLY MEDIEVAL SETTLEMENTS OF CHÂTEAUGIRON.

Isabelle Catteddu

INRAP

The multiscale and interdisciplinary reading of archaeological data are renewing the study of diachronic settlements over the long term : inhabited and domestic spaces but also landscapes. Recent excavations conducted in Brittany provide an excellent field study, showing on a surface of 25 ha, several settlements dating back from the 3rd millennium BC up until the present day. The period of the early middle ages is particularly well documented. Chronological and spatial analysis show that inhabited and domestic spaces and rural workspaces evolve dynamically within the period, and that they can change their function. Activities coexist or even combine, sharing space and organizing a hamlet, with gradual appropriation of space. Instead of ruptures, the study of archeological and environmental documents show more often transformations.

But in these « ephemeral » contexts, artefacts and vestiges are made available (in the present time) having undergone profound transformations. Because of the no direct « readability » of vestiges, we must take into account the discontinuity of information. On the site of Chateaugiron, as in many rural sites of northern France, the readability of remains is complex, as well as their preservation. That's why we pay close attention to the "empty areas" and the "invisibles". The difficult understanding of all these rural spaces lead us to find alternative readings, to interrogate vestiges otherwise, to change the entrance in the site (landscape), to study the mechanisms of the deposits (via micromorphology), to multiply the prisms of study (transdisciplinarity) and the scales of analysis (Archaeogeography)

SA12 EARLY MESOLITHIC LIFEWAYS AT FLIXTON ISLAND: INTEGRATING SCIENTIFIC APPROACHES TO LITHICS AND SOILS ON EPHEMERAL SITES

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It has long been accepted that around Star Carr many of the other sites available for study within the same landscape do not present similar preservation levels. As such, there is a massive emphasis on Star Carr to inform us about Mesolithic lifeways both in the Vale of Pickering and beyond. Recent excavations at Flixton Island 2, located in very close proximity to Star Carr, revealed a significant lithic scatter on the dryland area with limited preservation of macroscale organic remains. This being anticipated, a programme of geoarchaeological testing was implemented to complement the lithic analyses with the aim of identifying activity areas. High resolution sampling combined with the application of a variety of analytical techniques for chemical characterisation of the soils is being applied in order to reveal any residual chemical signatures of activities. The aim is to integrate the approaches in order to provide a more holistic overview of activities from the site-level through to individual tool use events. By integrating these methods this research is overcoming the issue of intact organic artefacts as a means of identifying episodes of human behaviour. This methodology holds great potential for investigating equally ephemeral Mesolithic sites, which is the most common form of archaeological evidence that we have for this time period.

SA12 INTERDISCIPLINARY APPROACH TO SOIL OCCUPATION PATTERNS IN THE SOUTHERN PARISIAN BASIN: THE EXAMPLE OF THE NEOLITHIC SITE OF "LES GRANDS NOYERS" IN GAS (EURE-ET-LOIR, FRANCE)

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Late Neolithic soil occupation patterns in the southern Parisian Basin are still not completely understood. In fact, in domestic contexts, it's difficult to define the architecture (shape of dwellings and building technologies) and the distribution of activity areas, due to the erosion of Neolithic surfaces. However, very thin and massive anthropogenic layers located under the cultivation horizon characterize many sites. These layers contain low quantities of potsherds and lithic fragments (flints). The morphology of these remains suggests their interpretation as occupation surfaces. They don't have any clear specific pedo-sedimentary feature of occupation soils (compression traces, laminated aspect and dark shade). Furthermore, these kinds of deposits are frequent in luvisol context and are regularly considered as altered layers or secondary deposits. However, the

formation process of these massive layers is not well determined and the variability of occupation surfaces forms is poorly understood.

The aim of this poster is to present the interdisciplinary approach developed during the preventive excavation of the site "Les Grands Noyers" in Gas. The Neolithic occupation is located by the edge of the southwest slope of the Gas Creek Valley. The accurate investigation of archaeological remains and the geoarchaeological analysis, using soil micromorphology, were part of this project. This method allowed the detection of cob dwellings associated with different kinds of occupation surfaces (courtyards, interior floors).

SA17 SCANNING THE LANDSCAPE: EFFICIENT PROCESSING OF HIGH-RESOLUTION GEOPHYSICAL SURVEY DATA IN OPEN SOURCE GIS

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With high-resolution geophysical sensors becoming more affordable, the cost (both time and money) of data processing and management becomes a more pressing concern. Multi-sensor gradiometer arrays allow for the rapid scanning of large areas containing multiple archaeological sites. The resulting data volumes pose significant challenges with regard to data import, processing, classification and archival. High-density data recorded along tracks of irregular lengths and orientations exhibit systematic defects that cannot be treated using traditional, grid-based methods and software. We address these challenges by utilizing the flexibility and computational power of open source GIS as a data processing platform. We present a streamlined, GIS-based workflow for the efficient import, processing and interpretation of geomagnetic survey data. The open source GIS (<http://gvSIG.org>) that we employ as a processing platform handles point clouds with tens or even hundreds of millions of data points and provides effective visualization and digitization tools. Raw sensor data is stored and archived in simple containers composed of tabular ASCII files and XML metadata. The data can be streamed partially or completely into the GIS, without the need for intermediate transformations or conversion to binary files. To illustrate our workflow, we showcase some high-resolution, multi-sensor geomagnetic surveys conducted by the German Archaeological Institute (DAI) using a 16-sensor gradiometer array.

SA25 HUMANISING THE STAFFORDSHIRE HOARD- WHAT CAN ORGANIC REMAINS TELL US ABOUT THE ANGLO SAXONS?

Peter McElhinney

BIRMINGHAM MUSEUMS TRUST

The objects of the Staffordshire Hoard are readily identifiable by their distinctive gold, silver, and garnet decoration, but a small amount of less conspicuous associated organic material has survived almost 1400 years of burial.

In addition to decorative inlays of osseous material and a number of small structural wooden components, damage thought to have occurred prior to deposition of the Hoard objects has made accessible a range of organic pastes that would otherwise be hidden from view. Some of these pastes appear to have been used as bedding material for garnets used in cloisonné style decoration. Other pastes discovered in the interior cavities of detached pommel caps may have served as bedding material for the projecting tang of the sword.

This research describes the analysis of deteriorated organic material from the Staffordshire Hoard using a range of techniques including optical microscopy, SEM EDS, FTIR, and Micro CT scanning. The work demonstrates some of the challenges involved in the analysis and interpretation of deteriorated organic material, and indicates the unique capacity of organic materials to humanise our understanding of Anglo Saxon culture, technology, and landscape.

SA19 SORTING OUT THE DEAD: USING PXRF AS AN AID TO INDIVIDUATE COMMINGLED HUMAN REMAINS

John D. Richards, Patricia B. Richards

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The analytical utility of museum collections of human remains accessioned during the late nineteenth century or early part of the twentieth century is often compromised by a loss of association between individual skeletal elements and specific burials or burial contexts. In some cases this is due to recovery procedures that failed to include methods for recording detailed provenience information. In other cases, the lack of provenience data is attributable to accessioning practices, post-accession analyses that mixed remains, or curation programs that deemphasized provenience in favor of efficient storage procedures. Nonetheless, the research potential of many of these kinds of collections is quite high as they often represent the only extant examples from important archaeological sites. However, the value of such collections could be leveraged if a non-invasive, relatively time and cost efficient method of re-associating commingled skeletal elements could be found. Recently, forensic researchers have reported success in using handheld portable x-ray fluorescent analyzers (pXRF) to identify individuals in archaeological assemblages and collections of anatomical specimens. Use of this approach in museums is often constrained by conservation requirements that mandate minimal handling and restrict cleaning of bone surfaces and thus reduce the efficacy of the pXRF technique. This paper reports the results of a pXRF study of museum collections of archaeologically recovered

human remains and suggests best practices for using pXRF as an aid in sorting commingled human remains in curated museum collections.

SA19 MUSEUM ARTEFACT BIOGRAPHIES: ASPECTS AND ISSUES FOR MICROWEAR AND PROVENANCE ANALYSES IN CIRCUM-CARIBBEAN COLLECTIONS

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In the circum-Caribbean, the core of museum collections is composed of objects unsystematically collected in the past 500 years. Materials recovered from controlled excavations are often also under the custody of national museums, emphasising the need for collection research. Nonetheless, artefacts bearing patrimonial value tend to accumulate complex post-excavation itineraries in which archaeological information is superimposed and erased. This underlines the need to focus on entire artefact biographies, addressing pre-depositional (raw material provenance, production technologies, use) and post-excavational trajectories (curatorial treatments, surface degradation).

In this paper we consider the challenges faced when conducting microwear and provenance studies on museum artefacts. Microwear analysis is conducted to assess technological traditions and modes of use. Traces are observed on shell, lithic, and coral artefacts using a portable field microscope and incident light microscopes in the laboratory (10-500x). Comparison of lithic artefacts and possible source rocks is applied to potentially permit full characterisation of past mobility and exchange networks. Newly developed multi-element and -isotopic analyses require only microgram amounts of material. A portable, macroscopically non-destructive, laser sampling device allows us to sample museum collections prior to lab analysis. The microscale sampling avoids disturbance of worked surfaces permitting the combined geochemical-microwear approach.

We reflect upon concerns and strategies required to produce reliable data from artefacts, with regards to access, context, and surface alteration. Our analytical results allow the separation of features pertaining to pre-depositional and post-excavational events, ultimately generating more complex scenarios for circum-Caribbean archaeology.

SA2 4D PHOTOGRAMMETRY: NOVEL APPLICATIONS OF PHOTOGRAMMETRY AT THE TELL SITE OF TALL AL-'UMAYRI, JORDAN

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Photogrammetry is quickly becoming common place in archaeology. Almost any archaeological conference will contain a fair percentage of papers dealing with the applications of UAVs, photogrammetry, and 3D modelling. With the increasing access to digital photogrammetry, new uses for these techniques are quickly becoming apparent. This paper explores several new applications of photogrammetry at the site of Tall al-'Umayri, just outside the capital city of Amman in Jordan. This past season, we augmented our daily photographs, a practise held since the inception of the project in 1984, with daily photogrammetric acquisitions. The resulting dataset allows for complete visualisation of the 3D data and the archaeological process over time. Additionally, the team used photogrammetry to replace as many of the manual drawing processes as possible. Previously, each of the vertical sections had to be drawn by hand, and photographs were not useful for drawing the sections, as the perspective could distort the actual section drawings. Photogrammetry, therefore, is proving to be useful across many facets of the excavation process, allowing for archaeologists to spend more time dealing with the archaeology and less time worrying about the particulars of the documentation process. The resulting data provides a more objective record, and allows archaeologists to present their archaeological argumentation in ways that were previously impossible.

SA26 ARAGONITE IN ARCHAEOLOGICAL CONTEXTS: A NEW MICRO-PROXY IN THE STUDY OF ANCIENT PYROTECHNOLOGY

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Lime plaster and wood ash found at archaeological sites are some of the most direct products of pyrotechnological processes. The preservation of these materials within archaeological deposits is often poor due to post-depositional alterations, and therefore their identification requires the use of microscopic and spectroscopic methods. FTIR spectroscopy has emerged as a rapid and reliable tool able to detect the pyrogenic calcite component of wood ash and lime plaster, unless this is mixed with other calcitic phases of geologic origin. Recently, a new component has been identified in wood ash and lime plaster, namely pyrogenic aragonite. This mineral has a distinct FTIR spectrum, which overcomes the limits of mixed calcite phases, and it is a secure indicator of calcareous materials exposed to temperatures above 600 °C. Furthermore, it points out the good overall preservation state of the sediments in which it formed. Therefore, the aim of this paper is to show how pyrogenic aragonite can be used to determine the presence of heat-altered sediments in the absence of structured combustion features. A multi-proxy approach including FTIR spectroscopy, phytolith analysis and soil micromorphology is required in order to understand the formation processes of aragonite. Using examples from Levantine Neolithic and Iron Age sites, we show here that pyrogenic aragonite may occur within occupational accumulations on floors, mud bricks and undifferentiated debris, indicating that these materials were exposed to high temperatures and are the products of specific human activities involving the use of fire.

SA2 3D SURFACE SCANNING: AN APPLICATION TO THE HUMAN SETTLEMENT IN THE NEW WORLD AND POTENTIAL USE FOR MUSEUM CONSERVATION AND COMMUNICATION

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Three-dimensional surface scanning represents a convenient tool for virtually archiving archaeological human remains and is now widely used in physical anthropology. With the application of geometric morphometric methods, it enables to quantify shape and size components, to estimate missing data and to visualize morphological changes. Here 3D surface scanning and geometric morphometrics have been applied to a large sample of skulls consisting of 89 fossils and 889 modern human specimens from the Americas, Asia, Australo-Melanesia and Pacific Islands. The aim of this work was to characterize cranial variation and the impact of population history and environment on skull shape in order to detect the presence of one or several migration waves. Results demonstrate significant cranial variability both in time and space and show that most of this variation can be explained through regional factors rather than resulting from chronological and environmental factors. They tend to support the hypothesis of one major migration followed by local differentiation and recurrent gene flow. Beyond this morphometric study, the creation of a 3D database offers a great interest in terms of conservation and communication. 3D scans do not replace the original specimens but represent high-quality digital records that are especially important when dealing with archaeological human remains which are potentially fragile or submitted to repatriation. 3D data (i) permit to limit the manipulation of unique and fragile samples; (ii) extend the potential of collaboration sharing data; (iii) allow the application of powerful statistical analyses; (iv) facilitate the presentation of scientific results to the public.

SA21 'TO PROVE I'M NOT FORGOT' - GIVING A VOICE TO THE URBAN POOR THROUGH ANALYSIS OF SKELETAL POPULATIONS FROM ROTHERHAM AND LEEDS, NORTHERN ENGLAND

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This paper compares the skeletal data from three 19th century urban populations, one from Rotherham Minster, South Yorkshire (of low socioeconomic status; analysed by Katie Keefe) and two from Leeds, West Yorkshire, UK: Victoria Gate (representing those living in the industrial slums in central Leeds), and St George's Crypt (of middle socioeconomic status) analysed by Anwen Caffell.

The inner city children suffered from stunted growth, stress indicators, rickets, scurvy and infectious disease. The Rotherham children succumbed to these stresses within the first year of life, while some children at Victoria Gate survived to 8-10 years. The poor childhood health and high mortality was probably due to cramped living conditions, poor hygiene and an inadequate diet. Both slum populations showed evidence for chronic respiratory disease, probably related to pollution. In contrast, the middle class St George's Crypt population, who lived on the edge of the city showed minimal evidence for childhood stress. However, all three populations showed skeletal evidence for tuberculosis, suggesting that status could not prevent contracting this infectious disease.

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SA9 EXPLORING THE RECIPES OF BEER AND CEREAL BEVERAGES: AN INTEGRATED APPROACH COMBINING STUDY OF HISTORICAL TEXTS, EXPERIMENTAL ARCHAEOLOGY, AND ORGANIC ANALYSES

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Since the Egyptian civilization, both bread and beer are widely attested in many documentary sources (iconography, texts) and consisted on basic staple foods for all the population. Beer is a familiar food in all parts of the world today, and its actual variety demonstrates that it is not easy to define "beer", according to the aspects of production, the raw ingredients, and the processing methods in order to obtain the fermented beverages. The situation was equivalent in ancient times. Analysing textual Roman sources and the archaeobotanical findings in Italy and Gaul allows to restrict our research to some cereals (millet, barley, emmer, spelt). Coupling experimental reconstruction of beer with chemical organic analyses of residues left by the fermentation process seems to be a powerful approach to provide new insights for detecting molecular and invisible beer traces, and the for identifying ceramics for its production and its consumption. The aim of our interdisciplinary approach is to define the pertinent and secure biomarkers of cereals, brewed cereals and beer in general, for different recipes of beer, and to evaluate the pertinence of markers such as oxalic acid/oxalates, usually interpreted as beer marker. Its offers to archaeologists a new analytical tool for beer detecting in ancient vases, even if no visible traces are preserved, permitting to evaluate the role of beer in domestic, cultural, and funerary contexts.

SA10 SHEDDING LIGHT ON BRITISH NEOLITHIC CATTLE HUSBANDRY THROUGH FAUNAL DIETARY ANALYSIS

Erin Keenan

TEXAS STATE UNIVERSITY

Faunal dietary isotopic analysis on British material is lacking, as is knowledge of Neolithic lifeways in northern England. In an effort to demonstrate the wealth of information obtainable from improved study in both of these areas, a small sample of Neolithic cattle, sheep, and roe deer bones from Cave Ha 3 in the Yorkshire Dales was submitted for $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis. Because roe deer δ values are expected to exhibit a 'canopy effect', they are used in this study as a baseline by which cattle and sheep husbandry practices can be identified. Results indicate an early Neolithic practice of more open area grazing for sheep, but a canopy-based diet for cattle. Research shows cattle in Neolithic France were being grazed in open fields by the time the Neolithic traveled from northern France to Britain. Moreover, what little dietary isotopic information exists for British Neolithic cattle indicates that they were also grazed in open areas. Such data includes specimens dated to the middle-to-late Neolithic and Bronze Age from Kinsey Cave, located less than a mile from Cave Ha 3. The early Neolithic isotope data recovered from Cave Ha 3 specimens therefore indicate early Neolithic husbandry practices in which cattle were either foddered on canopy vegetation, or allowed to forage in the canopy. This was followed by a shift to grazing cattle in open areas. These results demonstrate the intense need for expansion of dietary isotopic data in order to improve broader understandings of Neolithic cattle husbandry.

SA9 A DRINK BY THE WATERFRONT: ORGANIC RESIDUE ANALYSIS OF CERAMIC MATERIAL FROM THE TELL-SITE OF SZÁZHALOMBATTA-FÖLDVÁR

Christina Karlsson

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This paper aims to explore the indications of alcohol production and/or consumption at the Middle Bronze Age high status tell-site of Százhalombatta-Földvár in Hungary. The site is located on the western bank of the river Danube, overlooking the Benta river inlet and is part of a system of Vátya open settlements and tell-sites in the Benta valley. It is one of the best excavated and understood tell-sites in temperate Europe and has produced a vast material.

The ceramic material of the site displays a wide range in form of vessel types, shapes and sizes. Organic residue analyses has been performed on 150 sherds, whereof a few also has been selected for compound specific isotope analysis. The results from these are put in the context of the ceramic, osteological and botanical material found at the site in order to discuss fermentation and alcohol production.

SA23 EXPLORING EARLY MINING AND METALWORKING USING GEOCHEMICAL RECORDS FROM BOGS

Tim Mighall

UNIVERSITY OF ABERDEEN

This presentation aims to review the environmental impacts that have occurred as a result of prehistoric and Roman mining and/or metallurgy based on pollen-analytical and geochemical research from sites in the British Isles and NW Iberia. The pollen and geochemical evidence shows a commonality in the nature of the impact across sites. Woodland impact was negligible during prehistory while more sizeable but ultimately non-permanent impacts are recorded during the Iron Age and Roman period. There are several factors influencing the nature of vegetation change associated with mining, including the natural density of local woodland and the intensity and duration of the mining activity. Major tree and shrub taxa are mainly exploited at each site and the evidence for selectivity of wood fuel is not consistently observed. Variations in the pollen record are complemented by changes in the concentrations of heavy metals determined from the peat profiles. In particular a rise in lead is recorded during the Iron Age culminating with maximum values during the Roman period. Although there is a common narrative of (pre)historical Pb and metal pollution across much of Europe, there are, nevertheless, local histories showing important differences, which can be of particular interest for historical and archaeological studies and studies of regional environmental change.

SA14 NEW APPROACHES IN INTERPRETING METALLURGICAL DATA OF EARLY EGYPT

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The genesis of metal production in ancient Egypt is a topic that still attracts many scholars. It is hardly surprising, since metallurgy plays a major role in social development. Despite, hitherto collected data does not allow to answer the various questions which emerge while dealing with this subject. The issue of the first metallurgical centres and their influence on other regions of manufacture has not been yet solved. Moreover, a difficulty exists in pointing the main raw material deposits and the directions in which metallurgical knowledge and innovation were transmitted.

In Egypt, the beginning of metallurgy can be dated to 4th millennium BC and its development is believed to be influenced by Near Eastern tradition through trade contacts between those regions. The first commonly used metal was copper, the closest deposits of which occur in Eastern Desert, Sinai and Wadi Arabah, the most important being those in Timna (Israel) and Feinan (Jordan).

The main purpose of this paper is to bring closer the matter of beginning of metallurgy in ancient Egypt. The author will try to characterise its main features by using the latest acquired archeometallurgical data, confronting new information with previous

academic dispute, especially the conclusions concerning ways of technological inflows in the area of ancient Egypt and its main regions of copper extraction.

SA1 ANCIENT HUMAN DNA AND MIGRATIONS IN PREHISTORIC EUROPE

Wolfgang Haak

THE UNIVERSITY OF ADELAIDE

Advanced sequencing techniques have allowed the generation of detailed genomic information from a substantial number of prehistoric humans remains, and provided new insights into the peopling and migration history of Europe. Accompanying progress in genomic data analysis at population level has transformed the way in which we approach the wealth of new information, but also introduced a new set of tools and jargon archaeologists are not familiar with. Since ancient DNA evidence has a direct bearing on the hypotheses about Europe's prehistory in archaeology and anthropology, I will use examples from a recent genome-wide ancient DNA study to illustrate the power and limitations of such data.

A novel enrichment method targeting 390,000 polymorphisms in 69 prehistoric Europeans allowed us to directly address migrations in Europe's prehistory. The Early Neolithic period in Europe (~8,000-7,000 years ago) was characterized by closely related groups of early farmers, which were different from indigenous hunter-gatherers, while Russia was inhabited by a distinctive population of eastern hunter-gatherers with affinity to Paleolithic Siberians. The Middle Neolithic sees a resurgence of hunter-gatherer ancestry throughout much of Europe, while the contemporaneous Yamnaya pastoralists of the Russian steppes shared ancestry with the preceding eastern European foragers. This steppe ancestry arrives in Central Europe ~4,500 years ago, as the Corded Ware people traced ~75% of their ancestry to the Yamnaya, documenting a (second) migration into Europe from its eastern periphery, which persisted until the present-day. As a consequence, these results also have implications for the spread of Indo-European language groups.

SA13 STORA FÖRVAR - A GOTLANDIC CAVE IN BETWEEN CULTURES

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Despite popular notion, the Viking Period was far from culturally homogeneous. A broad and complex set of local traits existed throughout the Norse sphere of interest and metal artefacts seems to have played a significant role in this interplay. Early on in Scandinavian archaeology it was established that certain key types of dress jewellery signalled cultural affinity and in the period c. 750-1000 AD so-called Oval brooches was such a key type. A large number of subtypes existed but they tend to correspond chronologically from Iceland to present-day Russia.

There was one major exception though - the island Gotland in the Baltic Sea. The local archaeological record show that Oval brooches were not used on the island. Instead, an endemic array of jewellery developed over time. In many ways these local key-types signals a corresponding yet intentionally parallel attitude towards the Pan-Scandinavian culture. Thus, despite Gotland's central position in the Early-medieval trade, its population choose to stand beside the normative trends in a state of central seclusion. This did not, however, act to confine the local production of non-ferrous jewellery. Thus there are many indications of Gotlandic production of Oval brooches, despite the lack of local demand.

The best preserved remains of such production has been recovered in the cave Stora Förvar on an island off the Gotlandic west coast. There, Oval brooches were produced alongside Gotlandic jewellery and recent excavations further stresses the local metalworkers' role as social mediators working in a cave in between the two cultures.

SA1 BREAKING BARRIERS OR AVID ADDICTION? – GENETIC ANALYSIS IN ARCHAEOLOGY REVIEWED

Samantha Leggett

THE UNIVERSITY OF SYDNEY

Ever since the advent of Processual Archaeology there has been a push to utilise the new techniques and methods science has developed in archaeological practice. Certainly a more methodical, scientific, approach in the field has had its benefits. However in some circumstances the tendency to rely upon scientific techniques in aspects of archaeological investigation has become excessive. This paper seeks to consider the use and misuse of genetic analysis technologies in archaeology, particularly in the mortuary sphere. Examples from a range of time periods and European sites will be compared and contrasted to highlight the advantages and difficulties of genetic analysis in archaeology, with special attention paid to its application in debates over ethnicity and identity in post-Roman Europe. The application of genetics in these aspects of archaeological debate is particularly contentious and deserves close examination. The case of migration period England with the Anglo-Saxons and Britons is an clear case study – is it possible to reconstruct identity and ethnicity from the archaeological record? And does genetics help or hinder this process?

These tools are powerful and extremely useful if used and interpreted correctly. Often archaeologists use this data without truly understanding the intricacies of the recent scientific literature surrounding genetics. Applying personal training in both areas, the limits of how far these tools can truly be applied in archaeology will be tested.

SA17 SEARCHING FOR GUACANAGARIX' FOOTPRINTS - REMOTE SENSING ANALYSIS OF PRE-COLONIAL ARCHAEOLOGICAL EVIDENCE IN THE GREATER ANTILLES

Till Sonnemann¹, William Megarry², Douglas Comer³

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On their own, multispectral, SAR and topographic data sets are of limited use to detect archaeological evidence of pre-colonial settlement structures in the Caribbean. Most structural features have long disappeared; what remains are slight topographic modifications from the leveling of platforms for the now decayed wooden buildings, and small mounds mostly made of midden, but also include ceramics and lithic assemblages.

Multispectral data (Worldview-, LandsAT), may provide information on archaeological potential through environmental analysis (e.g. NDVI, EVI). UAVSAR L-band data has shown different reflection parameters from vegetation-free archaeological sites, to their surroundings, using e.g. Pauli Decomposition. The reflection from shell midden therefore provides a structural difference to the neighbouring fields. High resolution topography may indicate pre-colonial settlement; however, currently available topographic data is based on low res SRTM that may nevertheless indicate the preference of settlement locations/ All this information can however be combined.

A solution may be the combination and cross-correlation of various data sets in a semi-automatic direct detection approach, analyzing the probability of archaeological evidence on pixel base, developed at CSRM and Johns Hopkins University, a process that requires supercomputing. The statistical analysis can better define the areas for archaeological ground surveys and heritage management.

SA12 A DAY IN THE LIFE OF ANASAZI FARMERS: SPATIAL ANALYSIS OF A PUEBLO I DOMESTIC HABITATION STRUCTURE

Linda Scott Cummings

PALEORESEARCH INSTITUTE

Evidence of activities inside ancient buildings may incorporate architectural details, features, artifacts, and proxy records. Semi-subterranean Anasazi habitation structures in southwestern Colorado occupied AD 700–900 were studied to develop a method of examining and interpreting the record of economic activity. The floor of one structure abandoned catastrophically and burned was examined intensively and methodically for pollen and macrofloral remains to discern economic activity areas. The structure contained a large primary chamber separated from a much smaller work area by a low wall. Artefacts including grinding tools, broken ceramic vessels, and flaked lithics were recovered from the floor. Features included not only the low walls, but also a central hearth and several depressions thought to function as warming pits. Early in the multi-year project a plan was conceived to intensively sample the floor of a structure that had been abandoned quickly and burned as part of the abandonment process, as this was anticipated to preserve the best evidence to reconstruct economic, if not daily, activities inside the structure. An appropriate structure was excavated and the floor was gridded into meter squares that were subsequently each divided into quadrants producing 89 samples. Pollen and macrofloral remains recovered from each quarter-meter square were compared to the structural layout and placement of artifacts to reconstruct use of interior space. Integration of these data allow interpretation of grinding and mixing areas, temporary food storage, probable plant drying inside the structure, cooking areas, and preparation of medicines.

SA20 UNDERSTANDING THE BARROW CONSTRUCTION AND SETTINGS WITH THE HELP OF GEOPHYSICS

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Understanding the construction of individual Iron Age barrows and their setting within the cemetery/-ies without archaeological excavations is a demanding task. However, modern geophysics with its extensive array of technological and analytical possibilities has given us reason for optimism. Several groups of barrows from the Early Iron Age sites at Poštela (NW Slovenia) and Kaptol (NE Croatia), were explored through the use of geophysical techniques. The results of the geophysical analysis of the lower barrows on cultivated land flattened by intensive agricultural activities on alluvial plains are quite clear; besides the composition of the mantle, they also revealed the level of preservation of the stone burial chambers. Shallow depth GPR time slicing maps and 3D visualizations of high frequency GPR echoes were combined with the soil resistance mapping and magnetic maps. Special problem are monumental barrows where non-destructive methods, primarily geophysics, is crucial in creation of successful protection and possibly excavation strategies. The higher barrows in specific natural settings represent more complex problems and the best approach for their complete understanding is still under examination. High resolution magnetic survey applying different gradient and single sensor analyses like upward continuation and analytic signal besides 2D magnetic modeling, were compared with composition of barrows obtained from excavations for detailed correlation estimation and consequent correction of inherent parameters. Preliminary GPR results, also with a low frequency antenna, are encouraging, but a much clearer picture is expected from 2D resistivity pseudosections, planned for our current research.

SA6 MARINE AND FRESHWATER RESERVOIR EFFECTS IN A STONE AGE FJORD ON LOLLAND, DENMARK

Bente Philippsen

MUSEUM LOLLAND-FALSTER

On the island of Lolland southeast Denmark, almost 300 hectares are currently under archaeological investigation prior to the planned construction of a tunnel between Denmark and Germany. The area comprises a former fjord or lagoon, which was used both as an economic resource and as background for ritual activities in the Neolithic.

The wetland conditions give excellent preservation conditions for organic material. A yet unsolved issue, however, is the question of reservoir effects. The local reservoir effect needs to be known when we want to radiocarbon date samples with possible aquatic carbon sources, such as human bones or food residues on pottery.

Therefore, I investigated all radiocarbon dates which were done for this project so far. I compared, where possible, measurements on aquatic and terrestrial samples. I will discuss the possibilities and limitations when analysing radiocarbon dates from a rescue excavation. Furthermore, I examined radiocarbon dates on bulk organic sediment and will discuss their implications for building chronologies and for reconstructing the environment of the Stone Age fjord.

SA26 MODELING ANCIENT CLIMATE OF THE NEAR EAST: DISASTER OR OPPORTUNITY?

Linda Scott Cummings

PALEORESEARCH INSTITUTE

Macrophysical climate modeling (MCM) relies on 30-year climate normal data plus specific climate drivers including latitude of high pressure cells at specific longitude locations, latitude of the jet stream, and latitude of the Intertropical Convergence (ITC). No proxy data are used to create the models because comparing models to proxy data must work with independent data sets. MCMs provide site specific (point location), versatile, climate models at 100 year intervals. Basic models include mean temperature, precipitation, and evaporation. Annual distribution of precipitation, precipitation intensity, wind speed, and wind direction may be modeled if 30-year climate normal data are available. Forcings for MCM begin with Milankovitch variations (orbital forcing) and add albedo (reflectivity) calculated from geological records of glacial coverage, modulated by volcanic aerosol load of the atmosphere calculated from radiocarbon-dated tephra. Strengths of this modeling system lie in its ability to provide local models for specific locations and the fact that the technique may be learned relatively easily. Because model output data provide monthly and annual values one may track changes in monthly distribution of precipitation through time, which is more important for agriculture than total annual precipitation. These models also may be compiled into large regional models. They may be overlain on landscape maps to provide a pseudo-animation of climate change through time. Climate models for the Near East produced with this system are presented, reviewed, and compared with both published and personal research pollen and phytolith proxy records from the Near East.

SA20 A GIS-BASED LANDFORM CLASSIFICATION APPROACH FOR THE IRON AGE PATTERNS OF SETTLEMENT IN THE UPPER DUERO RIVER (NORTH-CENTRAL SPAIN)

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During the Iron Age in the Upper Duero River Basin, there were several patterns for landscape occupation. Scholars have traditionally focused on small-scale regional studies (Revilla y Jimeno 1987-8; Romero 1991; Jimeno y Arlegui 1995) that have not provided a comprehensive view of the Iron Age settlement in this territory as a whole. The aim of this paper is to explore the different settlement patterns in the area through an assessment of landscape units based on GIS and geostatistics. We have applied a landform classification algorithm (Weiss 2001) that makes use of Topographic Position Index and slope values for performing a realistic classification of the environment from more than 400 sites, considering one the elements that might have had a smaller variability over time, the land morphology.

SA24 CARBON ISOTOPE ANALYSIS ($\delta^{13}C$) FROM THE SITE OF TERLINQUES (VILLENNA, SPAIN): PRELIMINARY RESULTS

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In this paper, we present preliminary results of Carbon Isotope Analysis ($\delta^{13}C$) performed on a batch of botanical remains from the archaeological site of Terlinques (Villena, Spain). Samples were recovered from three chronological phases of the site (2200-1500 BC) as well as a set of seeds collected at present time (2014). Our main aims are: 1) to define ranges and mean values of the carbon isotope composition ($\delta^{13}C$) during the 2nd millennium BC and the present time; 2) to evaluate the land management strategies and the conditions of agricultural production that people that inhabited the settlement had; and 3) to test the climate evolution and the process of aridity's progress in the study area. The results highlight a climate degradation currently intensified and the implementation of land exploitation strategies associated to a high anthropic impact.

SA10 FERTILIZATION PRACTICES ON CROP CULTIVATION SYSTEMS IN THE NORTH-EASTERN GAUL: CONTRIBUTION OF STABLE ISOTOPE ANALYSIS OF ARCHAEOBOTANICAL AND ARCHAEOZOOLOGICAL REMAINS

Monica Aguilera¹, Marie Balasse², Véronique Zech-Matterne², Sébastien Lepetz²

¹ÉCOLE PRATIQUE DES HAUTES ÉTUDES, ²CNRS- MUSÉUM NATIONAL D'HISTOIRE NATURELLE

This study aims to shed light on past farming practices in the Northern France by integrating archaeobotanical, archaeozoological and stable isotope data on crops and bone remains.

Archaeobotanical analyses carried out on 141 rural settlements dating from the 2nd c. B.C. to the 5th c. A.D. highlighted changes in crop cultivation systems. From the end of the La Tene (LT) period, during the urbanization of Northern France, a gradual rise of *Triticum aestivum* was perceived in some regions. On the other hand, *Triticum spelta* predominated on the chalky soils. Archaeobotanical weed floras, influenced by the crop cultivation regime, indicate a shift in field management between the LT C2 and the 1st century A.D. Emphasis is placed on the most fertile soils at La Tene period, while the Roman time sees also the exploitation of depleted soils.

Cultivation strategies were investigated in ten of these sites, following a diachronical transect, through the analysis of stable nitrogen isotope composition ($\delta^{15}\text{N}$) of archaeological crop seeds, in order to interpret soil fertility conditions and the use of manure. The baseline value for $\delta^{15}\text{N}$ of vegetal remains grown on non-manured soils was estimated from local wild herbivores bone collagen $\delta^{15}\text{N}$. Secondly, in assemblages where the use of animal manure was demonstrated, a potential reciprocity towards husbandry, namely the foddering of animal stock with by-products of cultivation, was examined through the analysis of associated bone remains from domestic species.

SA9 THE USE OF WINE IN FUNERARY CONTEXTS IN PRE-ROMAN ITALY (VIII S.-IVE S. BC) : ÉVIDENCE FROM ORGANIC ANALYSES

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The MAGI Programme (Eating, Drinking and Offering for Eternity in pre-Roman Gaul and Italy) has allowed over 3 years to perform organic chemical analyses on the contents of a wide range of ceramic materials in funerary contexts from 8th to 4th century BC. The researches presented are drawn from the Etruscan site of Cerveteri (Latium) and two sites in Southern Italy (Saticula, Caudium). Grape wine as evidenced by structural GC-MS analysis has been identified in a wide range of pouring and drinking vases (oenochoes, olpes, jugs, cups and bowls), although not in all of them. Traces of wine have also been identified in some sites on funerary cippes and in libation tubes, confirming the role of wine in rituals and as regular offerings for the deceased.

In the same ceramics, resin or pitch, beeswax, animal fats, plant oils, and dairy products have often been identified. Their archaeological interpretation is problematic: coniferous products could remain as traces of the specific ceramic coating, persist from previous pitched containers such as amphorae, or may have been added for wine favouring. Beeswax may have been used for coating the vase, added as a fragrance, or have remained of a crude honey. More rarely, plants (Asteraceae, Artemisia or Spurge) have been identified in wine. Over the range, the diversity of organic substances found in association with wine, and specifically animal fats, dairy products and plant oils, is difficult to account for, but may point to plural previous utilisations or, in some cases, to ritual admixtures.

SA12 WHERE IS MY LAYER? STRATIGRAPHIC UNCERTAINTY IN TROPICAL CONTEXTS: PREDICTIVE MODELING WITH 3D KRIGING

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This paper aims at discussing the use of 3D geostatistics to interpret spatio-temporal sequences in anthropic contexts with a high degree of stratigraphic uncertainty. Amazonian Dark Earth (ADE) is an anthrosol widely diffuse in the Amazon Basin and generally associated with pre-columbian occupations and slash and burn cultivation. Its high charcoal concentration, and its consequent very dark color, may hamper the identification of stratigraphically defined layers. Therefore, often ADE excavation is performed by artificial spits, which increase the uncertainty in attributing artifacts (especially bio-remains) to a specific chronological phase.

In this paper we present the results of geostatistical analysis performed on samples from *Terra Preta do Calderaõ*, an ADE located in the region of Manaus (Brazil). This site was sampled for pedological analysis with a regular grid of test pits every 50 m. Geochemical analysis, as well as pH, total organic matter content, and pottery weights were measured every 20 cm in depth. Geostatistical interpolation was performed using ordinary kriging in three dimensions (x, y, z). Kriging is an interpolation method that generates value and error estimates by using data values and their spatial configuration as inputs. The analysis thus offers not only a way of predicting spatial distribution of proxies, but also to evaluate the uncertainty in the measured value. It is therefore extremely useful in those contexts that lack stratigraphic precision and can provide a measure of the reliability of the data during interpretation.

SA24 MOVING HERDS IN IRON AGE EUROPE: ZOOARCHAEOLOGICAL AND ISOTOPIC EVIDENCE FROM BRITAIN AND SPAIN.

Silvia Valenzuela-Lamas

UNIVERSITY OF SHEFFIELD

The existence of transhumance in Iron Age Europe is one of the long-term debates in Archaeology. Transhumance – the seasonal movement of people and their livestock – is a highly specialised economic system, the adoption of which has important implications for a community's socio-political structure, practices and cultural ideology. The subject has been fiercely debated using indirect indicators such as the presence / absence of silos in some areas, settlement pattern and the existence of enclosures for livestock, and lately also through the frequency of diatoms and other fungi present in faecal matter at very high altitudes.

By combining traditional zooarchaeology with Strontium and Oxygen isotope data from cattle and sheep teeth from Britain and Spain, this paper will provide evidence on animal mobility directly obtained from animal remains, and will frame the results in the process of social complexity that can be recognized through Europe in this momentous period of time.

SA15 EXPERIMENTAL AND SKELETAL APPROACHES TO PREHISTORIC CONFLICT

Linda Fibiger

UNIVERSITY OF EDINBURGH

Identifying and interpreting violence-related skeletal trauma in prehistoric populations is complex, particularly in societies that do not present with clearly-defined weapons or mostly rely on blunt force implements during violent interaction. Blunt force trauma can be more difficult to interpret as it less readily accepted to be always resulting from violence. The Western European Neolithic is a good case to appreciate these challenges, and this presentation is going to highlight the multiple avenues that need to be explored to fully understand both the scale but also the context of the violence observed – including large-scale skeletal analyses, artefacts and experimental studies. It will focus on Western Europe, detailing what the skeletal record can tell us about the scale and context of violent interaction and complement this with evidence from experimental trauma studies. These experimental studies utilise artificial bone material to test the capabilities and signature injuries of the Neolithic arsenal and offer the potential to refine the broad category of 'blunt force trauma' into something that offers detailed insights into the realities of violent interaction during the period.

SA2 MAPPING, MONITORING AND VISUALISING DECAY ON HISTORIC STRUCTURES

John Meneely

QUEENS UNIVERSITY BELFAST

In the past, quantification of surface change on historic structures was small scale and relied upon mechanical techniques which were often time-consuming, risked damaging the surface being investigated and required a statistical interpolation between a limited number of points. To overcome these difficulties requires a rapid, non-contact mechanism for monitoring surface change using a dense network of measurement points. It was in search of improvement in the speed and precision of surface analysis that this study trialed the use of two 3D laser based surface scanning systems as a means of accurately and non-destructively monitoring the progressive decay of stone across a range of scales on two historic structures in Oxford, UK and in simulated laboratory based weathering experiments.

3D laser scanning physically measures and catalogues the topographic expression of various surfaces without *a priori* assumptions of form. The data collected is used to construct detailed Digital Elevation Models (DEMs) of the surfaces under investigation. This allows the production of more detailed models to isolate patterns of decay and spatial variability. This type of 3D/4D data for built heritage helps stakeholders make better informed decisions, as well as giving heritage scientists valuable information to increase their understanding of the decay processes involved and improve the accuracy of predictive models.

Using this approach it is possible to replace often anecdotal evidence of change with time bound measures that can be expressed quantitatively and presented in a range of visual formats that improve communication to non-scientists.

SA1 THE ELEPHANT IN THE ROOM: THE APPLICATION OF NON-DESTRUCTIVE MICRO-METHODS IN IDENTIFYING ANIMAL RAW MATERIAL OF SMALL AND ERODED ARTEFACTS. LATE NEOLITHIC V-PERFORATED BUTTONS FROM POLAND: A CASE STUDY

Kinga Winnicka

INSTITUTE OF ARCHAEOLOGY, UNIVERSITY OF WROCLAW

In the case of small and heavily eroded finds it is often impossible to identify the raw material only via macroscopic evaluation. Especially artefacts acquired during excavations conducted more than 10–20 years ago tend to be documented as simply 'made of bone', without further specification.

This was the case with the so-called V-perforated bone buttons, typically associated with the late Neolithic Bell Beaker culture. These buttons have been found in sepulchral context at three sites of the Polish Bell Beaker enclaves. One of those sites is Sandomierz-Wzgórze Zawichojskie, SE Poland where 11 V-perforated bone buttons have been associated with a female grave.

The grave had been excavated in 1985 but recently it was possible to re-examine the finds. Apart from identifying technological and use-wear traces, it was important to specify the raw material. During microscopic observations it has been noted that the buttons could not have been made of regular bone or antler. Comparative analysis of micrographs of different raw materials suggested that the V-perforated buttons might be in fact made of ivory – a unique discovery implying long distance contacts in the late Neolithic. It was thus important to confirm the identification via examining the micro-structure of the material but using only non-destructive methods such as SEM-EDS and micro-CT.

In this presentation I would like to share the results and comment on the possibilities and drawbacks of the micro-methods applied for the identification of archaeological ivory, and other animal hard materials used for the manufacture of small artefacts.

SA9 BREWING UP THE PAST: RESIDUE ANALYSIS OF A RECONSTRUCTED FERMENTED BEVERAGE

Jordan Rex

DURHAM UNIVERSITY

Past research has showed how fermented beverages played an important role in cultural, dietary, and ritual aspects of human societies, from prehistory to the present. Residue analysis of ceramic material in the archaeological record provides evidence for fermented beverage consumption, but the discovery of residues linked to the brewing process within ceramics does not conclusively prove the presence of alcohol. This project constructed a fermented beverage as suggested by McGovern et al. 2013 and preserved it in a waterlogged environment in order to replicate the archaeological context. Residue and lipid analysis was performed and the results will be reported. Combined with other indicators, this analysis aims to help prove past human civilizations were consuming fermented beverages.

SA24 NEVER FAR FROM HOME: AN INVESTIGATION OF MOBILITY PATTERNS IN THE LATE PREHISTORIC COMMUNITIES OF CENTRAL SPAIN (MADRID) USING RADIOGENIC ($^{87}\text{Sr}/^{86}\text{Sr}$) AND STABLE ($\delta^{18}\text{O}$) ISOTOPE RATIOS FROM HUMAN DENTAL ENAMEL.

Pedro Díaz-del-Río

INSTITUTO DE HISTORIA, CSIC

Anna Waterman, Robert Tykot, Jonathan Thomas, David Peate, Juan M. Vicent, M^a Isabel Martínez-Navarrete, Alberto Pérez Villa, Pedro Díaz-del-Río

This study examines radiogenic strontium isotope ratios ($^{87}\text{Sr}/^{86}\text{Sr}$) and stable oxygen isotope ratios ($\delta^{18}\text{O}$) from the dental enamel of individuals interred at Chalcolithic and Bronze Age burial sites (Madrid, Spain) in order to identify possible migrants in these communities. Strontium isotopes are absorbed into biological tissues through water and food intake and variations in the geology of a region, and the types of rocks and sediments in the subsurface can result in measurable differences in bioavailable strontium ratios in animal and plant life. Oxygen isotope values ($\delta^{18}\text{O}$) reflect water sources and can also be tied to distinct geographic locations. As dental enamel does not remodel and, thus, preserves the $^{87}\text{Sr}/^{86}\text{Sr}$ and $\delta^{18}\text{O}$ ratios from childhood, these data can be used to link individuals to likely natal landscapes and to identify individuals who appeared to have originated from locations with isotope ratios that differ significantly from the burial environments. Results suggest that migration was uncommon in these communities. However, as it is not possible to discern individuals that may have moved from regions with similar geologic landscapes using this methodology, it is conceivable that migrants in this sample may be higher. Based upon $^{87}\text{Sr}/^{86}\text{Sr}$ ratios several identified human migrants originate from regions with substantially older lithological features.

SA6 UNDERSTANDING EARLY BRONZE AGE MEMORY AND SOCIETY THROUGH MORTUARY CHRONOLOGIES AT ARMADALE, ISLE OF SKYE

Anthony Krus¹, Mary Peteranna²

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Excavations from 2009–2010 in Armadale, Isle of Skye, Scotland, encountered a burial site with seven cists, burials containing cremated remains, pits, hearths, remains of a kerb cairn and a stone circle. There is no evidence the land was once a settlement and it appears to be exclusively used as a burial site. Twenty-one radiocarbon measurements were taken from single- or multiple-entities of short-lived charcoal, carbonised 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 first archaeological activity at Armadale appears to have been sporadic Mesolithic and Neolithic occupations. Modelling estimates that sustained burial activity began in the Early Bronze Age, in *2295–2025 cal BC (95% probability)* and ended in either the Early or Middle Bronze Age, in *1850–1495 cal BC (95% probability)*. The estimated span of activity during this burial component is *255–720 years (95% probability)* and on average the rate of construction for mortuary features was approximately one every 20–50 years. These modelling results demonstrate that human burial at Armadale was an infrequent event, and further indicate that the sustained memory of the location and social role of Armadale as a burial ground persisted until the middle of the Bronze Age.

SA2 3D DOCUMENTATION OF IRELAND'S ICONIC HERITAGE: DEVELOPING AND EXPLOITING THIS RICH RESOURCE

Robert Shaw, Anthony Corns

THE DISCOVERY PROGRAMME

As a partner in the EU co-funded 3D-ICONS project, the Discovery Programme has been digitally documenting a wide range of iconic cultural heritage sites in Ireland. This pan-European project with sixteen partners from nine countries had the aim of establishing a complete process pipeline for the production of 3D digital models, and to then publish and promote the content through Europeana for public access. Seventeen of Ireland's most iconic sites have been surveyed as part of this project, ranging in scale from landscape to detailed architectural features, using a selection of the latest 3D documentation techniques. Sites recorded include Skellig Michael and Brú na Bóinne, both on the UNESCO World Heritage List.

In summary the challenge was to:

- develop a process to produce high polygon mesh models
- retain the complexities of the surveyed object in the model whilst reducing model size
- deliver aesthetically pleasing digital models to the public
- enable the public to view the 3D models online
- capture the associated heritage information, processing methodology and licensing data

This paper will outline the finished pipeline developed by the Discovery Programme to achieve this objective. The method discussed reduces the volume of data to less than 1 percent of its initial surveyed size for effective online viewing, whilst maintaining all the intricacies of these iconic sites. Importantly the paper will highlight exciting new developments utilising 3D models for education and outreach, enhancing visitor experiences at cultural heritage sites, and for further exploitation within the digital arts sector.

SA15 VALOUR NEEDS FIRST STRENGTH, THEN A WEAPON: BRONZE AGE WEAPONS IN EAST CENTRAL SWEDEN Magdalena Forsgren

INDEPENDENT SCHOLAR, MASTER OF ARTS

While studies of weapons, warfare and warrior identities have been given a prominent position within Bronze Age research, there is an absence of such discussions in East Central Sweden. The main reason for this is certainly that relevant source materials never before have consistently been compiled, analysed and presented. Another problem is that studies necessarily need to be limited to weapons since other sources such as rock-art pictures, trauma on skeletons or hillforts are few. The question, then, is how it is possible to reach an understanding of "the nature, frequency, and intensity" of warfare and warrior identities in this area.

In the project *Weapons of the Wasteland* I compile bronze weapons in order to understand the character of warfare in East Central Sweden. I try to use multiple inputs simultaneously. The project's basis is a quantitative compilation of nearly 480 artefacts, which is combined with as detailed biographical descriptions as possible, such as typological appearances, specific characteristics, use-wear and damages, depositional practices and possible origin. I compare the analysis with sources in neighbouring areas and possible historical descriptions. Few lead-isotope and chemical analysis have been made but suggest importation of special artefacts. Furthermore, there is still no indication of indigenous manufacture of swords, which mainly is true to spearheads too. Additionally, manifested per generation, the total number of bronze weapons appear as limited, and possibly the arsenal was instead mainly made up of stone weapons. But in what way then should we understand bronze weapons as manifestation of warfare?

SA23 CONFIGURATION OF IDENTITIES AROUND IRON TECHNOLOGIES IN THE HIGH CASAMANCE REGION OF SENEGAL.

Lina María Campos Quintero

UNIVERSITY COLLEGE LONDON

This project is concerned with the characterisation of iron making technologies and identities in the history of Senegal, as a broader contribution to understand social-economic practices between consumers and producers. Starting with the scientific study of iron slags from the Upper Casamance Region, it is argued that it is necessary to research the configuration of regional identities in order to understand the economic and cultural impact of iron. Identities here refers to a range of overlapping spheres that engage prestige, markets, and sociopolitical conflicts, rather than discrete units. Thus, the development of iron technologies and trade routes is affected not only by the ethnic affiliation of the smelters and blacksmiths, but also by the changing reconfiguration of historical relationships. This paper is focused on two sites: Payongou and Korop, where oral traditions, ethnohistorical documents and archaeometallurgic evidence provide insight into possible iron technologies. Research by Sirio Canós-Donnay has revealed a history of social mobility (migrations and dominations) that further complicates understanding of the ethnogenesis of the region. Due to this, assigning people to a specific ethnic groups becomes difficult, whether we base it on the researchers' etic discretion, or on emic versions of the history of present-day communities.

Initial arguments indicate that an efficient iron smelting tradition based on local laterite ores was developed possibly before Mandling domination (13th century AC). Furthermore, evidence of smithing activities along with travellers diaries show that iron was a very important commodity that could operate as a catalyst of social relationships in the colonial period.

SA12 A CROSS-DISCIPLINARY STUDY OF THE SPATIAL ORGANISATION OF A 10,000 YEAR OLD HOUSE FROM THE ISLE OF MAN

Denise Druce

OXFORD ARCHAEOLOGY NORTH

In 2008-9, archaeological investigations at Ronaldsway Airport, Malew, Isle of Man, by Oxford Archaeology North, discovered a Mesolithic house comprising a sub-circular hollow, approximately 7m in diameter, containing a ring of postholes, a hearth, and a north-facing entranceway. Radiocarbon dating shows the structure to have been abandoned at c 8200-8000 cal BC, making this the earliest evidence for the colonisation of Man. On the basis of its morphology, lithic typology and date, the house can be compared to several close parallels: Mount Sandel, Ireland; East Barns and Echline Fields, eastern Scotland; and Howick and Low Hauxley, Northumbria. The site has been named Cass ny Hawin II due to its close proximity to the Cass ny Hawin Mesolithic house, although the latter is much later in date.

As with many of these buildings, Cass ny Hawin II produced abundant hazelnuts, including discreet dumps by the doorway, and very numerous (c 23,000) struck lithics. Carbonised wood thought to be structural remnants, suggests that the house was destroyed by fire. Given the importance of the house and its excellent state of preservation, its interior was 100% sampled by three-dimensional survey.

Initial interpretation of the spatial distribution of the house features, the lithics and stone tools, and the palaeobotanical remains indicates that clearly defined activity areas exist, such as those used for storage, cooking, hearths, or sleeping. This paper will present the results of this important cross-disciplinary study. Comparisons will be sought from other British and European Mesolithic sites, and also from ethnographic literature.

SA15 THE NEOLITHIC MASS GRAVE OF HALBERSTADT, SAXONY-ANHALT AND PATTERNS OF COLLECTIVE VIOLENCE IN THE EARLY NEOLITHIC OF CENTRAL EUROPE.

Christian Meyer, Olaf Kurbis, Veit Dresely, Kurt W. Alt

STATE OFFICE FOR HERITAGE MANAGEMENT AND ARCHAEOLOGY SAXONY-ANHALT

As several enigmatic sites have shown so far, the Neolithic of Central Europe had its share not only of individual, but also of lethal collective violence. Many questions concerning the patterns of collective violence in this period are still open to debate and several sites sometimes referred to in the past as evidence for such violence are now interpreted differently. With the discovery and the osteoarchaeological analysis of a new Early Neolithic mass grave from Halberstadt, Germany a new site can now be added to the debate. Most of the preserved skeletal remains of nine individuals from this mass grave bear evidence of lethal blunt force trauma, with clustered wound locations. Further osteological signs of trauma are perimortem long bone fractures and few cutmarks. The bodies have been deposited without any evidence of care, similar as in the other Early Neolithic mass graves known so far. A further characteristic of the Halberstadt grave is its predominantly younger male demography.

With several Early Neolithic (LBK) mass graves and other sites of collective violence now being known, a systematic comparison of cranial trauma locations and injury patterns becomes possible. The differences and similarities thereby encountered will be addressed while acknowledging the different contexts in which these events of violence possibly took place. The new data presented here will enable further insight into the osteological and archaeological questions of prehistoric collective violence and its overall scale and manner in Early Neolithic Central Europe.

SA10 ISOSCAPES OF THE SCOTTISH NORTH ATLANTIC ISLANDS: ANIMAL MANAGEMENT IN LIMINAL ENVIRONMENTS

Jennifer Jones¹, Jacqui Mulville²

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The marginal environments of the Scottish North Atlantic Islands presented a challenging environment to human populations, despite this the past inhabitants of the islands thrived, leaving behind a rich archaeological heritage. This paper explores changing approaches to animal management strategies in the islands from the Neolithic to the Norse period, revealing 'isoscapes' generated from bulk collagen $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis of 622 animal specimens (cattle, pig, sheep, red deer) dating from the Neolithic to the Norse Period in the Scottish North Atlantic Islands.

Baselines for each island group demonstrate a background difference in $\delta^{15}\text{N}$ values of 1‰ between island groups (Orkney and the Outer Hebrides) during the Neolithic, Bronze Age and Iron Age, linked to variable levels of mineral retention within local soils. During the Norse period, this difference disappears, suggesting a level of soil enrichment (possibly by manuring/addition of seaweed) at this time. Results also reveal the changing importance of coastal environments and resources in providing fodder, and possible differences in grazing locations over time and between islands. Values in the Outer

Hebrides indicates a greater diversity in animal management strategies in the Bronze Age, and during the Iron Age and Norse highlight the introduction of marine protein to the diet of pigs, providing insights into wider aspects of the economy. The extensive isotopic results from this comparative study provide clear indications of different prehistoric 'farmscapes' emerging between the Scottish Island groups throughout prehistory and into the historic period.

SA9 INSIGHTS INTO THE HISTORY OF VINICULTURE FROM ANCIENT DNA

Anne Kathrine Runge, Nathan Wales

UNIVERSITY OF COPENHAGEN

The Eurasian grape, *Vitis vinifera*, has played an important role in human culture for millennia, and has been – and still is – treasured for its properties both as a food source and a fermented beverage. While DNA investigations of extant cultivated varieties have shed light on the history of viniculture, genetic characterization of archaeological specimens provide unique direct windows into the past, thereby furthering our understanding of ancient winemaking.

We present results of the first DNA capture experiments on nuclear loci of the *Vitis* genome from archaeological grape seeds. This cutting-edge approach enables new insights on phenotypic traits, such as berry colour, for many samples from Mediterranean Europe over the past 2000 years. The findings of this study give new insights into the domestication history of one of the most valuable horticultural crops in the world, and demonstrate how ancient DNA studies can work in tandem with traditional archaeobotanical research.

SA12 A TALE OF TWO METHODS: APPLYING PHYTOLITH AND GEOCHEMICAL ANALYSIS TO STUDY THE USE OF SPACE AT ETHNOGRAPHIC AND NEOLITHIC EPHEMERAL SITES IN JORDAN

Daniella Vos¹, Emma Jenkins¹, Carol Palmer², Helen Smith¹

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Distribution patterns of geochemical and phytolith soil signatures can be valuable indicators of past human activities, but how useful are these methods when it comes to studying ephemeral sites? This paper will discuss the efficacy of a dual phytolith-geochemical methodology in light of preliminary results of an analysis of ethnographic and Neolithic sites in Jordan. The ethnographic data is comprised of soil samples that were collected from Bedouin campsites in Wadi Faynan. While some of the campsites were occupied during sampling others had been abandoned for various durations of time, allowing for a consideration of the degradation through time of these signatures. In order to be able to assess the applicability of the combined methodology to archaeological material, it was also applied to soil samples that had been collected from the Neolithic sites of Wadi el-Jilat. By discussing the preliminary results of the study of Bedouin and Neolithic ephemeral sites this talk will touch upon the issues of taphonomy and preservation, the use of ethnoarchaeology to explore scientific techniques, and the usefulness of the combined methodology for studying sites in highly dynamic environments.

SA1 FINAL DESTINATION: PIT. A MULTI DISCIPLINARY APPROACH TO IDENTIFYING CRITERIA OF SOCIAL SELECTION IN LA TÈNE EXTENDED BURIAL PRACTICES AT BASEL-GASFABRIK (SWITZERLAND)

Cordula Portmann, Sandra Pichler

IPAS, UNIVERSITY OF BASEL

The La Tène period settlement of Basel-Gasfabrik (150-80 BC) is situated in the north of present-day Basel, Switzerland. In addition to two associated inhumation cemeteries, diverse settlement features yielded complete burials as well as a large number of isolated human skeletal remains. Humerus, femur and tibia represent roughly 30% of all postcranial elements. About 15% of the postcranial isolated bones exhibit marks of peri- and postmortem manipulations: Carnivore gnawing is the most common lesion, followed by cut-, scorch- or fire marks. Thus, the evidence is similar to that at the oppidum of Manching, Germany. According to current research, the isolated bones constitute relicts of extended burial practices. The depositions of these bones in settlement pits could possibly depict the last stations of such practices. Archaeological, anthropological and archaeometric analyses (taphonomy, Sr, O, C and N stable isotopes, aDNA) were applied in an attempt to characterize the group of individuals involved in this specific handling. Moreover, histological age determination of 25 isolated humeri and femora revealed that the long bones represent adult individuals of different age classes. Ethnographic comparisons show that culturally determined selection regulates both the individuals subject to multi stage burial practices and also determines the final location of burial or deposition. For Basel-Gasfabrik, biological or social age can therefore be postulated as one selection criterion for postmortem exposition and body manipulation.

This research is part of the interdisciplinary project „Approaching the living via the dead“ funded by SNF, FAG and ABBS.

SA7 DETECTING THE STORY BEHIND DIMENSION STONES – THE ORIGIN, USE AND SOCIAL IMPACT OF NEW BUILDING MATERIAL IN THE MEDIEVAL TURKU

Liisa Seppänen¹, Jussi Kinnunen²

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Changes and developments of the societies are closely related to adoption on the innovations and assimilations of new ideas. The pace and intensity of changes depends on various factors. Cultural and geographical border areas are regarded persistent

to maintain their traditional values and modes of operation and thus resistant to the adoption on innovations and assimilation of new ideas.

In this paper, we are focusing on a coastal city of Turku, which is the oldest town of Finland founded in the turn of the 13th and 14th century. The town was established in the area, which formed a geographical, social and cultural borderland already in prehistoric times, and it became the second biggest town of the medieval and early modern Sweden. Introduction of stone, brick and masonry technique took place at the first phase of the urbanization, but the notable change in building materials and techniques began a century thereafter.

In our study, we have traced the provenance of stone and lime used in the medieval buildings of Turku with the help of bedrock and geomaterial analysis made with XRF-spectroscopy as well as archaeological and environmental evidence of local quarrying. The bedrock in this region differed from the areas from where the new technologies probably came from and required a new kind of know-how. Introduction of new technology affected the society in many ways, which have not been discussed before. The preservation of building remains and understanding the post-depositional processes on materials forms the basis and frames for the study.

SA17 INTEGRATED PROSPECTION METHODS FOR DOCUMENTING THREATENED PREHISTORIC ARCHAEOLOGICAL SITES FROM NORTH-EASTERN ROMANIA

Andrei Asandulesei

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

The information from archaeological registries available for the eastern part of Romania reveals an extremely high density of (not only) prehistoric sites. Our field investigations conducted in several micro-zones of this area focused in particular on identifying and accurately charting the archaeological sites which are listed in older or newer archaeological registries, but are accompanied only by brief and lacunar descriptions, or no longer corresponding to current realities. Another aim was, by means of non-invasive techniques, to closely monitor the state of these monuments and to collect as much information as possible on the threatened areas. The majority of sites identified on the field, particularly prehistoric ones, already known or newly identified, were found to be immediately threatened by natural or anthropic factors.

To intervene efficiently in the protection of the archaeological heritage, precise information was needed, such as its exact location, the limits of the point of interest, or the geomorphological characteristics of the area it occupies. Accordingly, an interdisciplinary approach based on complementary non-destructive research methods was required.

The present paper focuses on the integrated use of oblique air photography, 3D laser scanning, caesium and fluxgate magnetometry, electrical resistance and GPR methods for the investigation and monitoring of the prehistoric sites from the aforementioned area, and makes a case for generalising such practices in archaeological research, with reference to preliminary results obtained by us.

SA8 TRACKING THE CULINARY USE OF POULTRY IN EUROPEAN ARCHAEOLOGY: EXPLORING BIMOLECULAR EVIDENCE FROM POTS

Andre Carlo Colonese¹, Alexandre Lucquin², Beatrice Demarchi², Terry O'Connor², Oliver Craig²

¹DEPARTMENT OF ARCHAEOLOGY, BIOARCH. UNIVERSITY OF YORK, ²UNIVERSITY OF YORK

Organic residue analysis has provided major insights to when, where and how animal products became involved in pottery. However, much of this research has focused on the exploitation of major domesticates and more recently marine resources. Poultry have been overlooked despite their importance today as a major global food resource. Indeed, whilst there is ample faunal evidence attesting to their presence at archaeological sites, it is unclear when chickens became a common foodstuff or how they were exploited in the past. Here we examine biomolecular and isotopic rationale for identifying poultry fat in archaeological record, specifically ceramic vessels from British Medieval contexts. Through a literature review and new multidisciplinary studies we discuss new possibilities and limits of discriminating chicken fat from other non-ruminant products in ancient culinary practises.

SA2 THE AFTERLIFE OF THE PORTICUS AEMILIA IN 3D

Raphaëlle-Anne Kok-Merlino¹, Gert-Jan Burgers², B. Brouwenstijn³

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Between 2011 and 2013 excavations were carried out between the standing remains of the building commonly identified as the Porticus Aemilia, one of the largest utilitarian buildings of ancient Rome, located in the Roman neighbourhood of Testaccio. The excavations aimed to investigate both the spatial configuration of this monumental building as well as its history of occupation. Moreover, as part of a major heritage project, i.e. the *Challenging Testaccio*-project, the excavation data are being shared with the larger public, both locals as well as tourists. In the context of these projects, a 3D reconstruction is being made of a section of the building's Imperial phase, identified as a cella of a *horreum*, a large warehouse for the storage of grain. As a matter of fact, the excavations are the first in Rome to have uncovered systematically the remains of such a warehouse. Initially, the 3D-rendering was done with the principle aim of communication, but through this process the

reconstruction became a genuine instrument of research as well. As a work-in-progress it still enhances the understanding of this monumental complex from an architectural point of view and helps to gain insight into the way the grain must have been stored.

SA1 THE CONTRIBUTION OF ANCIENT PROTEIN ANALYSIS TO ARCHAEOLOGICAL RECONSTRUCTION

Enrico Cappellini

UNIVERSITY OF COPENHAGEN

Over the past 30 years, ancient DNA studies have grown from a scientific curiosity into a powerful research tool with applications in molecular evolution, archaeology and palaeontology. The analysis of ancient proteins has lagged behind that of ancient DNA, but recent developments in high-throughput, high-resolution mass spectrometry have the potential to provide the accuracy and robustness required for confident and reliable sequencing of ancient proteins. Mass spectrometry enables investigation of protein expression specific for different tissues, developmental phases, or biological processes, including disease states. This characteristic allows more detailed archaeological reconstructions. For example, identification, in bovine skin remains, of calf proteins specifically expressed in the first months of life allows pinpointing at what age the animal was sacrificed. This element can help in understanding livestock exploitation strategies in an ancient community. Alternatively, identification of protein residues in artefacts, and not necessarily associated with organic macroremains, can reveal unsuspected details about the manufacturing technology available in the past. Finally, and most interestingly, identification of proteins involved in pathological processes allows us to better clarify health condition and nutrition. Ancient proteomics have the potential to shed light on disease processes that cannot be captured by DNA studies.

SA14 THE ROLE OF PRE-NORSEMEN IN TRADE AND EXCHANGE OF COMMODITIES IN BRONZE AGE EUROPE.

Johan Ling¹, Zofia Stos-Gale¹, Anne-Lene Melheim¹, Eva Hjärthner- Holdar²

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Recent lead isotope and chemical analysis of Scandinavian bronzes raised doubts as to the accepted perception of the role of Scandinavia in the Bronze Age pan-European socio-economic systems. The distinct differences in the geological age and chemistry of ore deposits in central and south-east Europe, and the Alpine and Western European copper ores indicates that the majority of the analysed Scandinavian bronzes could not have been made from ores found in the Harz Mountains in Germany, Erzgebirge and the Carpathian Mountains, which are geographically closest to Scandinavia and in the Bronze Age had close cultural affinities. In spite of the analytical results showing that some tin from Cornwall was reaching Sweden in the mid-2nd millennium BC, neither there is much evidence of copper coming from the British Isles. Instead it seems that throughout the Bronze Age there was a steady supply of copper (or tin bronze) from the Alpine regions, and surprisingly, the Iberian Peninsula and Sardinia also seem to be major suppliers of copper to Scandinavia. Even more unexpected is the presence of Cypriot copper in Scandinavia, and the identification of depictions of oxhide ingots on rock art panels. These unexpected results contradict earlier theories, which identified Central European mines as the main suppliers of copper to Scandinavia. The results of these analyses are procuring a new insight into possible metal supply trade routes, commodities exchange networks, and means of transport and suggest a much more complex picture of possible connections between Scandinavia and Europe in the Bronze Age.

SA23 IRON PRODUCTION WITHOUT A FURNACE: IDENTIFYING SOCIO-ECONOMIC INFLUENCES IN ROMAN PERIOD IRON PRODUCTION FROM DEBRIS ALONE

Ruth Fillery-Travis

UCL

Sociological, anthropological and archaeological researchers have long accepted the socially embedded nature of technology, rejecting technological determinism and recognising technological practice as a web of social, economic, political, technical and environmental factors. This establishes the expectation that changes in these factors within a region will have had an effect on technological practice at any one site.

Within iron smelting this is often visible in the presence or absence of sites, scale of production, and characteristic features such as furnaces. Yet at many sites, only the debris left over from the process is visible, whilst settlements, communication or even the production installations do not survive. Is it possible to identify fluctuations within the production process through this debris? And if present, can these fluctuations be linked to any social, economic, political or other factors within the region?

In this paper I use extensive archaeometric analysis of iron smelting debris from a Roman period site producing elite material in Austria to identify fluctuations in iron smelting over the 1st-4th centuries AD. A number of these fluctuations can be linked to Empire-wide shifts during this period, but substantial changes in the process appear to stem from more local fluctuations, representing a greater challenge to interpretation. Together this suggests that whilst large-scale economic and social changes do affect the iron smelting practices at individual sites, it is local challenges that affect iron production during the Roman period most strongly.

IN THE SHADOW OF THE ‘LIGHTHOUSE’: IN-SITU AND EX-SITU ANALYSIS TO REVEAL THE ANTHROPOGENIC SIGNATURE AMIDST VOLCANIC ‘ASH’. A. DI RENZONI: CNR-ISMA, E. PHOTOS-JONES: ASAA, S.T. LEVI: DIP SCIENZE CHIMICHE GEOLOGICHE UNIVERSITÀ MODENA E REGGIO EMILIA.

A. Di Renzoni¹, G. Ayala², M. Bettelli¹, D. Brunelli³, D. Buonavoglia³, V. Cannavò³, F. Ferranti¹, B. Gasparini Casari³, S.T. Levi³, S. Lugli³, E. Photos Jones⁴, A. Renzulli⁵, P. Santi⁵.

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The archaeological site of San Vincenzo is located on the central Mediterranean island of Stromboli, on the slopes of a volcano with a persistent, known worldwide as “The lighthouse of the Mediterranean” (Rosi et al. 2000)

In the course of a number of excavation campaigns, and in order to address the problem of the complex stratigraphy, a number of analytical techniques (pXRF, mag susc, LOI, PSA, phosphates analysis) has been used.

The aim is to explore how best to retrieve effectively from the archaeological sediments, the faint ‘signal’ of human domestic activity amidst the ‘noise’ of the volcanic ‘ash’ and to distinguish between different human activities and to find elements able to inform about the interpretation of the anthropic and natural activities.

SA14 MECHANISMS OF CHOICE – THE PROVENANCE OF TIN AND ITS SOCIAL IMPLICATIONS

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Due to the scarcity of evidence for prehistoric exploitation, the provenance of tin in prehistoric bronzes is still an unsolved issue and subject to controversial debate. Neither trace element concentrations and abundance patterns, nor lead isotopic compositions offer defined fingerprints of tin ores, especially when tin is alloyed with copper. But the isotopic composition of tin itself may be a promising tool to trace the origin of tin. In the ERC-project “Bronze Age Tin” we investigate the variability of tin isotope ratios in geological tin deposits in order to distinguish them and to possibly associate them with Bronze Age metal artifacts. Our ongoing research aims to define isotope fingerprints of tin bronze in metallurgical products and ores from the Old World in order to trace ancient trade routes and the evolution of bronze metallurgy.

This paper presents the first tin isotopic research on Early Bronze Age metal artefacts from different Únětice Culture hoards in Central Germany. Did Únětice societies utilise local tin ores or did they obtain tin from other regions? And if they did, is it possible to establish a connection between users and potential ore suppliers using new analytical data?

We will discuss possible mechanisms that influenced raw material choices made by Únětice people and the impact of these choices on technological and social development by combining new scientific methods, archaeological material and theory.

SA8 PROTEOMICS ON AVIAN EGGSHELL: COUNT YOUR CHICKENS BEFORE THEY’RE HATCHED?

Beatrice Demarchi¹, Matthew Collins²

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Bird eggshell is one of the most revealing materials that can be recovered from the archaeological record, yielding information on subsistence, exploitation of the natural environment, domestication and movement of people and animals. However, identification of eggshell fragments on the basis of their morphology is a difficult and time-consuming task. Recently, biomolecular approaches (based on protein analyses by mass spectrometry, ZooMS) have been developed and applied to archaeological eggshell.

Eggshell calcification is an incredibly fast process (ca. 6 hours in chickens), which occurs *in utero* and allows the survival and development of the embryo. This process is promoted and regulated by proteins, and it is so fast that hundreds of proteins are “mindlessly” incorporated in the mineral skeleton during calcification. There, they survive over tens of thousands of years, making avian eggshell one of the most extraordinary repositories of ancient biomolecules.

We present a novel dataset on eggshell protein sequences from historical collections (Natural History Museum at Tring). This was obtained by sequencing proteins by LC-MS/MS, targeting 23 taxa which represent the main clades of bird phylogeny. We comment on the extraordinary preservation of the proteins, evaluate the common patterns and the intriguing differences between the taxa, and draw preliminary conclusions on the potential of ancient proteomics for identification of bird species in the archaeological record.

SA21 POVERTY AND WORK: INTEGRATING SKELETAL AND DOCUMENTARY EVIDENCE IN NINETEENTH CENTURY PORTUGAL

Charlotte Henderson¹, Francisca Alves Cardoso², Sandra Assis³

¹CIAS - RESEARCH CENTRE FOR ANTHROPOLOGY AND HEALTH, UNIVERSITY OF COIMBRA, ²UNIVERSIDADE NOVA DE LISBOA, ³CIAS

Identified human skeletal collections and their associated obituary records are useful sources to test many bioarchaeological research questions. However, the documentary evidence available does not necessarily assist in the identification of economic

variables, particularly the identification of poverty. These collections do provide evidence of occupation and this can be used as a proxy for economic status, particularly when associated with known area of abode based on the assumption that spatial inequalities are synonymous with differential housing conditions. The aim of this study is to use both occupation and area of abode to compare the presence of enthesal changes (ECs) between those inferred to live in poverty and higher status individuals. The hypothesis will be that those identified as living in poorer circumstances will have more ECs due to heavier, repetitive, workloads and inadequate nutrition when compared to higher status individuals. The research was conducted in ninety-nine males (7-36 years old) from the Coimbra identified skeletal collection and the ECs recorded using the new Coimbra method. No difference in presence of ECs could be found between the two samples. However, the majority of the individuals in this sample died from tuberculosis. The muscle wasting associated with this chronic disease, may have had a role to play in the individuals' ability to undertake heavy manual labour and in the development of the ECs themselves. Place of abode bore no relation to occupation.

SA1 SHELL ORNAMENTS BIOGRAPHIES: A MULTI-DISCIPLINARY APPROACH.

Beatrice Demarchi¹, Søren Andersen², Frédéric Marin³, Julie Wilson¹, Kirsty Penkman¹, Sonia O'Connor⁴, Alison Sheridan⁵, Y. Hancock¹, Raquel De Almeida Ponzoni¹, André Ponzoni¹

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Often traded, shells were important prestige items in prehistory: perforated marine shells are found in Palaeolithic sites hundreds of kilometres away from the coast. Refined "shell-smithing" techniques appeared in the Neolithic, when Europe was criss-crossed by a network of long-distance trade of jewellery (beads, bracelets, pendants). Reconstructing the shells' origins and subsequent transport routes is relatively straightforward, because the taxon can be identified based on morphology. However, when the shells are worked, the morphological features are lost and the identification of the raw material is difficult. As theories of prehistoric exchange networks are founded on the "prestige shells" trade, taxonomic identification is key.

Here we present case studies from Late Mesolithic and Bronze Age sites, where we developed a multi-disciplinary approach for identifying worked shell "jewellery", using non-destructive SEM imaging, FT-IR and Raman spectroscopies, and micro-destructive proteomics and amino acid analyses, which exploit the fossil proteins trapped in shells as a taxonomic barcode. This has allowed us to begin testing hypotheses on communication networks and exploitation of raw materials. When this approach is applied routinely to the rich archaeological record of personal ornaments in Europe and elsewhere, it could lead to re-thinking some of the accepted paradigms, for example the long-distance Neolithic exchange network of prestige items.

SA22 ARTISANS' MOBILITY AND INSTRUMENT'S PORTABILITY: A FRUITFUL COLLABORATION

Ann Brysbaert¹, Dimitris Anglos²

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Our paper presents the concepts and instrumental ingredients concerning a versatile analytical survey methodology that combined standard optical microscopy and portable laser-induced breakdown spectroscopy (LIBS). Together with detailed macrophotography, these were extensively combined to characterize materials in a wide variety of pyrotechnological and other objects from 3 workshop contexts at LBA Tiryns, Greece.

The LIBS technique relies on atomic emission spectroscopy from a laser generated micro-plasma and provides qualitative (and semi-quantitative) information on the elemental composition of materials. It can be applied directly on the object under investigation eliminating the need for extensive sampling of fragile and already degraded materials. Due to the micro-destructive nature of LIBS, permission was granted readily to carry out compositional investigation. Especially the portability of the instrumentation and the fast processing of many different materials in two short campaigns were understood as a very powerful method for in situ analyses in archaeological contexts where material cannot travel to laboratories for further investigation. Examples are presented from two field campaigns, performed in 2012 by the IESL- FORTH team together with archaeologists of the Tracing Networks project at Tiryns. The investigation of metals, plaster, ceramics, pigments and various other materials was undertaken.

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SA6 UNRAVELING A COMPLEX INTERMENT HISTORY AT THE THRESHOLD OF EUROPEAN CONTACT: AMINO ACID RACEMIZATION DATING OF HUMAN REMAINS FROM ST. CATHERINES ISLAND, GEORGIA

Laurie Reitsema¹, Kathy Loftis², David Hurst Thomas³, Clark Spencer Larsen⁴, Robert J. Speakman²

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Establishing high-resolution chronologies of human remains at cemetery sites is essential for mortuary populations at the threshold of biocultural transition. The Fallen Tree mortuary complex was discovered on St. Catherines Island, Georgia in 2013 by archaeologists from the American Museum of Natural History, and is believed to contain remains of indigenous peoples living on this barrier island around the time of 16th c. Spanish contact. More than 30 individuals have been recovered from

graves that exhibit a remarkable and perplexing range of variation. Articulated, disarticulated and cremated remains are interred under shell or clay caps, or without caps. Associated material objects are from the pre-contact Irene Period (1300-1580 AD), but also include iron nails. A precise chronology of the cemetery is critical for interpreting mortuary variation and pursuing research questions pertaining to the health and lifestyle consequences of European contact for indigenous peoples. Due to difficulties associated with radiocarbon dating within this time period, we employ a relative dating technique, aspartic acid racemization in bone collagen, to tease apart complexity in the burial history of individuals interred at Fallen Tree. After death, amino acids in collagen change steadily from their biogenic L isomorphs into their D isomorphs, eventually reaching equilibrium. D/L ratios and a subset of AMS dates are used together toward developing a high resolution chronology of the cemetery. We discuss challenges associated with amino acid racemization of relatively recent (<500 years) bone collagen from island and coastal environments, including effects of grave style on racemization rates.

SA21 SESSION DISCUSSANT

Stephen Mrozowski

UNIVERSITY OF MASSACHUSETTS BOSTON

I will serve as the discussant for a session on nineteenth century urban slum dwellers in Britain, the US and Europe.

SA3 ITALIAN POTTERY KILNS AND PRODUCTION AREAS FROM BRONZE AGE TO ARCHAIC PERIOD

Agostino Sotgia

SAPIENZA – UNIVERSITÀ DI ROMA

Starting from a systematic survey of pottery kilns attested in the Italian peninsula during the Bronze Age (2200-950 B.C.), Iron Age (950-725 B.C.) and Italian Orientalizing and Archaic Period (725-480 B.C.) this Paper will propose the reconstruction of different kilns types with particular attention to craft areas with the main goal to characterize common aspects of this kind of evidences in different sites.

Moreover I will consider some ethnoarchaeological studies to complete the overview of the evidence dealt with.

In the Italian peninsula 5 type of kilns are attested: *Open Firing (1); Pit Firing (2); Two pits Kiln with vertical (3.1) or horizontal structure (3.2); Single deep pit with vertical structure without perforated floor (4.1) or with perforated floor (4.2); and Fixed in stonework (5)*

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.

SA24 FRESHWATER RESERVOIR EFFECT ON RE-DATING OF EURASIAN STEPPE CULTURES: NEW DATA FOR THE PREHISTORIC SITES OF KAZAKHSTAN AND SOUTH OF SIBERIA

Svetlana Svyatko

QUEEN'S UNIVERSITY BELFAST

Freshwater reservoir effects (FRE) can cause a major problem with radiocarbon dating human skeletal material in the Eurasian steppe. Recent research has demonstrated that, for the Eneolithic to Early Bronze Age sites of North-Eastern Kazakhstan, the maximum fish-herbivore freshwater reservoir offset observed equals 301 ± 47 ^{14}C yrs, as such indicating that ^{14}C dates from aquatic and human samples from the area apparently need to be interpreted with caution as they are likely to be affected by the offset. The current paper presents the new data on the FRE of the Eneolithic to the Early Iron Age sites of Kazakhstan and South of Siberia.

SA12 INVESTIGATING DOMESTIC ARCHITECTURE AND USE OF SPACE IN IRISH EARLY MEDIEVAL HOUSE TYPES USING ARCHAEOLOGICAL, ENVIRONMENTAL, EXPERIMENTAL AND DOCUMENTARY EVIDENCE

Eileen Reilly, Aidan O'Sullivan, Brendan O'Neill

UNIVERSITY COLLEGE DUBLIN

Understanding how people lived in the past is critical to understanding how they viewed and ordered their worlds. The early medieval period (AD 600-1100) saw a diverse range of settlement and house styles across Europe with different architectural traditions. In Ireland, the round house was the typical native house structure of this time, even described in contemporary documentary sources; while in early urban settlements, rectangular three-aisled structures were the norm. Many have assumed that the latter derived from the influence of Scandinavian house building styles but many aspects of these structures bear striking resemblances to native round houses. Investigating the parallels and differences between these structures requires a multi-element approach.

The excavation and analysis of a rural early medieval settlement site at Deer Park Farms, Co. Antrim, and the urban streetscapes of 9th-11th century Dublin has allowed comparison of the layout and structure of individual houses, the materials used, the possible uses of space within the houses and the conditions experienced by the residents. Now, reconstruction of round and three-aisled rectangular houses at the UCD Centre for Experimental Archaeology and Ancient Technologies is providing a better understanding of the building techniques used and the materials required to construct them. The houses will then be used to replicate and investigate early medieval living conditions and environments to test our understanding of their potential uses and life histories. Through this combined approach, we hope to come to a better understanding of the domestic lives and world view of early medieval peoples.

SA20 DO WE NEED TO CHANGE OUR WAY OF THINKING? CONSIDERATIONS ABOUT USING SCIENTIFIC METHODS IN IRON AGE STUDY – AN OVERVIEW FROM HUNGARY

Elizabeth Jerem

ARCHAEOLOGIA FOUNDATION

More than 50 years after the publication of the volume *Science in Archaeology*, not only did the number of methods and potential applications broaden rapidly, but also the amount of those examinations that we use in various stages of archaeological work. From the field survey and prospection of sites through the documentation of excavations to reconstruction, interpretation and presentation, there are a wide range of possible approaches.

In addition, there are very different research tools that can be used regionally or in one particular site. Furthermore, not even the very well-prepared projects enable the parallel usage of numerous methods. In my presentation, I will point out how the research of Iron Age in Hungary has been developed in the past decades via case studies. I will focus on the role of non-invasive methods and the examinations of geo- and bioarchaeology, landscape archaeology and archaeometry. I will also address the advantages and disadvantages of landscape reconstruction as well as digital documentation and presentation. I will analyse whether the new and different data sets are suitable for integrated assessment and whether they can help to shed a new light on our previous ideas of this period. Moreover, what 3D data acquisition and visualisation mean with regards to the extension of our knowledge and how far can we go ahead in creating a new vision? The innovative research strategy requires new ways of thinking. Thus, we can ask if we reached this level in education, research and the interpretation of the results.

SA24 SEASONAL REPRODUCTION PATTERNS AND SEASONAL DIET OF EARLY SHEEP ATTESTED IN NORTH-EAST IBERIAN PENINSULAR (LA DRAGA SITE, EARLY NEOLITHIC)

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Sequential stable isotopes ($\delta^{18}\text{O}$ and $\delta^{13}\text{C}$) performed over the length of the enamel tooth crown are used to investigate breeding strategies of sheep at the Early Neolithic site of La Draga (north-east of the Iberian Peninsula). Our study determines seasonal reproduction patterns and calculates the length of the birth season from sequences of $\delta^{18}\text{O}$ values. Furthermore, seasonal diet during the growth and fattening phase is assessed through $\delta^{13}\text{C}$ values and variations along sequences. Sheep specimens were raised at this settlement which constitutes one of the first evidence of this domestic species in this region. Our objective is to test potential biological constraints and technical knowledge in the management of sheep at the time of its introduction in this region for first time. Data is finally interpreted within the framework of other archaeological and modern studied populations.

SA4 A MILLENNIUM OF CHANGING ENVIRONMENT IN THE KANGERSUNEQ AND THE KAPISILLIT FJORD SYSTEM, WEST GREENLAND: INTERDISCIPLINARY ANALYSES OF CLIMATE VARIABILITY AND CULTURAL LANDSCAPES

Ann Eileen Lennert

GREENLAND CLIMATE RESEARCH CENTER

This interdisciplinary study draws on both natural and social sciences to improve our understanding of long-term climate variability in Greenland. It explores the links between variations in past and present sea ice, climate conditions, changing environments and human societies. The Godthåbsfjord is the most densely populated part of Greenland, both in the past and present. Climatic and environmental variations in this area are significant, resulting in different patterns of human habitation and settlement (past and present Inuit cultures, or medieval Norse farmers). In the past, links between variations in sea ice, climate, and changing environments had significance for the dynamics of human societies. Each of these cultures were dependent on the natural setting in their own specific way and therefore likely responded to climatic and environmental change in equally particular ways. This project aims to understand the environments in change through the eyes of the cultural landscapes, local knowledge and memory of space and together with marine geological history depositions and data, reconstruct these lived environments with changing ice patterns, resources and changing human-environment relations. It wishes to link both natural and social science together with local knowledge and demonstrate how these different approaches and perspectives supplement each other in the understanding of environments in change.

SA13 CONTINUITY IN THE FIRST FOUR CENTURIES: ARCHAOMETRIC ANALYSES OF IRON SMELTING DEBRIS AS A TOOL FOR EXAMINING SIMILARITIES IN TECHNOLOGICAL PRACTICE ACROSS THE ROMAN EMPIRE

Ruth Fillery-Travis

UCL

The Roman Empire stands at the beginning of the 1st millennia AD, dominating much of Europe between the 1st-4th centuries AD and consuming tens thousands of tonnes of iron: Bray (2010) has estimated each legion alone carried 300 tonnes, worth 3.5 million denarii in the early 2nd century AD. Recent archaeological and historical work tells us that far from being static, the period of Empire was one of substantial social, economic and political changes, and recent developments in archaeological theory argue against the traditional 'Romanisation' theory of monolithic acculturation within the Empire. From this information, it is possible to expect substantial variation between sites conducting such socially mediated activity as iron smelting.

In this paper I present archaeometric analyses of iron smelting debris from two very different sites – small-scale vs large scale, regional vs Rome, early Empire vs late Empire – in which such variations are visible, but critically, in which general continuities and similarities in practice on and between the two sites are more clear. To put these in context, I utilise an archaeometric dataset gathered from hundreds of analyses of comparative material to discuss the similarities between dozens of sites in the Roman Empire, and through this, examine the challenge of interpreting strong parallels between sites in a post-Romanisation theoretical structure that highlights heterogeneity in space and time.

Bray, L., 2010. "Horrible, Speculative, Nasty, Dangerous": Assessing the Value of Roman Iron. *Britannia*, 41, pp.175–185.

SA8 FROM RARITY TO COMMONNESS. A BRIEF HISTORY OF DOMESTIC CHICKEN IN POLAND

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Domestic chicken is the most common species that appears in bird assemblages in Poland. There are known over 150 sites, however rarely related to prehistoric context in comparison with medieval. Detailed data are mostly elaborated for the second mentioned period by quite many published reports in Polish journal titled *Archeozoologia*, issued between 1975-1994. Some aspects of domestic chicken history were briefly presented mainly in papers related to that times and rarely to the prehistoric periods. On the other hand it must be emphasized, that archaeozoology of birds paid attention to the domestic chicken history after 80's but in the last years it was in decrease. The past theses delivered on their culture status are not verified but still valid. This paper is an effect of the new project focused on the history of Holocene birds in Poland, where the domestic chicken is the most important issue. Authors revisit old records and opinions on the species occurrence in the region. On the base of published data and new research the cultural status of the bird is considered from the Early Iron Age to the Post-Medieval Time. Measurements are used for detecting of diachronic and synchronic trends in size changes. Special attention is paid to a social status of domestic chicken consumers in medieval settlements, towns and castles. Sex ratio and abnormalities of tarsometatarsal spur are the base for evaluation of cocks for caponisation, and cockfighting. Relation of goose and domestic chicken is one of the most important aspect as well.

SA10 EWE ARE WHAT EWE EAT: MODERN AND MEDIEVAL GEOGRAPHIC PATTERNS IN SHEEP WOOL LIGHT STABLE ISOTOPIC COMPOSITION

Isabella von Holstein

CHRISTIAN ALBRECHTS UNIVERSITY, KIEL

Combined light stable isotopic analysis of mammalian tissues is a tested provenancing tool in food authenticity, forensic and ecological studies. This approach relies on identifying geographical gradients in isotopic composition due to environmental, climatic and social patterns, e.g. relative abundance of food plant species, humidity, or fertilizer use. The resolution of the technique depends on the nature of the tissue under study, the variability of isotopic inputs to diet, and the degree of metabolic variation in a single population.

This presentation will examine the application of this method to medieval and modern sheep wool samples from northern Europe (Iceland to Finland, n=200). It will compare medieval and modern isoscapes, and discuss similarities and differences due to climate, farming practice change, and taphonomic and sample selection factors. It will discuss the resolution of the isoscapes, and explore how to combine this data with archaeological and historical data on textile movements and isotopic data from climate models.

SA1 GENETICS AND ARCHAEOLOGY IN A LONG-LASTING FRIENDSHIP. THE CASE OF THE ANGLO-SAXON MIGRATION

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Since the complete sequence of human genome (2001), scholars have integrated archaeological evidence with genetic data. This interdisciplinary collaboration aims to disentangle those past events that are still obscure from an archaeological perspective. In this paper I would like to present the study of the Anglo-Saxon migration as a case study of a fruitful collaboration between archaeology and genetics.

From the 5th century on, the sub-roman province of Britain underwent a cultural change underlined by the infiltration of new material culture coming from north-western Europe. The use of genetic data came to play an important role in the archaeological debate in order to provide a more general assessment of the Anglo-Saxon migration. I will firstly overview the genetic studies conducted so far, presenting the material and the methodologies involved, and the conclusions reached. Secondly, I will merge the results of the different projects to investigate how far genetic data has contributed to the initial questions posed by archaeologists and historians, focusing on the advantages and pitfalls of such interdisciplinary approach. Lastly, I will sketch possible guidelines on future research to insight such complex period of transition of human history.

SA25 GENETIC DATA AS SILVER BULLET TO SOLVE ARCHAEOLOGICAL DOUBTS? WHAT GENETIC CAN TELL US ABOUT HUMAN PAST

Francesca Conselvan

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Our genome is the result of past demographic events, such as migrations, sex-biased selections, social barriers, diseases, etc, which have shaped modern genetic diversity. In the last three decades, genetic data served as a tool for investigation of the human past. However, sometimes genetic research is difficult to read for a non-specialist audience. In this paper I will present an overview of the genetic material, uniparentally genomes (mtDNA and Y chromosome), whole genome, and ancient DNA (aDNA), from an anthropological prospective, escaping the ghetto of technical description. Goal of the presentation is to highlight how archaeologists can use genetic data and how they can profit from such interdisciplinary research. Extended examples will be presented alongside each marker to show how to integrate archaeological questions with genetic data.

SA24 RECENT STABLE ISOTOPE ANALYSES AND DIETARY VARIABILITY AT THE STONE AGE BURIAL SITE ZVEJNIEKI, NORTHEASTERN LATVIA

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Zvejnieki is a complex of two settlements and a burial site, located near Lake Burtnieks. Longstanding excavations at the burial site have revealed more than 300 burials dating from the Late Mesolithic (6000 BC) to the Late Neolithic (4000 BC). Thus the site's chronology spans the crucial Mesolithic to the Neolithic transition in a location close to the limits of early farming capabilities. The skeletal material is remarkably well-preserved, paving the way for exploration of shifts in human diet across this and other important cultural transitions, using stable light isotope analyses of bone collagen. Existing published carbon and nitrogen isotope data for the fauna (both terrestrial and aquatic) provides a framework for the isotope ecology of the site, which is characterized by significantly low carbon and regular nitrogen isotope values. Here we report the results for new carbon and nitrogen stable isotope analyses for bone collagen of 12 individuals from several periods within the burial site. The results show high inter-individual isotopic variability for all periods sampled. This pattern of variability is more reminiscent of the broad variation observed in Mesolithic populations across multiple sites in North-West Europe, rather than showing the levels of homogeneity observed in most Neolithic populations of the region, where data tend to cluster tightly.

SA2 DIGITAL DOCUMENTATION AND MODELLING OF ARCHAEOLOGICAL STRUCTURES AS A FORM OF CULTURAL HERITAGE PROMOTION. (PERSPECTIVES, PROBLEMS AND RESULTS). CASE STUDY OF THE BRATISLAVA CASTLE.

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¹VIA MAGNA, S.R.O., ²THE UNIVERSITY OF BELGRADE, FACULTY OF PHILOSOPHY, DEPARTMENT OF ARCHAEOLOGY

The primal aim of the article is to evaluate the exploitation possibilities of 3D data gathered for digital reconstruction of past architectural structures within project CONPRA, funded under 7 Framework Programme, *Marie Skłodowska-Curie Actions*. All procedures were tested on case study of archaeological excavations on Bratislava castle in years 2013-2014. Most important finds included Celto-Roman buildings made of stone and mortar, with poured floors, fragments of mosaics and colourful wall paintings. During the excavations, all unearthed architectural remains were digitally captured both by terrestrial laser scanning and by the application of image based modelling techniques which give very satisfactory results in rendering of 3D models and subsequent analysis. Digital documentation ought to, in next steps, generate data that are used in 3D reconstruction of archaeological features or historical architectural structures. These reconstructions are of crucial importance not only from the point of view of cultural heritage promotion to a wider public, but they also incorporate added scientific value in the way of allowing relevant virtual testing of particular expert hypothesis.

SA24 UNRAVELING THE EARLY HISTORY OF FABA BEAN IN THE SOUTHERN LEVANT USING CARBON ISOTOPES (12C, 13C, 14C).

Valentina Caracuta

WEIZMANN-MAX PLANCK CENTRE FOR INTEGRATIVE ARCHAEOLOGY AND ANTHROPOLOGY; D-REAMS RADIOCARBON LABORATORY

Unraveling the history of faba bean in South Levant would illuminate a turning point in human civilization and give scientists fresh insights that could help to improve the crop for the future. Despite its importance, very little is known about the origin of

such crop. Recent discoveries of charred faba beans in three Pre-Pottery Neolithic B sites from the Southern Levant offer new insights into the early history of this species and open new scenarios on the domestication of faba beans. Seed size has been often considered a parameter to assess the degree of domestication of a crop, but the size can depend on several factors, including edaphic conditions at the site of growth. The $\delta^{13}\text{C}$ isotope ratio was previously shown to be a reliable parameter to ascertain the amount of water received by faba bean during its growth and, since water might have influenced the size of the seeds, we analyzed the discriminant of the stable carbon isotope ratio ($\delta^{13}\text{C}$) of ninety-five archaeological faba beans. A good correlation was found between the average length and the average $\delta^{13}\text{C}$ value of each group ($R^2: 0,72$) and this shows that seed size mainly depends on water availability at the site of growth. The paper shows that seed size did not increase as a result of farming, and therefore does not account as evidence of domestication but it is rather related to the water received by the plant during the period of growth.

SA17 SURVEYING THE DUNES: APPLICATIONS OF EARTH OBSERVATION IN MONSOONAL SEMI-ARID ENVIRONMENTS (NORTH GUJARAT, INDIA)

Francesc C. Conesa¹, Núria Devanthéry², Andrea L. Balbo¹, Marco Madella¹, Jonàs Alcaina¹, Carla Lancelotti¹

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This paper presents an integrative application of Earth Observation (EO) methods aimed at understanding the social and environmental mechanisms that have shaped the semi-arid alluvial plains of North Gujarat.

The present day landscape of this region preserves geomorphologic features (such as relict sand dunes and floodable interdunes) closely related to Mid Holocene human occupations (from hunter-gatherer and agropastoral communities to Harappan urban sites). Therefore, in this area the application of remote sensing approaches is well suited to understand past socio-ecological dynamics. However, accelerated development in the region over the past 50 years has resulted in an intensification of erosional processes mainly due to large-scale land interventions (e.g. expansion of mechanized agriculture and the construction of irrigation canals).

This study focuses on the applications of multi-scale and multi-temporal satellite imagery including historical maps and photographs (i.e. CORONA), medium and high-resolution multi-spectral data (e.g. RapidEye, ASTER, Landsat) and Synthetic Aperture Radar data (i.e. Envisat, TerraSAR-X). The combined use of EO and geoarchaeological data collected in the field provides new insights into 1) the spatial distribution of archaeological evidences and 2) the main land use management strategies that are accelerating erosional processes, thus reducing archaeological visibility and hampering heritage preservation.

SA5 CLIMATIC CHANGES AT THE TRANSITION FROM FORAGING TO SEDENTISM IN SOUTHERN LEVANT: THE CONTRIBUTE OF CARBON ISOTOPE ANALYSES OF ARCHAEOLOGICAL CHARCOALS.

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The major social and economic changes associated with the rise of a sedentary lifestyle and the gradual disappearance of the foraging system in the southern Levant are often considered to have been triggered by climate changes at the end of the Pleistocene. This explanation, however, is biased by the scarcity of high-resolution climate records directly associated with human activity and the lack of refined palaeoecological studies from multi-stratified sites in the area. Here, we present the results of the anthracological analysis, carried out on charcoals collected along a continuous column of archaeological sediments in the Natufian site of el-Wad Terrace (Mount Carmel, Israel). Previous studies have already indicated the importance of anthracological analyses to reveal the presence, spatial and temporal distribution of specific tree taxa around archaeological sites, in this study we broaden the informative potential of the anthracological analysis by measuring carbon stable isotope ratios on the very same ^{14}C dated charcoals of *Amygdalus sp.* in order to assess the timing, extent and intensity of past climate changes in the Carmel area.

This paper presents well-dated anthracological remains embedded within the sequence that includes all the stages of the Natufian culture and overlying deposits at the el-Wad site. The remains, studied using anthracological and isotopic approaches, constitute a unique proxy for the human ecology in this critical period.

SA3 ARCHITECTURES OF COMPLEXITY: THE IMPLICATIONS OF FURNACE TYPE ON THE TEMPORALITY AND SCALE OF PRODUCTION IN MIDDLE BRONZE AGE SINTASHTA COMMUNITIES

Derek Pitman

BOURNEMOUTH UNIVERSITY

Middle Bronze Age Sintashta Communities, found on the Southern Urals, are typically seen as complex societies who engaged heavily in large scale metallurgy and long distance exchange. Central to this image are the large and complex furnace architectures that are found throughout the literature. However recent work by the '*Sintashta Collaborative Archaeological Research Project*' has begun to question such a model suggesting that these groups produced metal on a much smaller scale,

satisfying primarily local needs. This paper presents the results of an experimental program aimed at better understanding the nature of the Sintashta metallurgical process, specifically the types of metallurgical architecture that would be necessary to produce the characteristic debris found many of the sites. The debate surrounding metallurgical architecture in the southern Urals has traditionally been dominated by the complex well-tunnel-furnace which seems unlikely to have been able to produce the slag typically found. The work presented here uses the debris itself as a foundation for the experimental program coupled with a review of potential metallurgical features found on the sites. The program shows that smaller, ephemeral furnaces were most likely used and that the scale of production was much smaller than typically asserted with smelting likely to have been sporadic or even seasonal. As such it becomes necessary to reconfigure our understanding of both the organisation of production and its temporality.

SA8 THE DYNAMICS OF HUMAN-CHICKEN RELATIONSHIPS: EVIDENCE FROM STABLE ISOTOPES

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A central focus of stable isotope analysis in archaeology has always been to reconstruct human diet, with faunal samples being examined primarily to better understand the human data. This paper will challenge this precept and highlight that important information about human-animal relationships can be obtained from isotope studies if the animals are viewed as individuals in their own right, as opposed to mere background data. Using chickens as a case-study, this paper will examine stable isotope data for the species to show how human-chicken relationships changed in northern Europe over the last 2,500 year: from their earliest introduction as valued exotica, to their present day position as ubiquitous cheap protein.

SA1 FIBRES OF EARLY FARMERS: MATERIAL CHOICES IN THE SELECTION OF PLANT FIBRES IN NEOLITHIC EUROPE.

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The Mesolithic-Neolithic transition heralded important changes in the role of plants and animals through domestication. Studies of this transition have focused largely on plants and animals exploited for food. However, plants and animals also provided materials, notably plant fibres. This research consider the material choices offered by flax, lime bast and willow bast fibres, as these are the most commonly known plant fibres used in the late Mesolithic and Neolithic in Europe. Through this we questioned whether the mechanical properties of flax fibre were an important factor in its cultivation. To achieve this end, tensile tests were carried out to characterise flax, lime bast and willow bast to provide objective, comparative results for tensile properties: strength, Young's modulus and toughness. In seeking to gain scientific, objective results for the mechanical properties of these plant fibres, the research team of materials scientists and archaeologists found that the flax tested in this study had mechanical properties superior to the indigenous tree bast fibres. This novel approach provides new results and points to the possibility that this was one of the motivations for early farmers to cultivate flax. This allows a richer understanding of the motivations of early farmers, suggesting that flax cultivation was not only motivated by ideology, economy and lifestyle, but also by the desire for excellent materials.

SA14 EXPLOITATION AND CIRCULATION OF METALS IN THE PRIORAT AREA (TARRAGONA, SPAIN), 2500-600 BC: ARCHAOMETRY AND CONTEXTUALIZATION

Núria Rafel¹, Ignacio Soriano², Xose-Lois Armada³

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Núria Rafel, Ignacio Soriano, Xosé-Lois Armada, Mark Hunt, Ignacio Montero

Since the year 2000 we have carried out a research project in the Priorat area (Tarragona, Spain) focusing on the investigation of mining, metalwork and metal distribution networks. From a methodological perspective, we have adopted a holistic approach that aims to integrate survey and excavation data with chemical composition and lead isotope analysis into a single interpretative view.

To date, the research project has documented copper and lead exploitations from the mid of the 3rd millennium cal BC. The oldest exploitations are attested in the northern part of our study area, at the Montsant basin, and can be dated to the Chalcolithic and Bronze Age. We have evidence of two copper mines which are connected with intensive cave settlement and funerary use, as well as large open air flint workshops. In the southern basin, we could only indirectly document the exploitation of lead. In this case, copper exploitation is not attested until the 10-9th centuries BC. Between the 9th and the 5th century BC, however, the occupation of the area is organised around proto-urban settlements, with lead exploitation serving one of their main activities.

We have been able to draft a framework of local exchange through social networks from the Chalcolithic to the end of the Late Bronze Age. Afterwards, between 9-6th centuries BC, the pattern shifts to long distance exchange managed by local communities with emerging elites via Mediterranean commercial networks and links to Phoenician trade.

SA24 REVEALING THE IMPORTANCE OF BALTIC SEA RESOURCES IN THE DIETS OF THE PEOPLE OF PREHISTORIC FINLAND THROUGH LIPID AND $\delta^{13}\text{C}$ ANALYSES OF ORGANIC RESIDUES IN CERAMIC FOOD VESSELS

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Finland lies by the Baltic Sea and thus the people of the coastal zone have access to a unique ecosystem. The riverine freshwater supply to the Baltic Sea is very substantial and exchange with the Atlantic Ocean limited by the Danish straits. The brackish water has given rise to a diverse fauna and flora. However, the species that exist there grow more slowly and smaller than similar species in other seas.

As to how important the Baltic Sea was in the lives of the people of prehistoric Finland, especially coastal dwellers, remains a subject of debate. A major hurdle to reconstructing prehistoric diet in the region stems from the acidic soils and hence loss of faunal remains from the archaeological record. Moreover, where bone does survive it is highly fragmented. However, organic residues absorbed in the clay walls of archaeological food processing vessels provide unique possibilities for tracing food procurement and processing by populations of prehistoric Finland.

This paper combines analyses of lipid residues in >200 archaeological potsherds and >100 modern ecological fauna to aid reconstruction of the diets of the prehistoric population of Finland. The $\delta^{13}\text{C}$ values of the fatty acids of modern reference organisms from the Baltic Sea and hinterlands were essential due to the diversity of organisms likely to have been consumed by hunter-fisher-gatherer people and the unusual nature of the Baltic Sea biogeochemistry. The results show unambiguously that the Baltic Sea played a major part in fulfilling the dietary needs of the prehistoric people of Finland.

SA6 LOCAL MARINE RESERVOIR CORRECTIONS FOR THE CARIBBEAN ISLANDS ILLUSTRATE HIGH INTRA- AND INTER-ISLAND VARIABILITY

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The ubiquity of marine mollusks from Pre-Columbian archaeological sites in the Caribbean has made them ideal sample types for radiocarbon dating. Unfortunately, there is a paucity of local marine reservoir corrections for most of the region, and none for the Lesser Antilles, which would assist in developing local marine reservoir corrections and developing more refined chronologies. Here we present a suite of more than 30 new corrections for islands in both the Greater and Lesser Antilles derived from known age shells pre-dating 1939. This is the first intensive radiocarbon dating regime in the region to examine ΔR effects which, with the limited corrections done thus far, already show wide variation within and between islands across the Antilles. Research is now focused on identifying the causal mechanisms behind such variance and the implications these have for radiocarbon sequences in the Caribbean.

SA14 ATLANTIC LATE BRONZE AGE METAL HOARDS COMPARED: EXPLORING NEW PATHS FOR THE ARCHAEOLOGICAL STUDY OF INTERACTION AND CONNECTIVITY

Xose-Lois Armada

UNIVERSITY COLLEGE LONDON

The aim of this paper is to present some preliminary results of the "Atlantic Late Bronze Age interaction through metal hoards" (ALBIMEH) project, a two-year IEF Marie Curie project currently in progress at the UCL Institute of Archaeology.

The project examines the nature and extent of interaction between the Late Bronze Age communities of the European Atlantic façade (c. 1300-850 BC) through the study of metal hoards. It seeks to determine the similarities and differences expressed by the hoards in different spheres (economic, technological, ideological and religious) by undertaking an intensive and comparative study of the phenomenon in four selected geographical areas. To achieve this aim, we prioritise a standardised data acquisition protocol in four focus areas on the Atlantic façade. From the analytical point of view, ALBIMEH aims to build a new corpus of chemical composition analysis of LBA metal objects from the selected study areas using a handheld XRF spectrometer and extended through the compilation of previous analytical data. The chemical data will be combined with other aspects of the archaeological record to identify patterns that may be compared across the various study regions.

In this paper, I will focus on the preliminary results obtained in two of the study areas, located in the Beira Litoral (Portugal) and the north of Galicia (NW Spain). I will also touch on the main similarities and differences with hoards of the study areas located in France and the UK.

SA19 INFORMATIVE POTENTIAL OF THE COLLECTION OBJECTS OBTAINED BY REVERSE ENGINEERING

Jairo Arturo Escobar Gutiérrez, Nohora Bustamante, Natalia Rueda, Santiago Cano, Juan David Barbosa

UNIVERSIDAD DE LOS ANDES

Metallurgy was an important activity developed by social groups -that inhabited the actual territory of Colombia- in pre-Hispanic times. This activity must have been involved with their customs, ideology and practices, as it was expressed in their

material culture. Proof of it is the collection of nearly 40.000 objects stored and displayed within the Gold Museum in Bogotá and more than thirty other museums around the world. Most of these "objects" lack of archaeological context, as they are the product of "guaquería", the act of robbing tombs or graves. This difficulty has limited archaeological research, but also has stimulated investigation on artefacts themselves, as they are evidence of their goldsmiths and their metallurgical technologies.

This work aims to demonstrate the informative potential of the "objects" by using the reverse engineering methodology and tools such as theoretical models of industrial corrosion; computational simulation, utilizing FLOW3D Cast software; and analytical measurements as XRF, SEM-EDS, EBSD and XRD. Both methodology and tools allowed to propose manufacture hypotheses and their corresponding validation through experimental replicas.

One of our projects using an industrial corrosion model, allowed to model and replicate the depletion gilding process of Tairona Goldsmiths. Another project consisted on digitally rebuilding a lost Muisca raft and its casting process by using historical sources only. One third project using a 300 micrometers thick fragment analysis, belonging to a Nariño goldwork -provided by the Gold Museum- revealed a cycling including cold work (plastic deformation) upon only one of its faces and annealing.

SA2 DIGITISED DISEASES: 3D MODELS OF DISEASED BONE FOR SPECIALIST ARCHAEOLOGICAL AND MEDICAL AUDIENCES AND WIDER PUBLIC INTEREST

Andrew Wilson, Tom Sparrow, Andrew Holland, Jo Buckberry

UNIVERSITY OF BRADFORD

This talk discusses the nature of content produced for 'Digitised Diseases', an important legacy project based at the University of Bradford and supported initially by Jisc-funding. The project used 3D digital documentation to record examples of chronic diseases manifest in the human skeleton. Together with our project partners - the Royal College of Surgeons (of England) and MOLA - we created photo-realistic 3D digital models of type specimens of diseased bone from archaeological and historical medical collections in Bradford, London and York. Digitised Diseases now serves as a free-to-all online repository of 3D specimens that enables users to view and manipulate models online and also download higher resolution textured models for use with freely available viewers on a range of platforms. From the outset we used regular project bulletins via a range of social media to target potential users from the bioarchaeological community, with considerable global interest, particularly from countries such as the US that have restrictions on the curation of archaeological human remains. Uptake and use of this resource since December 2013 when the website went live, now exceeds initial expectations with users in medicine, anatomy and the medical humanities as well as amongst the general public.

SA24 THE DIETARY HABITS OF URBAN POPULATIONS IN RUSSIA PRIOR TO THE INVASIONS OF BATU-KHAN.

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This study attempts the reconstruction of the dietary specifics of Russian urban populations prior to the invasions of Batu-Khan – based on analysis of paleo-anthropological and archeo-zoological evidence.

For the last two years the authors have made the first large-scale study of more than 300 isotopic analyses of human and animal bones (¹³C/¹²C, ¹⁴N/¹⁵N, ⁸⁷Sr/⁸⁶Sr). These remains were excavated from medieval Central Russian cities – Yaroslavl, Rostov Veliky, Smolensk, Dmitrov, Vladimir, Pskov and Mozhaik, and from contemporaneous several rural settlements.

The analyses show that bones from burials of high-status individuals in the central parts of large cities indicate a diet connected with a high level of meat-, milk-, and partly fish-based protein. Analyses of the bones from rural burials (such as kurgan earthwork burials from adjacent locations) show different results. The primary dietary components for these individuals would have been primarily plant-based.

The study enables us to make conclusions concerning factors determining the dietary habits of both the urban and rural populations. The authors assume there were significant social conditions which formed the dietary habit models of the medieval population.

Radiological studies were made of the indicators of physiological stress (using the Harris Lines) in the medieval population to identify possible periods of famine. X-rays were taken of the bones of people from medieval Yaroslavl - whose death-date can be specifically dated to the time of Batu Khan's assault in 1238.

Work is executed under grant RFBR #13-06-12030 ofi_m

SA24 BAYESIAN ESTIMATION OF ANCIENT HUMAN DIETS

Ricardo Fernandes

KIEL AND CAMBRIDGE UNIVERSITIES

Ancient human diet reconstruction studies relying on stable isotope analysis constitute an important source of evidence in archaeological research. However, instances occur where available isotopic proxies are unable to provide unambiguous dietary

estimates. In these cases it would be advantageous to combine isotopic data with independent sources of historical and archaeological information. The incorporation of this type of information can easily be achieved within a Bayesian statistical approach.

The Bayesian mixing model Food Reconstruction Using Isotopic Transferred Signals (FRUITS) was developed with the capability of incorporating the uncertainties associated with the parameters involved in a diet reconstruction exercise relying on isotopic data (consumer isotopic signals, diet-to-tissue isotopic offsets, isotopic signals of food groups, nutrient concentrations, and dietary routing). Furthermore, FRUITS allows for the incorporation of prior information. Sources of prior information may include, for instance, independent observations of the relative consumption of potential food groups (e.g. archaeological distribution of food remains, tooth wear patterns, etc).

This paper will present several archaeological case studies (Neolithic Germany, Roman Italy, and Medieval England) to illustrate the use of FRUITS to produce accurate and precise human dietary estimates.

SA2 WEMYSS CAVES 4D: A REVIEW OF THE CONTRIBUTION OF 3D DIGITAL DOCUMENTATION TO THE PRESERVATION, MANAGEMENT AND INTERPRETATION OF A CHALLENGING HERITAGE SUBJECT

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¹ST ANDREWS UNIVERSITY, ²ARCHERITAGE/YORK ARCHAEOLOGICAL TRUST, ³TRENT & PEAK/YORK ARCHAEOLOGICAL TRUST, ⁴NORTHLIGHT/YORK ARCHAEOLOGICAL TRUST

Former sea caves at East Wemyss in Scotland are special because of the carvings within them. These include around 40 surviving Pictish (5th-10th century AD) symbols and animal representations; a possible Viking boat; early Christian crosses and 19th century monograms and graffiti related to local New Year rituals.

The late 19th and early 20th centuries were the heyday of archaeological enquiry into the Wemyss Caves when pioneering recording and visualisation techniques were effectively applied to the carvings, including engravings, rubbings, photography and the taking of casts. Today, however, in a context of post-industrial distress, you are far more likely to read bad news stories about the abandonment of this unique Scottish heritage site to coastal erosion, structural instability and vandalism.

Between 2013 and 2015, a collaborative project involving the local community, digital heritage specialists and archaeologists applied a suite of non-intrusive range-based and image-based 3D digital techniques to the caves and carvings. The purpose was threefold:

- preserve by 3D digital record the landscape, caves and carvings;
- create digital tools for improved understanding, monitoring and management;
- communicate the unique heritage of the Wemyss Caves to a local and global audience in an innovative and engaging 3D medium.

One hundred and fifty years after the heritage of the Wemyss Caves was first recognised and documented, we will review the contribution that 3D digital documentation has made to this difficult, complex and politically-charged heritage site, and consider the challenges of using 3D data to meet the expectations of the diverse stakeholders involved.

SA14 BEHIND THE ARROWS ON THE MAP: A NORDIC VIEW ON THE BRONZE AGE TRADE IN METALS

Lene Melheim

UNIVERSITY OF OSLO, THE MUSEUM OF CULTURAL HISTORY

Our ability to link objects to a particular supply through metal analysis is strongly governed by current archaeological knowledge about metal production and circulation, and not least the available reference data on ore deposits. What is seldom questioned, however, is the *relevance* of provenance, or, what provenance can actually say about past relations. It has been pointed out that due to the visual anonymity of metals, a concern for origins in the Bronze Age itself would first and foremost have had to do with the quality and style of the crafted metalwork. Even to the craftsman provenance may not have mattered beyond whom he got the metal from, perhaps the last trading partner in a long chain of actors. Far from stating that provenance is irrelevant, this article aims at illuminating the complexity of the human relations involved in the exchange of metals. To this end, examples from recent lead isotope-based provenance studies in Scandinavia will be used. They suggest that metals reached Scandinavia in large quantities from far-away regions like the Mediterranean, which may indicate that the transportation of metals followed sea-based routes. This again seriously challenges our previous models of exchange, since in the Mediterranean commodity-based exchange operated in concert with gift-giving systems. In light of the new provenance ascriptions, this paper will try to get behind the arrows on the map, and explore the potential role played by the Northerners in the long-distance trade of metals.

SA1 PITTED WARE – UNEXPECTED ANCESTRY

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The ancestry of one of the last major hunter-gatherer complexes in Sweden, the Neolithic Pitted Ware Complex (PWC), has been heavily debated for about a century. One of the most favored hypotheses, based on archaeological artefacts, is that the PWC were farmers reverting to a hunter-gatherer economy and thus share their ancestry with the people of the contemporary Funnel Beaker complex. However, ancient genomic data show distinct genetic differentiation between the two groups and the data rather suggests a closer relationship for PWC to Mesolithic hunter-gatherers. This is one interesting example where ancient DNA results contribute to archaeological discussions in an unexpected manner.

SA14 IRON PRODUCTION AND DISTRIBUTION NETWORKS IN PRE-INDUSTRIAL BRITAIN: MODELS AND EVALUATION

Michael Charlton, Michael Charlton

UCL INSTITUTE OF ARCHAEOLOGY

Bloomery, or direct process, iron production played an important role in the pre-industrial economies of Britain from the Iron Age through the Middle Ages. Bloomery iron found uses ranging from personal adornment to war making and from farming to the building of cathedrals. An understanding of the networks through which iron circulated as well as the processes by which it flowed would, therefore, shed new light on preindustrial socioeconomies as a whole.

Several models for the production and distribution of iron have been proposed for various times and places based on the scale and geography of production facilities in relation to market and consumption centres. The distribution of iron objects, especially so-called semi-products—partially refined iron stock, also informs exchange system hypotheses. The development of new models of iron circulation derived from economic and related theories is also possible.

New approaches to sourcing bloomery iron artefacts, particularly those utilizing slag inclusion analysis are, for the first time, making it possible to empirically evaluate long-standing models of iron production and distribution networks. The transition between this possibility and its reality will require a committed effort in establishing extensive provenance databases.

This paper reviews some existing models of bloomery iron circulation in Britain and the provenance methods that might be used to investigate them. Attention is also given to the role of theory in building future models. Finally, preliminary results from the IRONWORKS geochemical provenance project in Britain are highlighted as an early step toward evaluating models of production and distribution.

SA22 DYNAMIC ANALYSIS: A PROTOCOL BASED ON INTERACTIVE PRACTICES BETWEEN IN SITU AND EX SITU ANALYSIS IN THE CONSERVATION OF MURAL PAINTINGS

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Dynamic Analysis:

A protocol based on interactive practices between *in situ* and *ex situ* analysis in the conservation of mural paintings

The cathedral in the town of Amfissa in Central Greece constitutes a landmark of both religious and artistic significance for the town and the region as a whole. Between 1926 and 1931 the cathedral was wholly decorated with mural paintings by a leading artist of the time, Spyros Papaloukas. The artist subtly and successfully merged the rather static tradition of Byzantine iconography with the major innovative approaches introduced in European art at the turn of the 20th century, resulting in a work of great religious and secular artistic merit. The mural paintings have been significantly affected by earthquakes and subsequent rainwater ingress.

This paper presents a methodology which combines the dynamic character of *in-situ* analysis (with p-XRF) with *ex-situ* laboratory-based work. The interactive approach between *in-situ* and *ex-situ* based on a protocol for investigation prior to actual conservation allows for a quick and accurate assessment of the materials used (both painted surfaces and underlying wall plasters), the techniques of application, the state and extent of surface weathering, resulting in a clear statement regarding options for remediation.

SA1 HOW GENETIC ANALYSIS FROM ANIMAL REMAINS CAN INFORM US ABOUT LIFE IN PAST SOCIETIES

Emma Svensson

DEPT OF EVOLUTIONARY BIOLOGY EBC, UPPSALA UNIVERSITY

Investigations of animal remains can tell a lot about life in past societies. Genetic analysis of these remains offer further insight as it is possible to look at improvement in animal husbandry, differentiation between wild and domestic animals and past trade routes. Analysis of coat colour in horses showed that the Iron Age population in Sweden was quite homogenous. Whereas the surprising find of alleles for black coat colour, thought to have been introduced to Sweden in modern times, was found in several sheep from the Iron Age. Genetic analysis also show that Christians improved cattle in Portugal following the *Reconquista* and that there were cattle of several types present at the same time in Medieval Bern.

Here I present genetic data from the first complete skeleton of a domestic bovid in Sweden. It's a very peculiar find, a near complete skeleton, buried in a small pit and dated to 3500-3100 BCE. Osteological analysis show that the calf was 6 months old and that there are 3 pieces of bone missing. The ancient DNA showed that it is a heifer with a mitochondria similar to that of other European cattle with an origin in the Near East. So far the calf is all that was found, without any further finds it's impossible to draw any conclusion of the culture that buried the calf and the purpose for doing so. However the multidisciplinary approach taken has revealed a lot more about this strange find than initially known.

SA9 WILD BEER: THE PREHISTORY OF FERMENTED BEVERAGES IN BRITAIN

Jonathan Horn

UNIVERSITY OF EDINBURGH

This paper will present the initial results of research into the production, storage and consumption of cereal based fermented beverages in prehistoric Britain. Modern brewing relies heavily on the use of isolated strains of brewers yeast *Saccharomyces cerevisiae* for fermentation. However, in prehistory there was less control over microbes present in the fermentation process. Therefore, we can expect ancient beverages to have been fermented by a wide range of yeasts and bacteria present in the local environment. The presence of particular strains of microorganisms are reliant on a number of factors including the production and storage techniques employed. Furthermore, temperature conditions drastically affect the presence and growth rates for many of the yeast and bacteria strains involved in fermentation, and therefore brewing would have undoubtedly have been seasonal. This seasonal production dictates the storage of these beverages in suitable containers for consumption throughout the rest of the year. By examining archaeological, historical and ethnographic evidence it is possible to identify both production and storage methods likely employed in prehistory. Furthermore, scientific examination of the development of microbial organisms occurring in modern 'spontaneously fermented' or wild yeast/bacteria infected beverages can then be applied, shedding light on the properties of these ancient fermented beverages. Finally, an examination of the cultural implications in the production and consumption of fermented beverages will be given, focusing on recent work undertaken by the author on prehistoric drinking vessels.

SA1 EXPLORING PALAEOLITHIC ENVIRONMENTS IN THE CANTABRIAN REGION: A MULTI-PROXY ISOTOPIC INVESTIGATION.

Jennifer Jones

UNIVERSIDAD DE CANTABRIA

Co-Authors Prof. Michael Richards, University of BC/Max Planck Institute Evolutionary Anthropology; Dr Ana Belen Marin-Arroyo, Universidad de Cantabria

Environmental Change during the Middle-Upper Palaeolithic transition, and the inability of human species to adapt to different conditions has been identified as a factor responsible for the extinction of Neanderthals and their subsequent replacement with anatomically modern humans. To understand the role of the environment in the change in population during the transition it is crucial to reconstruct the exact conditions experienced within the vicinity of sites occupied by Neanderthals and AMHs.

This paper presents the integrated use of bulk collagen $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis in combination with wider palaeoenvironmental proxies (pollen, macro-fauna, micro-fauna, and sedimentology) to characterise the environmental conditions experienced by Neanderthal and AMH populations in the Cantabrian refugium of Northern Spain, one of the archaeologically richest regions in the world. Extensive sampling of red deer and horse, the most commonly hunted species in the region at this time, was used to explore changing climatic conditions that both human species faced during this key period in human evolution. This evidence is then compared to the zooarchaeological record to identify changes and stasis in hunting strategies used during the Mousterian, Châtelperronian, Aurignacian, and Gravettian cultural periods, in relation to the palaeoenvironmental conditions observed. This innovative multi-evidential demonstrates how the integration of isotopic methodologies with traditional environmental proxies can clarify our understanding of human adaptations to environmental change, and the circumstances leading to the ultimate demise of Neanderthals in the Cantabria refugium.

SA19 THE IMPACT OF HISTORICAL POST-EXCAVATION MODIFICATIONS ON THE RE-EXAMINATION OF HUMAN MUMMIES

Heather Gill-Frerking

NTK SERVICES

Many museums and institutions have collections that include human mummies. Although some of the mummies may have been analyzed prior to or since acquisition, many have never been scientifically studied or have not been re-examined in decades. The rapid development of technology for the analysis of ancient human remains affords researchers the opportunity to gather new data about mummies that were discovered and examined decades, or even centuries, ago. The implementation of technology for the analysis of human mummies has become routine and provides substantial new information about the individuals being studied. During the re-analysis of a mummy, early post-excavation modifications, often previously unknown to current museum curators and staff, are identified and will, in some circumstances, affect the analysis and accurate interpretation of data. There are also ethical and professional guidelines that should be applied to the use of technology for the

study of human remains, including mummies. Museums make the protection of all human remains a priority and any plans for research using human mummies must be carefully considered and planned. New data from any research based on mummies in museums can be, and should be, applied to both academic analysis and interpretation and public presentation. This paper reviews some of the effects of past post-excavation efforts on the re-analysis and interpretation of three Iron Age bog mummies from northern Germany and a child mummy from South America, and highlights issues for museums who are considering undertaking or permitting analysis of mummies in collections.

SA26 THE ANALYSIS OF PROTEIN-MADE ARTEFACTS IN MUSEUM COLLECTIONS

Caroline Solazzo

SMITHSONIAN INSTITUTION

This paper will review the techniques available for the analysis of organic artefacts made of proteins in museum collections, which include more specifically objects made of fibrous proteins such as keratin and collagen.

When visual identification fails, most non-destructive techniques (Raman, FTIR) can identify the type of materials used, as well as provide some information on the state of deterioration. Species identification however can be difficult to assess as proteins are too similar to show a specific profile using these techniques. Analysis of proteins using mass spectrometry is an efficient method to determine the animal species (and has been called peptide mass fingerprinting), but also to characterise degradation at the molecular level, which makes the technique complementary to other non-destructive analytical tools. This paper will review the use of mass spectrometry as a minimally-destructive technique, show potentials and limitations of the technique and present the advantages of integrating it in the analysis of museum artefacts.

SA26 GEOLOGICAL, HYDROGEOLOGICAL AND GEOTECHNICAL CHARACTERISTICS OF BASARABI (MURFATLAR) ARCHAEOLOGICAL MONUMENT

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The archaeological site from Basarabi is digged into a lithological generated hill, consisting of chalks and chalky marls, where Senonian occurs continuously over the Barmiene limestone from the valley Carasu flank, or over the Aptiene gravels. The limestone from Basarabi is compact, with variable thickness from 42 m to 95 m, and below them there are marl and limestone. It is white with flint nodule with 91% CaCO₃. From geological and technical point of view, could be identified semi-hard rocks (limestone, limestone breccia, chalks, sandstone, limestone shale, etc) with hardness between 3 and 5, and compressive strength between 700-1000 kg / cm². From mineralogical and chemical point of view, the rock is mono-mineral (CaCO₃), the rock cementing is a growing process that could crystallize, these crystals having a proper optical orientation. The moisture could cause a crushing of the chalk rock, and this stone suffers over time changing his composition and structure. From technical-mechanical point of view, the chalk stone has the following characteristics: porosity: 0.5-13.5 %, degree of saturation: 0.3-0.994 %, bulk density, 1.9-2.8 kg/dm³. Due to the low resistance to freeze-thaw, the monument has been covered with cements structures or with a provisory roof, and their influence is discussed in this paper, correlated with the micro-climatic measurements of the sculpted rooms, by using a lower number of sensors well distributed inside and outside. All these parameters help to identify and stop the destroying or damaging process of many artworks from world valuable cultural and historical patrimony.

SA24 NEW TRENDS, NEW FOOD? INVESTIGATING PREHISTORIC DIET IN THE LIMFJORD REGION, DENMARK.

Laura van der Sluis

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The Limfjord region is a sound in northern Denmark with brackish water resulting from the mixing of freshwater from the Baltic and marine water from the North Sea. The varied landscape in the Limfjord is characterised by different biotopes, in the terrestrial as well as the aquatic spheres, which man has been exploiting since the Mesolithic. As prehistoric people living in this landscape experienced many changes, both on societal and environmental level, their adjustments to these changes might be expressed through an alteration in diet. Multi-proxy analysis ($\delta^{13}\text{C}$, $\delta^{15}\text{N}$, $\delta^{34}\text{S}$ and to some extent ^{14}C) of human and animal bones from the Late Mesolithic circa 3900 BC to the Viking Age circa 1050 AD in this area can reveal any dietary changes across the millennia. Dietary isotopic information combined with archaeological information might elucidate whether changes in diet are corresponding to major societal alterations during the Danish prehistory. Additionally, the consumption of food from mixed marine and freshwater environments can pose a problem in calculating reservoir offsets. The incorporation of $\delta^{34}\text{S}$ ratios as another dietary proxy might increase our understanding of how to quantify age offsets. As part of a larger project, the isotopic and archaeological datasets will eventually be compared with palaeoenvironmental data obtained from a core taken from the Limfjord to investigate human-coastal environment interaction.

SA10 INVESTIGATING DOMESTIC ANIMAL MANAGEMENT IN EARLY NEOLITHIC SWEDEN

Kurt Gron

DURHAM UNIVERSITY

Very little is known about animal husbandry during the earliest Neolithic (Funnel Beaker Culture, ENI TRB, 3950-3500 cal. B.C.) of southern Scandinavia aside from the presence of domestic species. This is largely due to the scarcity of the domestic faunal material dating to this period, limited in most cases to very small numbers of bones and teeth, often in poor condition. In this study, evidence for cattle (*Bos taurus*) husbandry practices is presented through the lens of birth seasonality and diet of animals from the site Almhov, in Scania, Sweden. This site represents what is likely the largest, securely dated early Neolithic assemblage of domestic animals from the region. Results obtained from sequential sampling of tooth enamel carbonate for carbon and oxygen isotopic ratios and for strontium isotopic proveniencing give insight into birth seasonality and birth locality. Additionally, bone collagen carbon and nitrogen isotopic ratio analyses from the site have the potential to indicate dietary trends among the domestic animals and local wild species. Further analyses from additional sites in the same region dating to contemporary and other periods of the Neolithic are presented in comparison. In all, these data act as a case study in the problems encountered in small-sample applications of these methods to extremely rare materials attempting to address important human transitions. The implications of these data are discussed in context of the transition to agriculture in the region.

SA10 A GRAIN OF TRUTH: EVALUATING DIETARY RECONSTRUCTIONS AND INTERPRETATIONS IN CENTRAL EURASIAN POPULATIONS

Alicia Ventresca Miller¹, Cheryl Makarewicz²

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This paper examines evidence for the spread of plant agricultural technologies into Eurasia, a region populated mainly by hunter-gatherers and pastoralists. This is a contentious issue, as multiple authors have recently suggested that millet consumption can be confirmed by stable isotopic data. Although there is some direct evidence for the exploitation of domesticated millet in the form of carbonized seeds recovered from temporally and geographically disparate locations, the majority of evidence for millet consumption is derived indirectly from the carbon and nitrogen isotope record of bone collagen. Here, we re-examine the available stable isotope datasets obtained from pastoralist and hypothesized agro-pastoralist groups inhabiting central Eurasia during the Bronze and Iron Ages in order to track the uptake, if any, of millet. Drawing upon isotopic data from wild and domesticated ungulates occupying the same habitats as examined human groups, as well as modern vegetation maps, we generate comprehensive carbon isoscapes – predictive models that account for spatially linked environmental variation to establish patterns in the isotopic ratios of landscapes. These comparative models are further supported by the recent collection of ecological data in portions of the steppe. Compiled isotopic datasets for the region indicate that grains were incorporated into human dietary regimes in diverse ways at different locations over time. Therefore, current discussions should revolve not around the ‘earliest’ introduction of grains, but instead on different practices of consumption, use, and rejection of these consumables based on environmental and social factors.

SA8 ON THE ORIGIN OF CHICKENS

Jacqueline Pitt

BOURNEMOUTH UNIVERSITY

Species Distribution Modelling (SDM) and Ecological Niche Modelling (ENM) have been important tools in recent ecological and biogeographical research. Although past data is used to inform future species distributions, the reverse is not usually applied. This paper demonstrates how the novel approach of applying such methods to a domestic animal can better inform our understanding of the evolution and dispersal of a species.

With a near global distribution, the chicken is the most widespread non-mammalian domesticated animal. Descended from the Jungle Fowls of South-east Asia and India, the chicken has transformed from a tropical-forest-residing wild bird into a domesticate which now populates most climates and habitats of the world. The successful expansion of its range so far beyond that of the wild ancestor implies evolution through domestication, either solely by artificial selection or by a combination of natural and artificial selection.

While genetic studies can provide information concerning the origins and spread of ancient animal populations, these data need to be considered in the context of the climate and environment within which the species was evolving. In terms of a zooarchaeological assemblage, the impact of an invasive species requires consideration. Methods more frequently used in ecology, rather than archaeology, lend themselves to this research, and help us better understand the faunal remains present in the archaeological record and the behaviour of the populations that created it.

SA19 ALL THAT GLITTERS IS NOT GOLD: ABOUT SOME OF THE LIMITATIONS AND STRENGTHS OF NON-DESTRUCTIVE ANALYSES ON ARCHAEOLOGICAL POTTERY

Javier Iñáñez

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Non-destructive analytical techniques have emerged during the past years as an indispensable tool for archaeologists and museum professionals. Nowadays, these non-destructive and usually portable techniques are widely applied to numerous and heterogeneous kind of artifacts in museum collections, from natural (e.g. stony materials) to synthetic materials (e.g. ceramics)

or metals). Although the socialization and spread of such technologies may be interpreted as an important step forward for the Archaeological Community, several problems may be pointed out. Thus, and from the experience gained in the past years, it is important to clearly highlight that such techniques should not be considered by no means as some kind of a "black box". On the contrary, the limitations and strengths of any instrument and technique depending on the nature of the material to be studied should be known in advance in order to generate reliable data. Experiences from the field of pottery analyses will be discussed, including provenance and technological studies.

SA26 FOOTSTEPS ROUND THE FIRES: GEOARCHAEOLOGICAL APPROACHES TO UNDERSTANDING NEOLITHIC STRUCTURES AT THE NESS OF BRODGAR, ORKNEY, SCOTLAND

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Since 2004, excavations at the Ness of Brodgar, within the 'Heart of Neolithic Orkney' World Heritage Site, have revealed a large complex of monumental Neolithic structures on an unparalleled scale. This internationally significant Scottish site spans over a millennium of activity, and continues to yield rich, complex artefact assemblages, unique artwork, and well-preserved environmental evidence. Ongoing excavation within a range of structures with evidence for both domestic and 'ritual' use has confirmed the repeated, and excellent, in-situ preservation of extensive occupation surface sequences, as well as extant sequences of fuel residue deposits within associated hearths.

We introduce a project which embeds a programme of micro-stratigraphic analysis into the excavation strategy for the Ness buildings, with an intensive programme of micromorphological sampling dovetailed with the phased excavation. This not only facilitates a more detailed understanding of the micro-archaeology of this complex site - addressing questions of building function, settlement organisation, use of interior space and patterns of resource utilisation - but also aims to support the wider scientific strategy for the Ness of Brodgar. With the capability to contribute to both spatial and chronological investigations, the ability to provide detailed insight into both physical and chemical site conditions, and with a unique capacity to bridge the gap between the microscopic and macroscopic scales, micromorphology and associated geoarchaeological investigation at the Ness is a powerful tool which can help structure joined-up outcomes from individual on-site scientific analyses, including zooarchaeological, botanical, and other environmental analyses, spatial geochemical methods, and even scientific dating.

SA14 TRANSMISSION OF TECHNOLOGICAL KNOWLEDGE VS TECHNOLOGICAL INNOVATION IN IBERIA

Mercedes Murillo-Barroso

UCL-INSTITUTE OF ARCHAEOLOGY

The origins of metallurgy and its assimilation by societies has been a major topic of discussion in archaeology. This debate has been largely focused on whether metallurgy was invented once or more as well as the means by which it was introduced to certain areas: through population movement, through the exchange of ideas and knowledge; or conversely, if metallurgy constitutes an independent innovation.

In this paper we present preliminary results of the ongoing SMITH project, which is devoted to investigate whether metallurgy was an independent innovation in Iberia. This question is addressed through the study of technological styles and traditions to measure the extent of possible influences; their associated contexts as potential manifestations of knowledge transfer or exchange, as well as the social value given to metals by each society.

Materials analysed in the SMITH project comprises the whole chaîne opératoire from key Chalcolithic Iberian sites. Samples are being analysed by a myriad of analytical techniques (pXRF, XRD, SEM-EDS, or LIA), which will allow us to better define this technological culture and compare and contrast that to European and the Near Eastern metallurgical traditions.

SA20 ONCE AGAIN ABOUT THE "THRACO-CIMMERIAN" HORIZON BASED ON TWO NEW BRONZE HOARDS

Corina Bors

MUZEUL NATIONAL DE ISTORIE A ROMANIEI

In 2012, as part of a large scale rescue excavation undertaken in southern Transylvania, occasioned by the construction of a future motorway, was made a very important archaeological discovery: two bronze hoards, discovered on the southern limit of a very large prehistoric site, at Tărtăria (Alba county), preliminary dated during the 8th c. BC (the middle Hallstatt period). The two bronze hoards were discovered within a ditch, marking the southern limit of the site. The structure of the deposits is complex and varied, containing weapons, tools, jewelry and harness objects. The first hoard comprises more than 300 objects, being one of the largest ever found corresponding to the 9th-8th c. BC period in the Carpathian area, while the second consists of 50 objects. The majority of the objects are made of bronze, yet there are also weapons and tools made of iron, along with others made of animal bones (teeth).

As part of PILOT research project (supported by the Romanian National Authority for Scientific Research, CNDS- UEFISCDI, project number 2013-4-1022) were initiated a series of archaeometrical investigations regarding the component objects of the two bronze hoards and new data were obtained. The preliminary analysis of certain objects indicate wider connections to the

north Pontic areas, as well as to the south-western Balkan ones, providing new data to discuss upon the long-distance exchanges and contacts during the first centuries at the beginning of the first millennium BC in the Carpathian Basin.

SA18 UNLOCKING INFORMATION FROM MORPHOLOGICALLY-UNIDENTIFIABLE FAUNAL REMAINS USING LARGE-SCALE COLLAGEN FINGERPRINTING ANALYSES

Michael Buckley

THE UNIVERSITY OF MANCHESTER

Archaeological faunal assemblages often consist of hundreds, thousands or tens of thousands of specimens but the majority of which can be morphologically undiagnostic to a meaningful taxonomic level. Over the past few decades, several scientific techniques have been developed to provide an objective means of species identification, including histological and molecular-based methods. However, the application of most of these methods to large numbers of specimens is impractical. Within the last decade, a new technique has been developed that fingerprints the most abundant biomolecule in bone using methods capable of large-scale analyses. ZooMS, short for 'Zooarchaeology by Mass Spectrometry' can refer to a range of methods but focuses largely on collagen fingerprinting for species identification and was initially developed to distinguish morphologically-similar post-cranial elements from the remains of domesticated animals and at low through-put. However, recent developments have vastly increased the throughput of this technique, as well as the range of wild animal species that could now be confidently identified, including a wide range of microfaunal and marine species. This presentation will provide several different examples with sample numbers from each site ranging from typically <100 specimens, up to >10,000 fragments and the limitations involved. It will also present insights into whether or not the inclusion of representative proportions of the fragmentary faunal remains impacts upon the interpretation of an archaeological site, and explore the practical considerations and benefits of obtaining and retaining a ZooMS-sampled archive.

SA15 WAR AND PEACE IN IBERIAN PREHISTORY: AN ANTHROPOLOGICAL APPROACH TO VIOLENT SCENES OF SPANISH LEVANTINE ROCK ART

Esther López-Montalvo

UMR 5608 TRACES CNRS

One of the main problems when trying to establish the origin, nature and scope of violence in Prehistory is the limited material trace left by even the most extreme and lethal episodes of physical violence in the archaeological record; its asynchronous emergence; and the ambiguity inherent in its interpretation. In this sense, the information held by prehistoric iconography- parietal and portable support- has been often underestimated and only a descriptive approach has been performed. Taking into account the difficulty in decoding the meaning and signification of prehistoric images, in this work we will weigh up the potential and limitations of prehistoric art when trying to identify and determine the existence of conflict in prehistoric societies. To do so we will analyse the scenes of violent content documented in Spanish Levantine rock art, a unique form of pictorial expression in the context of Neolithic Europe, located in the rock shelters in the inland regions of the Mediterranean basin of the Iberian Peninsula. For that purpose, we introduce new variables for analyses that allow us to characterize the evolution of the situations of conflict in time and territory. Similarly, we assess an anthropological reading of violent scenes to shed light on aspects concerning social organisation- hierarchies, social status, gender, etc. Finally, we will address the value of data provided by the pictorial record in the context of archaeological evidence of violent episodes in prehistoric Iberian Peninsula.

SA11 GENOME ANALYSIS OF *YERSINIA PESTIS* FROM A 16TH CENTURY MASS BURIAL SITE FROM ELLWANGEN, IN SOUTHWESTERN GERMANY

Maria Alexandra Spyrou¹, Johannes Krause¹, Kirsten Bos²

¹UNIVERSITY OF TUEBINGEN, ²MAX PLANCK INSTITUTE FOR THE SCIENCE OF HUMAN HISTORY

Maria A. Spyrou, Susanne Arnold, Joachim Wahl, Alexander Herbig, Kirsten I. Bos & Johannes Krause

Interdisciplinary analyses of past pandemics provide important insights into the evolution of infectious diseases, epidemiological trends and human-pathogen interactions through time. One of the most devastating health crises of the past was the "Black Death" pandemic that occurred in Europe in the mid-14th century and was likely caused by the bacterium *Yersinia pestis*. It is estimated to have claimed the lives of 30-50% Europeans at the time. After the pandemic subsided in 1351, localized outbreaks were documented in Europe through to the 18th century when the disease essentially disappeared. Here, we present the results of preliminary genetic analyses performed on 67 skeletons, from a 16th century mass burial site recovered in the city of Ellwangen in Southwestern Germany. Anthropological analysis of the unearthed skeletons showed a great amount of subadult individuals with signs of potential malnutrition, but no further evidence of pathological changes or trauma that might explain a mass mortality event. DNA extracted from all skeletons was screened for presence of *Y. pestis*-specific genes, resulting in 19% of the total specimens testing positive. To retrieve complete information on the bacterial strain involved in this outbreak we captured and attempted to reconstruct complete *Y. pestis* genomes from the positive-testing samples. Comparison of the bacterial strain from Ellwangen with previously published modern and medieval *Y. pestis* strains allows us to propose models of dissemination of this historically important pathogen.

SA1 USING STABLE ISOTOPIC ANALYSIS OF SPHAGNUM MOSS AS PROXY DATA TO INFORM OR CORROBORATE THE PALAEO CLIMATE AND ENVIRONMENTAL CHANGES IN A REGION.

Colin Forrester

COTSWOLD ARCHAEOLOGY

Use of proxy data such as speleothems, pollen, ice cores, testate amoeba, molluscs to name just a few are well established as useful proxy data in establishing Palaeo environment and climates. A good source of these are cores from ombrotrophic peat bogs. I would argue that the usefulness of using the unique qualities of sphagnum moss as a source of informative stable isotopic data has been investigated using the Oxygen component, but I would suggest that it is the carbon and hydrogen stable isotopic elements that hold information as to melting of and receding of Ice sheets during the early to mid Holocene and the reestablishment of the North Atlantic Drift current that affects our climate to this day as the ombrotrophic nature of these bogs gives a unique insight into the changing climate during this period. Illustrated by a palaeoclimatic case study from Neolithic onwards based on an ombrotrophic peat bog in midland Ireland.

SA12 ENTRY & EXIT STRATEGIES. SECURITY AND CONTROL SYSTEMS AT MIDDLE BRONZE AGE INDUSTRIAL SITE OF ERIMI-LAONIN TOU PORAKOU (CYPRUS)

Luca Bombardieri¹, Marialucia Amadio², Francesca Dolcetti³

¹UNIVERSITÀ DI TORINO - DPT. STUDI UMANISTICI, ²UNIVERSITY OF READING, ³UNIVERSITY OF YORK

While the economic organisation of Early Bronze Age Cypriot rural communities appears to have been based on the control of resources and stored products restricted to immediate household members, towards the end of Middle Bronze Age (2000-1600 B.C.) the picture, which is emerging at Erimi-Laonin tou Porakou and at several coeval sites, suggests an increasing functional specialisation of workplaces which seems to run in parallel with an increasing need for control over work and storage facilities. At Erimi-LtP it was accompanied by changes in building techniques within both the textile workshop complex and domestic units which reflect a trend towards a definite distinction of open/roofed workspaces. At the same time, the spatial segregation of houses and work spaces suggests that changes in the use of specific rooms may further reflect an increasing desire for security and a growing emphasis on the control of storing activities. A multi-focused approach to this evidence can reveal a nuanced degree of accessibility to different functional spaces. In this view, an overall picture of the organization in 'interior'/ 'exterior' spaces can be enhanced through a dedicated methodological approach, based on: 1. Characterization of the architectural set-up; 2. Characterization and statistical spatial analysis of the distribution of structures and diagnostic residual artefacts; 3. Micro-morphological analyses of micro-residues of human and animal activities deposited on occupation surfaces to get additional data about use of space and distinction between open/roofed areas; 4. 3D visualisations to simulate architectural structures, in order to deepen the understanding of spatial organization.

SA17 MORE THAN MEETS THE EYE: SITES, SAMPLING AND STATISTICS IN REMOTELY SENSED DATA

William Megarry

UNIVERSITY COLLEGE DUBLIN/ THE JOHNS HOPKINS UNIVERSITY

Remotely sensed imagery and data have become essential components in archaeological prospection over the last few decades. Visualisation techniques applied to multispectral imagery and airborne laser scanning (LIDAR) has captured the nature of archaeological sites in previously unavailable detail, detecting the often subtle changes in topography and subsurface chemistry which represent past human activity. This paper will use band difference ratios, sampling techniques and statistical protocols to explore the data behind the images. By focusing on environmentally diverse case studies; The Shetland Islands in Northern Scotland, The Mojave Desert in Southern California and the area around Fort Benning in Georgia, it will test the null hypothesis that data value returns from archaeological sites are no different from known non-archaeological sites. It will explore how different sampling techniques (point sampling, buffering, point cloud sampling and annuli statistics) can be used to detect different site topologies and will conclude by exploring how these values can be used to train classifiers which can generate posterior probability models suitable for site prospection.

SA20 EXPERIMENTAL AND ARCHAEOMETRIC APPROACH OF CELTIC GLASS-MAKING.

Rolland Joelle

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In association with Bernard Gratuze - CNRS-Umr5060IRAMAT.

La Tène glass ornaments have often been studied and looked at as beautiful pieces of art. Celtic glass bracelets are cultural and temporal landmarks of the Celtic civilization. But behind these handmade objects they are also material resources as well as embodying technical protocols that we try to piece together again. Experimentation on manufacturing techniques has made it possible to show the high levels of specialization required to produce glass jewelry in the Second Iron Age. We also know that a genuine long-distance trade was organized at that time to serve the production of non directly functional ornamental artefacts. In the reconstruction of the "chaîne-opératoire" of manufactured objects, the study of the raw material should show how the importation of glass and its recipes have evolved. An important program of chemical analyses was conducted on more than 600 objects from different Celtic settlements in France. A systematic study of the glass cargoes of Sanguinaire A and Lequin 2 shipwrecks has been undertaken in direct connection with this work. Methodological experimental work carried out on

one of the raw glass from the Sanguinaire A wreck (recast crucible on wood-fired oven and manufacturing of beads and bracelets) allowed us to demonstrate that the chemical characteristics of the glass do not change significantly with glass working. It seemed pertinent to compare raw glass composition with the compositions of glass ornaments circulating during this period. This study conducted highlights the existence of chronological evolutions of Celtic glass recipes.

SA11 A MODEL OF EVOLUTION AND WORLDWIDE DISSEMINATION OF TUBERCULOSIS

Ashild Vagene, Johannes Krause, Kirsten Bos

MAX PLANCK INSTITUTE FOR THE SCIENCE OF HUMAN HISTORY

Contact between previously isolated populations often results in the exchange of genetic material, cultural practices, and infectious diseases. Comparative genomics of modern bacterial strains suggests that tuberculosis is one such disease, having been introduced to the Americas by early European explorers and settlers. Archaeological evidence, however, has long shown the presence of tuberculosis in the New World at least several hundred years before contact. Recent ancient DNA analyses demonstrate that these earlier American strains are closely related to those adapted to marine mammal populations today, which rarely infect humans. Using these results as a foundation, this talk will explore potential models for tuberculosis evolution and dissemination throughout the world.

SA12 TRADING SPACES? UNDERSTANDING THE USE OF SPACE WITHIN STRUCTURES THROUGH INTEGRATED PHYTOLITH, GEOCHEMICAL AND ARCHAEOBOTANICAL ANALYSES

Hayley McParland¹, Stephanie Wynne-Jones¹, Federica Sulas², Sarah Walshaw³

¹UNIVERSITY OF YORK, ²ISTITUTO DI STORIA DELL'EUROPA MEDITERRANEA-CNR AND UNIVERSITY OF PRETORIA, ³SIMON FRASER UNIVERSITY

This paper explores the contribution of integrated phytolith and archaeobotanical analyses, in combination with geochemical analysis and geo-statistics, to the spatial interpretation of floor surfaces. This approach enabled comparison of spatial activities between contemporaneous structures: an ephemeral wattle and daub structure lacking interior definition and a 'permanent' stone structure with defined interior and exterior spaces. Phytolith research in East Africa has its roots in historical ecology; research at Songo Mnara refocuses on archaeological reconstruction through systematic high-resolution phytolith analysis and contextual archaeobotanical analysis within urban domestic structures.

Combined phytolith and geochemical analyses, considered with macro-botanical analysis, presented a high resolution data set identifying activity areas, challenging perceptions of 'interior' and 'exterior' spaces within ephemeral structures and exploring spatial complexity.

The data presented are part of a larger project exploring the uses of space at this 14th – 16th century urban site via a suite of integrated methodologies. This project, based at the University of York and Rice University, explored the potential for layering different approaches to understand interior and exterior spaces at an entirely new resolution. Songo Mnara, a Swahili stonetown with Indian Ocean trade links, was occupied for a relatively short period, resulting in shallow spatially-distinct deposits. It is, therefore, possible to put the archaeobotanical data presented into a much larger context, enabling the interpretation of activity areas within urban domestic structures.

SA8 MORE THAN A DIETARY SUPPLEMENT: HUMANS AND CHICKENS IN ROMAN BRITAIN

Mark Maltby¹, Julia Best¹, Mike Feider²

¹BOURNEMOUTH UNIVERSITY, ²BOURNEMOUTH UNIVERISTY

This presentation will present preliminary results about one aspect of a multidisciplinary research programme currently being carried out into the history of the exploitation of chickens in Europe. Although they had only recently been introduced, chickens are often briefly dismissed in zooarchaeological reports of Romano-British assemblages merely as an unremarkable occasional addition to the diet. This undervalues their impact and their dismissal is in part due to their prevalence today. It can be argued that chicken meat and eggs were regarded as luxury foods reflecting culinary innovations, dietary preferences and cultural associations. There is also evidence that chickens were sometimes used in entertainment, sacrificed as votive offerings, linked with deities and buried with humans. They were also commonly represented in material culture. By using chickens as a case study, this presentation will show that when zooarchaeological research is integrated with various types of scientific analyses, material culture studies and contextual analysis, there is potential to develop a much deeper understanding of past human relationships with animals.

SA5 CREATING HIGH RESOLUTION CLIMATE RECONSTRUCTIONS FROM STATISTICALLY DOWNSCALED PALAEOCLIMATE SIMULATIONS

Nicolas Gauthier

ARIZONA STATE UNIVERSITY

TraCE-21k is a state-of-the-art paleoclimate simulation of global climate from the Last Glacial Maximum to the present. Output from this simulation is freely available to the public at monthly time steps; archaeologists can use this information to better understand patterns of climatic variability and uncertainty over time. But the spatial resolution of the TraCE-21k data is too coarse to address questions at the regional or local scales at which many archaeologists work. In this talk, I discuss the

statistical tools available to researchers for taking coarse model outputs and deriving very-high-resolution climate fields to use in their work. Statistical downscaling of global climate models allows us to see phenomena rarely resolved in paleoclimate proxy records, such as the spatial structure of climate change and the occurrence of low-frequency/high-impact events. I then illustrate the potential applications of these statistical tools with an example from the spread of the Neolithic in the north east Mediterranean.

SA8 DO YOU COUNT YOUR CHICKENS: MULTI-STRAND INVESTIGATIONS OF ARCHAEOLOGICAL EGGS.

Julia Best

BOURNEMOUTH UNIVERSITY

Eggs form an important part of avian-human interactions both today and in the past. They can be sourced from wild and domestic birds, but due to the creation of extended laying times in several domesticates, egg acquisition is frequently weighted towards poultry. Ducks, geese and other birds can all be kept for their eggs, but the chicken plays perhaps the most important role. As such, this work focuses primarily on chickens but is contextualised within the wider body of archaeoavian evidence. This paper investigates egg use in the past by combining zooarchaeological and scientific analysis of physical eggshell remains from archaeological sites with evidence from documentary sources and material culture. Identification of eggshell to species via ZooMS (Zooarchaeology by Mass Spectrometry) and SEM (Scanning Electron Microscope), and the exploration of developmental stage via microscopy can be used to examine husbandry practices and resource use in the past by informing on meat and egg production. Documentary sources include letters and orders (e.g. the Vindolanda tablets), and agricultural guides detailing husbandry and produce (such as Columella's *Res rustica*). Using case studies from Roman and Medieval Britain this paper demonstrates how multidisciplinary integration of eggshell analysis with other lines of evidence can offer new insights into avian-human relationships in the past.

SA20 INVESTIGATING POPULATION HOMOGENEITY ACROSS EARLY IRON AGE CROATIA AND SLOVENIA USING STABLE ISOTOPES

Rebecca Nicholls, Jo Buckberry, Hannah Koon

UNIVERSITY OF BRADFORD

Following on from last Year's ENTRANS EAA session, the paper will present an update of results of osteological and isotopic analyses of bones and teeth from Early Iron Age funerary assemblages in Croatia and central and eastern Slovenia. This doctoral research forms part of the larger HERA-funded ENTRANS Project, examining Late Bronze Age/Early Iron Age cultural encounters in the East Alpine region.

One avenue of this research entails the analysis of carbon and nitrogen isotopes to explore differences in diet and health status. Diet is seen to have played a significant role in many societies in the construction of identity attributes, such as status, age or gender. With the aid of appropriate animal bone isotopic baselines, preliminary results suggest that a homogenous, terrestrial C4 plant based diet was adopted across the research area during the Early Iron Age. Without evidence of marine protein, the high carbon values suggest a considerable input of C4 plants, most likely millet.

In order to test the homogeneity/heterogeneity of communities in the East Alpine area, a range of isotopic techniques have been utilised to establish multi-scalar interpretations of identity and lifestyle during the Early Iron Age.

SA12 CORE CHEMISTRY: INTEGRATING CORING, GEOPHYSICAL, GEOCHEMICAL AND ARTEFACT EVIDENCE TO UNDERSTAND THE USE OF SPACE IN A VIKING AGE TRADING SETTLEMENT.

Rebecca Cannell¹, Jan Bill², Paul Cheetham¹, Kate Welham¹

¹BOURNEMOUTH UNIVERSITY, ²MUSEUM OF CULTURAL HISTORY, UNIVERSITY OF OSLO

In more temperate climates, our means of interpreting the past use of space is often limited to fragments of material culture and truncated negative features in the sub-soil. Materials are rarely found exactly where they were lost or discarded. They have potentially been subject to bioturbation, cryoturbation, truncation, re-deposition and weathering. Geochemistry offers the opportunity to measure directly where the activity happened and what was used by its inorganic (and organic) traces in the soil, however the method is not without challenges in regard to interpreting complex and environmentally dependent chemical signatures. To overcome the limitations, and to test the potential of geochemistry using portable XRF, an integrated approach was employed on the Viking Age, proto-urban trading settlement, located near the Gokstad burial mound, Vestfold, Norway. The settlement extent was surveyed by high resolution ground penetrating radar (GPR). Clearly visible was a road with plots, or parcels of land, facing the thoroughfare. The site was truncated by ploughing, leaving the parcel ditch fills as the prime source of information, alongside artefacts from a comprehensive topsoil survey. Targeted excavation provided data on selected plots, which was enhanced by using cores targeted by GPR data in addition plots. These were used for high-resolution geochemical analysis, which was then integrated with micromorphological, environmental, artifactual and excavation data. The result is a better understanding of the potential and limitation of pXRF and geochemistry, and a detailed understanding of the use of space over time in what at first appears to be a highly structured space.

SA10 THE DAIRYING REVOLUTION IN TEMPERATE NEOLITHIC EUROPE – AN INTEGRATED APPROACH

Jessica Smyth¹, Rosalind Gillis², Mélanie Roffet-Salque³, Richard P. Evershed³

¹UNIVERSITY OF BRISTOL, ²NATIONAL MUSEUM OF NATURAL HISTORY, ³SCHOOL OF CHEMISTRY, UNIVERSITY OF BRISTOL

The introduction and spread of cattle-based agriculture by Europe's Neolithic farming groups re-shaped prehistoric culture, biology and economy in ways that underlie modern life virtually worldwide. NeoMilk is a five-year ERC project (2013-2018) led by the University of Bristol (Richard Evershed; Jessica Smyth; Mélanie Roffet-Salque; Iain Kendall; Emmanuelle Casanova; David Altoft), in conjunction with the University of Exeter (Alan Outram; Emily Johnson), University College London (Mark Thomas), National Museum of Natural History Paris (Jean-Denis Vigne; Roz Gillis), and Adam Mickiewicz University Poznań (Arek Marciniak). NeoMilk aims to determine when, where and why this transition to full domesticate-based farming occurred, with the working hypothesis that dairying emerged within central European Linearbandkeramik (LBK) society, at some point during the 6th millennium cal. BC.

Lipid biomarker and stable isotope compositions of food residues from LBK vessels provide qualitative and quantitative assessments of the major animal products acquired and processed within LBK society, while state-of-the-art zooarchaeological analyses are identifying herding and slaughtering practices, butchery practices and the nature of meat and fat exploitation, as well as the composition of wild and hunted species. A range of isotope analyses on domesticated animal teeth and mandibular bone are also being undertaken to define seasonal herd management and weaning strategies. Together, they offer a fully integrated picture of animal exploitation and milk use across the entire spatio-temporal range of the LBK, from the Ukraine to the Paris Basin. In this paper, emerging results from western France and lowland Poland will be discussed.

SA7 INTEGRATIVE STUDY OF THE EARLY ROMAN BUILDING OF CAN TACÓ (BARCELONA, SPAIN): THE CONTRIBUTION OF ARCHAEOMETRY IN THE UNDERSTANDING OF THE BUILDING AND DECORATIVE CHOICES

Anna Gutierrez Garcia-M.¹, Esther Rodrigo², A. Pitarch, H. Royo, A. Àlvarez, A. Domènech, J. Guitart,

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The site of Can Tacó, dated roughly in the last quarter of the 2nd century B.C. and located at a strategic point in the territory, marks the first stage of the Roman deployment in the north-western area of the Iberian Peninsula. Since 2003, the archaeological have uncovered a storey-building with some residential areas around the courtyard on a central upper terrace, and service areas and warehouses on the two lower ones.

The uncommon shape, structural elements, and decoration of this building in this territory at such an early date suggest that it was erected by foreign people. The structure consisted of dry stone, rammed earth and mud brick walls. Yet several scattered finds reveal that there were *opus signinum* floors with mainly white *tessellae* decoration as well as plaster/stucco with First Pompeian style paintings. Moreover, ochre pigment lumps and Egyptian blue balls were also found in a small service room.

The application of archaeometric analyses have been key not only to understand the techniques employed and to characterize the raw materials used in these decorative elements, but they have also helped to identify imported building materials (*tegulae*) which were immediately adopted and locally made.

All this points to Can Tacó as an illustrative case of the introduction of a new, typically Italic construction model which brings in new building traditions as well as specific elements (especially Italian *tegulae*) soon to be widespread.

SA15 PHYSICAL TRAUMA AND WARFARE IN BRONZE AGE HUNGARY

Vajk Szeverényi¹, Julia Giblin², Tamás Hajdu³, Gabriella Kulcsár⁴, Viktória Kiss⁴

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A rapidly growing body of evidence clearly indicates that the European Bronze Age is characterized by a significant increase in the prevalence and social significance of warfare. Bronze Age Hungary is no different, and the large amount and symbolic elaboration of weapons, the increasing number of fortified settlements and the physical trauma observed on human skeletal remains all bear testimony to this phenomenon. During the last decades such palaeopathological studies in Hungary have been rather rare. The aim of our paper is to collect such evidence from the Middle Bronze Age of the Carpathian Basin, using some inhumation burials and "irregular" pit burials found in central Hungary as our starting point. We present cases where antemortem or perimortem wounds may indicate warfare or possibly ritual violence perhaps connected to warfare. We investigate if traces of violence indicate intra-group or between-group warfare, and what the context of such burials and depositions can tell us about the social status of the participants and victims of warfare. In some cases, stable isotope analysis will be used to distinguish between "locals" and individuals born in geologically distinct regions.

SA6 LUMINESCENCE STUDIES OF COASTAL SEDIMENTS IN ARCHAEOLOGICAL LANDSCAPES: WHAT HAVE WE LEARNED IN THE LAST 15 YEARS?

David Sanderson

SUERC

The first evidence that OSL methods were capable of registering young Holocene ages from sediments of archaeological significance emerged in the late 1990s, with the development of blue light stimulation and SAR methods for dating quartz. Before then the precision and applicability of luminescence dating to young archaeological systems in coastal sites was limited. Over the last 15 years there have been very substantial developments which have changed the outlook and methods used in luminescence dating. Luminescence dating is now frequently used to define sediment chronologies in site specific and regional studies of coastal systems and to assess the relationships between human occupation and environmental change. In this presentation some of the achievements of the last 15 years are examined, and future trajectories identified for new work.

SA20 CONSTRUCTING DIETARY BASELINES FOR EARLY IRON AGE SLOVENIA AND NORTHERN CROATIA FROM FAUNAL MATERIAL

Hannah Koon, Rebecca Nicholls

UNIVERSITY OF BRADFORD

This paper will describe the development of a dietary baseline for the effective isotope analysis of funerary assemblages from Early Iron Age Slovenia and northern Croatia. This research forms part of a larger HERA-funded ENTRANS Project examining Iron Age cultural encounters. There is a wealth of information that can be gleaned from studying the remains of the individuals that lived during this period and osteological and isotopic analysis of inhumations and cremations from this region are ongoing. In order to effectively explore differences in diet it is necessary to place the isotopic data from human tissues within the contemporaneous and local ecosystem. Currently very few studies include faunal isotope values for these contexts. Here we present new isotopic data from a range of faunal remains, which will locate the sites within the wider archaeological landscape. In addition we encourage discussion of the issues that one might need to consider when choosing faunal specimens to construct a new dietary baseline.

This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement no 291827 The project is financially supported by the HERA Joint Research Programme (www.heranet.info) which is co-funded by AHRC, AKA, BMBF via PT-DLR, DASTI, ETAG, FCT, FNR, FNRS, FWF, FWO, HAZU, IRC, LMT, MHEST, NWO, NCN, RANNÍS, RCN, VR and The European Community FP7 2007-2013, under the Socio-economic Sciences and Humanities programme

SA10 FODDERING THE FEASTS: INVESTIGATING PIG HUSBANDRY AND HERD MANAGEMENT AT LATE NEOLITHIC FEASTING CENTRES IN SOUTHERN BRITAIN

Richard Madgwick¹, Angela Lamb², Jane Evans²

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In southern Britain, the Late Neolithic (c. 3000-2200BC) saw a scale of social mobilisation and inter-community contact that was unrivalled in earlier phases. Monumentality was a defining feature of this period, with megalithic, earthen and timber enclosures of diverse morphology forming complexes in southern England. The creation of these monuments would have unquestionably required labour from beyond their immediate surroundings and the complexes also played host to substantial feasting events, which may have drawn people from afar.

Excavations have yielded substantial assemblages of Grooved Ware ceramics and faunal remains dominated by the bones of pigs, which were clearly the prime feasting animals. In some instances the scale of the feasts must have been vast, as demonstrated by the tens of thousands of pig remains that have been recovered (e.g. at Durrington Walls, Albarella and Serjeantson 2002; Wright et al. 2014). This research investigates how the challenges of raising large stocks of pigs for these events were met at four sites (Durrington Walls, Mount Pleasant, West Kennet Palisaded Enclosures and Marden). Through multi-element isotope analysis the study addresses whether pigs were likely to have been raised in large herds by specialist producers or in small numbers at a disparate, household level. In addition, the possibility that pigs were fed a prescribed diet prior to slaughter is investigated and likely foddering regimes are reconstructed. Finally, suggestions as to the landscape catchments which supported these feasting centres are put forward.

SA6 DEFINING THE CHRONOSTRATIGRAPHY OF A PREHISTORIC SETTLEMENT MOUND: LUMINESCENCE PROFILING AND DATING AT BAILE SEAR

Tim Kinnaird¹, David Sanderson¹, Tom Dawson², Alan Cresswell¹

¹SUERC, ²SCHOOL OF HISTORY, UNIVERSITY OF ST ANDREWS

Field and laboratory luminescence profiling techniques, coupled with quantitative OSL SAR analysis and Bayesian assimilation methods, have been applied to sediments associated with a Hebridean wheelhouse, and its immediate environment, to define its full sequence of construction, utilisation and abandonment. The wheelhouse is situated on the site of an earlier structure, represented by occupational layers which extend beneath the monument, and by midden deposits, which surround and overlie the existing structures. The data imply a protracted period of settlement longevity, previously unrecognised in the Hebridean Iron Age and later periods, and contradictory to the traditional perceptions of periodic occupation, and the periodic replacement of earlier structures, and instead attests to a thriving Iron Age community in North Uist.

SA13 BEYOND TYPOLOGIES: QUALITATIVE AND STATISTICAL ANALYSIS OF EARLY ANGLO-SAXON NON-FERROUS ALLOYS FROM EAST ANGLIA

Matthew Nicholas

CARDIFF UNIVERSITY

This talk will look beyond typologies to examine the technological and cultural worlds that enmesh Anglo-Saxon non-ferrous objects and the decisions that construct them.

Previous work on copper alloys from the Anglo-Saxon period focussed on quantitative analysis from a limited range of objects (predominantly cast dress accessories), with results showing a wide variety of quaternary Cu-alloys in use. From this subset of data, the non-ferrous metallurgy of the post-Roman era in the East of England was extrapolated, with the 'mixed' nature of the alloys being used to suggest subsistence metallurgy. There are significant questions as to how secure current understanding of metallurgical practices during this period are, when sheet metal and utilitarian objects were often excluded from analyses.

Analysis of the metalwork from three large cemeteries (primarily using hand held portable X-ray fluorescence [HHpXRF]) has therefore presented an opportunity to assess the validity of this interpretation by placing cast dress accessories in a broader context with the inclusion of a wide variety of sheet metal and utilitarian cast implements. A rigorous methodology was developed to explore both the potential and limitations of the equipment and to contribute to the discussion about best practice for the qualitative analysis of non-ferrous metals.

SA26 A BIG ASK? SAMPLING COMPOSITE CERAMIC ASSEMBLAGES FOR SCIENTIFIC ANALYSIS

Emilie Sibbesson

CANTERBURY CHRIST CHURCH UNIVERSITY

Organic residue analysis (ORA) of ceramics can be undertaken on samples selected directly in the field or from collections in museum stores. In this paper I discuss the complexities involved in re-visiting ceramic assemblages held in museums. Until recently, archived ceramic assemblages were the jurisdiction of specialists trained in the traditional methods of 'hand-held' analysis. Today, assemblages are also interrogated using an expanding array of scientific techniques, and sample selection is a crucial stage in the scientific process. However, I suggest that poor understanding of traditional approaches to ceramic study and to the ways in which ceramic assemblages are created in museums can have repercussions for later stages of scientific research, primarily interpretation and communication of results. Using examples from recent ORA-studies of British prehistoric pottery, I suggest that 'composite' assemblages from large sites that were excavated multiple times by different teams present the biggest challenges. With this in mind, I discuss the ways in which these predicaments can be redressed.

SA16 RECYCLING AND REUSING ROMAN MARBLE OBJECTS IN THE NW SPAIN: THE CASE OF SANTA COMBA DE BANDE CHURCH

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Within the framework of an multidisciplinary study aiming to understand the use of marble in the northwest of Hispania, a relatively large number of the marble objects (sculpture, architectural elements, revetments) located in this territory turned out to be in pre-Romanesque churches. Moreover, the stylistic study of these objects is at times controversial as retouches or re-carvings (often linked with its use in early Christian contexts) of previously produced elements seem to have been in order during the centuries following to the fall of the Western Roman Empire. Thus, it is difficult to assess their chronology and, therefore, that of the exploitation (for the local materials) and arrival (for the imported ones) of these marbles.

In this paper, we present some specific cases as illustrative among which those of the columns, capitals, altars and sarcophagi at Santa Comba de Bande (Ourense) stands out. A comprehensive approach including their archaeometric characterization (i.e. petrography, cathodoluminescence and, in some cases, IRMS for C-O isotopic determination) as well as the stylistic study is proposed to understand when and how these objects were carved, and how did they arrived at their current location.

SA26 ARCHAOMETALLURGY FROM THE BOTTOM-UP: INTRODUCING THERMODYNAMICS TO ARCHAEOLOGY

Benjamin Sabatini

UNIVERSITY OF OXFORD

Understanding past pyrometallurgical activity has historically heavily relied on the metallographic examination of artifacts, when possible, and waste materials such as slags and crucible fragments (e.g. Bachmann, 1982; Scott, 2011). Such an approach to studying ancient metallurgy has proven fruitful and become the mainstay of archaeometallurgy, however, the conclusions drawn from these methods are often partial and unsatisfactory, since they ignore, or only in passing mention, thermodynamics. Borrowing from the field of Metallurgical Thermodynamics, in what now might be termed 'Archaeometallurgical Thermodynamics', it is possible to precisely understand the processes that occurred in ancient metallurgy from primary smelting to recycling. This new scientific approach to studying ancient metallurgy can, in light of its absence from archaeological literature, be viewed as a new branch of archaeometallurgy, and certainly one for archaeology.

To illustrate the potential offered to archeology through thermodynamics, this paper presents models built using first principles for alloys that were produced and circulated from the Late Bronze Age to the Post-Medieval periods in Britain, and in particular the Cu-Sn-Pb, Cu-Zn-Sn, and Cu-Zn-Pb ternary systems. These systems, together with collected chemical datasets, allow for the interpretation of manufacturing processes, alloying choices, recycling outcomes, and the overall life history of metal flow.

Bachmann, H. (1982). "The identification of slags from archaeological sites." Institute of Archaeology Occasional Publications 6, Institute of Archaeology, London.

Scott, D. (2011). Ancient metals: microstructure and metallurgy. Volume 1. Copper and copper alloys. Conservation Science Press.

SA6 EVIDENCE FOR SUBANNUAL TO MILLENNIAL-SCALE ΔR VARIATIONS IN THE HOLOCENE SANTA BARBARA BASIN (EASTERN PACIFIC) AND CHALLENGES FOR ARCHAEOLOGICAL CHRONOLOGY BUILDING IN CALIFORNIA

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Variations in the local marine reservoir effect (ΔR) along the coast of California (Eastern Pacific) have been known for several decades, and have been a concern for regional archaeologists attempting to build accurate chronologies since the 1960s. Indeed, some of the earliest local estimates were produced using materials from archaeological shell middens. The Santa Barbara Basin, home to one of the more sociopolitically complex hunter-gather groups in North America, the Chumash, has seen almost 20 years of research on the local ΔR using multiple lines of evidence: measurements on pre-bomb shells, shell/charcoal pairs, direct dates on benthic and planktonic foraminifera, and paired terrestrial macrofossils and foraminifera. Variations in ΔR are shown to vary subannually due to seasonal upwelling intensity and through the Holocene due to changes in ocean circulation on scales of up to ± 200 ¹⁴C years. In a region where archaeological chronologies rely heavily on marine shellbead seriation and direct dates on shellfish remains, and with a long tradition of integrating high-resolution climate records with archaeological to explain social change, accurate ΔR estimates are crucial. Here we present Holocene ΔR estimates, discuss archaeological strategies for direct dating, and apply a regionally specific marine calibration curve to explore the emergence of complexity in the Santa Barbara Basin, adoption of bow-and-arrow technology, and to compare the chronologies with high-resolution climate records.

SA8 THE ICELANDIC CHICKEN LANDRACE, FACT OR FICTION?

Albina Hulda Palsdottir, Jón Hallsteinn Hallsson

THE AGRICULTURAL UNIVERSITY OF ICELAND

The Icelandic Chicken Landrace or "Landnámshænur" was saved from near extinction in the 1980s but has seen resurgence in the past 20 years. The "Landnámshænur" are now much celebrated for their colourful feathers and good temperament and have become popular as farm pets. The breed is thought to be very old and the breed name literally means settlement hens. Their varied colouring seems to fit in well with that of the Icelandic livestock breeds which are known for their wide variety of colours partially due to the late introduction of systematic breeding. While the Icelandic horse, sheep and cattle breeds survive and are used in modern agriculture, the Icelandic goat breed is under threat of extinction and the Icelandic pig became extinct, most likely in the medieval period. Is the modern Icelandic chicken breed a descendant of the settlement period chickens or is it a new breed? Archaeological evidence on chickens in Iceland is scarce but bones of wild birds are common finds in Icelandic zooarchaeological collections. Historical sources contain a limited amount of information on the history of chickens in Iceland and raise many questions. The presentation will summarize the available Icelandic archaeological and historical data on chickens and present DNA results from sampling done on the modern Icelandic chickens to better understand the history of the chickens in Iceland.

SA3 SHIFTING FOCUS: EXPANDING THE POTENTIAL OF EXPERIMENTAL METALLURGICAL RECONSTRUCTIONS

Jessica Slater

UNIVERSITY OF SHEFFIELD

In the Iron Age, we have studied space through the media of structures and monuments, often ignoring the areas in between—the places defined by actions not architecture. Whilst these enduring features are potent, there is a need to incorporate more routine, and often mundane, actions, which occurred outside their confines, into our analytical frameworks.

The study of craft, in particular metallurgy in the first millennium BC Britain, has served to focus attention on the how habitual actions serve to create and recreate space. Experimental (re)constructions of pyrotechnical equipment have become more common and can aid in elucidating preferred operating conditions and constraints upon technical performance, however seldom have these experiments been used to interrogate practitioners' real engagement with these productive features.

Through a critical evaluation of our notions of space and time, and how they underpin the concept of agency, we have begun to recognise the human scale of practice and its realisation in the world. Becoming apparent that agency, rather than the individual, is the lens through which we should focus our inquiry of past practice. A careful analysis of the individuals' bodily

movement and engagement with the experiment can provide a complementary perspective to the more quantitative analyses of pyrotechnical activities.

Results showed geophysical and geochemical enhancements (measured via magnetic susceptibility and pXRF) in areas that correlated well with particular actions recorded by time/geography. In light of this work, researchers are encouraged to explore aspects of bodily engagement when investigating past arenas of technical performance.

SA23 SMELTERS AND IRONSMITHS IN GREAT ZIMBABWE URBANISM: EXPLORING INTERACTION BETWEEN TECHNOLOGICAL INNOVATION AND SOCIO-ENVIRONMENTAL DYNAMICS

Ezekia Mtetwa

UPPSALA UNIVERSITY

This paper contributes to the current understanding of socio-economic and ecological dynamics of Great Zimbabwe. The town, whose evidence of earliest settlement dates to AD 500, reached its apogee between c 1200-1500 AD. Its size and importance as a political, religious and international trade centre would have required considerable supplies of varied utilitarian and ceremonial iron products. The same is true of wood resources required to produce charcoal for fuelling metallurgical activities. These scenarios, presumably, were always configured and reconfigured in the mind of iron smelters and smiths. As such, Great Zimbabwe's extensive and diverse metallurgical landscape make it a prime location to explore the interaction between innovation in metallurgical activities and its inextricable entanglement to changes in society and environment over time. This paper argues that such socio-economic scenarios and technological dynamics were poorly enfolded (if at all) by previous researchers into the archaeology of iron provisioning systems of Great Zimbabwe. In focus are remains of natural draught iron technologies whose antiquity and increasing ubiquity are in stark disparity with views that deemed this technology absent in Africa south of the Zambezi. Archaeometallurgical examination is made of the cognitive capacities of Great Zimbabwe artisans through material analysis of this technology. This is combined with understandings of Great Zimbabwe's large-scale socio-economic, political, and environmental systems. The aim is to comprehend the matrices and vectors of technological developments and their tight link to socio-environmental change.

SA23 CUTTING INTO IDENTITY: TWEEZERS FROM TWO ARCHAEOLOGICAL CONTEXTS, IN MEXICO AND PERU

Bryan Cockrell

DUMBARTON OAKS RESEARCH LIBRARY AND COLLECTION

Small metal tweezers were analyzed from two depositional contexts: two from the Cenote Sagrado at Chichén Itzá, Mexico and 59 from burials in the Chincha Valley of Peru. In spite of their depositional and technological differences, this paper will bring attention to an understudied form within the metallurgy of the ancient Americas and illustrate that the tweezers, in distinct ways, were identity-shaping instruments for their crafters and users. The Mexican tweezers (Cu-Zn-Sn) represent a unique type crafted by Tarascan metallurgists in West Mexico likely in the 15th century AD which were then deposited in the Cenote, nearly 1800 km from their place of fabrication. Those from Peru (Ag-Cu, Cu-Sn, and Au-Ag-Cu) display wide typological variety and were likely crafted within the Chincha Valley between AD 1000 and 1400. The metals were analyzed through separate archaeometric research programs that applied similar methods, including optical microscopy and portable X-Ray Fluorescence Spectroscopy, to better understand the processes of fabrication. In the case of the Peruvian tweezers, Rutherford Backscattering Spectroscopy and Particle-Induced X-Ray Emission also were applied for finer resolution compositional study. In this paper, the tweezers will be contextualized typologically and discussed in terms of ethnographies that have highlighted the roles of tweezers within personal 'tool-kits'. Moreover, they will be evaluated for their depositional contexts: the Mexican tweezers intentionally fragmented and subsumed into an enormous assemblage of metal, jade, ceramics, and organic materials, and the Peruvian tweezers highly personalized, associated with individual or grouped human burials and ornamented with glass beads and cinnabar.

SA8 CHICKEN HUSBANDRY FROM ROMAN TO MEDIEVAL TIMES IN TURKEY

Evangelia Piskin

MIDDLE EAST TECHNICAL UNIVERSITY

Bird bones are often underrepresented in zooarchaeological assemblages. Cases of exceptional preservation serve as examples of what the contribution of fowl in diet and economy might have been. A survey of the literature together with new data are presented for the exploitation of chicken from Roman to Medieval times in Turkey. Chicken bone samples from the Byzantine site of Komana and the Roman site of Pompeiopolis are examined for the presence of medullary bone as a means of exploring the aims of chicken husbandry. Additional information for the importance of eggs is obtained from eggshells recovered in flotation samples. The measurements of the positively identified female bones are compared to discuss breeding practices.

SA20 TRYING TO CREATE ORDER IN THE CHAOS – A DIGITAL APPROACH TO THE RECORDING OF COMMINGLED GRAVE CONTENTS OF AN EARLY IRON AGE TARAND-GRAVE IN SOUTHERN ESTONIA

Anu Kivirüüt

UNIVERSITY OF TARTU

This presentation will focus on the methodology and outcome of recent excavations of a South Estonian Early Iron Age *tarand*-grave called Aakre Kivivare. The site was partially studied in late 19th century and was revisited in light of modern data collection and analysis methods. The commingled nature of *tarand*-grave contents has led the researchers looking for regularities in the spatial chaos that the excavation plans often seem to represent. One of our main aims to revisit the grave was to look for spatial organisation of the artefacts, scattered bones and stones in the Aakre Kivivare grave. Therefore, as many finds as possible were recorded with the help of a total station *in situ* and as a result we have almost two thousand GPS-coordinates for metal items, pottery shards, fossils, mistmetal and cremated or inhumed bone fragments.

The grave surface and contexts were recorded by taking photographs that were later transformed into 3D models which were also linked to the GPS-coordinate system. The finds' distribution plans were also done digitally. Additionally, the GPS-coordinate data allows to proceed with spatial analysis and statistical methods.

The items and bones were linked to their locus in the grave. Also, the position of body parts in relation to each other, to the stones and to the artefacts can be assessed more readily than before. The preliminary results of the spatial analysis of Aakre Kivivare grave have already shown some trends that could be developed to new hypotheses about the spatial organisation in the *tarand*-graves.

SA19 SURFACE PXRF ANALYSES OF THE CHALCIS TREASURE FROM THE ASHMOLEAN AND BRITISH MUSEUMS

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Quantitative surface analysis with portable XRF equipment has taken place on the Chalcis Treasure which is currently kept jointly at the Ashmolean and British Museums. The hoard, recovered at Chalcis in Euboea, Greece, is dated to the 15th century AD, with the Ottoman invasion of Chalcis in 1470 providing a terminus ante quem, and consists of precious metals alloys. The assemblage comprises a large selection of jewellery articles, dress ornaments and cloak accessories including various types of rings, earrings, buttons, belt buckles and mounts. Chemical characterisation of some one hundred artefacts aimed to examine the technological attributes of the different artefact types in order to shed light on the circumstances of their production, use and deposition. The paper discusses the limitations relating to the nature of the artefacts themselves, the instrument used and to the circumstances of the assemblage's safekeeping in museum collections. These, for example, include the metal alloys heterogeneity and potential surface treatments of the objects as many bear traces of mercury gilding which along with the surface analyses conducted need to be addressed in order to avoid a misleading interpretation of the assemblage.

SA2 FRAGMENTED HERITAGE – MULTISCALAR APPROACHES TO DIGITAL DOCUMENTATION OF CULTURAL HERITAGE

Andrew Wilson, Adrian Evans, Tom Sparrow, Randy Donahue

UNIVERSITY OF BRADFORD

This presentation offers a progress update on the varied multi-scalar approaches to digital documentation that are encompassed within this AHRC Digital Transformations Theme Large Grant. At its heart, the Fragmented Heritage project has key aims of automating 3D technology to revolutionize landscape, site, and artefact analyses by applying new digital recording methods and computed analysis to archaeological endeavours that are traditionally labour intensive and largely unachievable for reasons of time and cost. Together, the size and complexity of sites yielding large quantities of lithic material and bone make them important for understanding the earliest examples of past human behaviour. Yet to date, these factors also make them the least understood by archaeologists and the public. At the artefact scale we have embraced recent developments in 3D macro scanning, coupled with automated capture and processing steps which help us to augment conventional 'refit analysis as used in artefact analysis and conservation, eventually reconstructing objects, such as stone tool cores. At a site and landscape level, terrestrial and airborne imaging augment traditional landscape survey and enhance the ability to archaeologically record and resolve complex bone and artefact scatters within the landscape. By involving crowd-sourcing in this endeavour we extend the reach of this work by taking remote and inhospitable landscapes to interested members of the general public. This type of public engagement offers the potential to prioritise efforts toward heritage at risk and to understand complex spatial relationships.

SA26 AGENCY OF PLACES

Agni Prijatelj

DURHAM UNIVERSITY

The last decade has witnessed the narrowing of divide between theory of material culture and archaeological science. Given that engaging new research on the agency of things has emphasised "vital materiality" permeating bodies, things and materials (Bennett 2010; Conneller 2011), it is not surprising that it has also addressed themes of material properties, and processes of becoming and change that are regularly analysed by archaeological science. Notwithstanding this, the research combining both approaches to material culture has remained rare. Building upon such work (*e.g.* Boivin 2008), this paper takes a step further

and argues for the agency of *places*, stemming from their physicality and malleability, and in the presented case study observed by micromorphological analysis of sampled sediments. By doing so the paper illustrates that places mediate the social through relational interactions with people, their physicality and distinct processes of transformation.

SA3 A SPACE FOR METALWORKING

Arne Jouttijärvi

HEIMDAL-ARCHAEOLOGY

Metalworking is often considered only in terms of the primary technological processes involved, but is in fact a complex of processes taking place within a more or less well defined "room" or space. Instead of only focussing on what is going on within the forge or furnace, it is therefore important to see metal crafts as a network of interdependent processes that take place within a larger or smaller workspace. The workspace can be defined as a building with solid walls, but may also be more undefined, or even a network of independent areas. The surrounding landscape and the social context of the "workshop" might influence its organisation.

Systematic sampling of workshop floors and working areas found at archaeological excavations, together with analysis of process waste, provide a picture of the physical organization of work within "workshop". Even movements between the different parts of the workshop might in some cases be visible due to the crushing of, for example, charcoal, and the dragging of the smaller fractions of debris as hamemrscale, from the areas in which they originally have been deposited.

The paper will present a number of examples ranging from the organisation of ore roasting and iron smelting sites in the iron age to medieval smithies.

SA13 CHANGES IN METAL QUALITY AND TRADITIONS IN DANISH IRONWORKING DURING THE 1ST MILLENIUM AD

Arne Jouttijärvi

HEIMDAL-ARCHAEOLOGY

During the 1st millennium AD., the iron supply of present Denmark changes from a local small scale production, to a centralized production in the western part of Jutland during the period from about 200 to 700 AD.. Hereafter the production loses importance compared to the rising amount of imported iron and is finally reduced to small scale smelting for own needs. The changing pattern of furnace types, scale of production, import and adaption of technological knowledge and traditions gives rise to changes in the type and quality of the metal used, as well as in smithing technologies and processes used. During the first half of the millenium, steel is apparently not recognized as a material, and is only found in prestigious imported artefacts. Local production of steel, even on the basis of phosphorous containing ores, was probably made possible with the introduction of the slag pit furnace. The technological highlight of the period is the very high quality craft of the Viking Age. There are however large differences in material, quality and technology, indicating that access to imported metal and technological knowledge was reserved for blacksmiths working in a high level social environment.

Changes in production, material quality and smithing traditions is mapped on the basis of metallurgical analysis of numerous smelting sites and around 500 iron objects. Use of slag inclusion analysis for provenancing furthermore makes it possible to interpret the scale and distribution of local production, even in periods where the archaeological evidence for smelting sites is missing.

SA24 THE APPLICATION OF NEODYMIUM ISOTOPE ANALYSIS TO HUMAN PROVENANCING

Esther Plomp¹, Laura Font¹, Janne Koornneef¹, Jason Laffoon², Gareth Davies¹

¹FREE UNIVERSITY AMSTERDAM, ²LEIDEN UNIVERSITY - FACULTY OF ARCHAEOLOGY

Human mobility patterns have been studied by archaeologists using strontium (Sr), oxygen (O) and more rarely lead (Pb) isotope ratios (see for example Font et al. 2015). However, these techniques are still associated with constraints, due to a lack of understanding of the behaviour of isotopic systems in the environment and limited variation in a region's hydrology and geology. Adding another isotope system to the isotopic human provenance repertoire could potentially address some of the limitations associated with the more commonly used isotopic techniques. A possible candidate is the samarium-neodymium isotope decay system. Neodymium isotopes (¹⁴³Nd/¹⁴⁴Nd) have previously been used to infer paleoseawater compositions, to date the formation time of minerals and rocks, and to provenance sediments. More recently animal teeth and bones as well as archaeological artefacts have been successfully analysed using Nd isotope analysis (Degryse et al. 2010; Tütken et al. 2011). Despite its potential for provenance studies, Nd isotope analysis has not yet been applied to human remains due to problems caused by diagenesis following long term burial of bones and the low concentrations of neodymium in teeth. To analyse Nd in human teeth, new chromatographic methods were developed and a latest generation thermal ionization mass spectrometer (TRITON-Plus) was used to measure sub nanogram amounts of Nd (Koornneef et al. 2014, 2015) in modern human teeth (third molars of Dutch residents). The results of this pilot study will be used to illustrate the possibilities of innovative isotopic techniques for human provenancing.

SA13 FINE METAL WORKING IN THE NORTH - FORM, FUNCTION AND TECHNOLOGY

Barbara Armbruster

CNRS

Fine metal work was an important means of cultural and social expression and exchange during the Early Medieval in Nordic Europe, and particular in the migration and the Viking periods, rich in both silver and gold jewelry. This paper deals with esthetic appearance and social function of luxury items, such as silver and gold ornaments, and with their particular fine metal working technology in the 1st Millenium AD. In Nordic Europe, ideas and peoples moved exchanging information, goods and technological knowhow. The presentation aims in scrutinizing the development and interdependence of form, function and technology of fine metal work. One topic will be the goldsmith's workshop, its tool kit and materials used, as well as his social role in Early Medieval society. The presentation also intends to highlight the particular decoration techniques and tools applied to these ornaments bearing special symbolic meanings. The ongoing standardization by the production of object series and the specialization of the fine working craft will also be considered. The interdisciplinary approach applied in this study includes archaeology, ethnoarchaeology, experimental archaeology, material sciences and information from ancient literary sources.

SA5 LATE NEOLITHIC PALEOLANDSCAPES IN THE BLACK DESERT OF JORDAN

Gary Rollefson

WHITMAN COLLEGE

The current landscapes in the Black Desert of southern Syria, eastern Jordan, and northern Saudi Arabia are blasted and bleak, with basalt boulders strewn across sands and gravels from seemingly lifeless horizon to lifeless horizon. Recent surveys and excavations in the Wadi al-Qattafi and Wisad Pools in Jordan's panhandle indicate that this was not the case during the Late Neolithic period (and probably earlier times), and that the region was likely more heavily vegetated, at least on a seasonal basis, with extensive grasslands and occasional deciduous oak and tamarisk copses supported by a healthy topsoil that absorbed seasonal rainfall, permitting abundant pasturage for nomadic herding groups during the Mid-Holocene Climatic Optimum. It is likely that desertification of the region began in the later Early Bronze Age periods, with little intensive exploitation again until Safaitic herders began to leave written evidence of their presence sometime around 200-300 BC.

SA26 PRELIMINARY FINDINGS IN DETERMINING SEASONAL SHELLFISHING PATTERNS AT PINNACLE POINT, SOUTH AFRICA, DURING THE LATER STONE AGE

Cindy Nelson-Viljoen

SCHOOL OF HISTORY, CLASSICS AND ARCHAEOLOGY. UNIVERSITY OF EDINBURGH

Marine resources, specifically shellfish, are one resource type known to have played a significant role in the diet of past people living along the coast. With some of the earliest and most abundant evidence of coastal exploitation by humans found in shell midden sites along the southern coast of South Africa dating to the Middle and Late Stone Age (c. 200-10 kyr). Sites such as Pinnacle Point, in the Western Cape province of South Africa, widely regarded as vitally important to our understanding of the development of 'modern' forms of behaviour and cognition is capable of yielding crucial information on seasonality and paleoenvironment due to its geographical and chronological distribution.

As molluscs preserve past and present environmental data in the structural, morphological and chemical composition of shell, this enables the reconstruction of paleoclimate data and seasonality via shell growth rates and oxygen isotope signatures. This poster aims to demonstrate preliminary findings and the effectiveness of methodologies used in sclerochronological (acetate peels) and oxygen isotopes (geochemical profiling) analysis on five South African shellfish species (*P. perna*, *C. oculus*, *S. longicosta*, *B. cincta* and *O. sinensis*) from both modern and archaeological shells. In order to investigate the possible seasonal nature of shellfish procurement and the notion of 'shellfish as famine foods' during the Later Stone Age (3000 ± 75 BP to 890 ± 30 BP) at the Pinnacle Point Shell Midden Complex.

SA1 SWEET CHESTNUT (CASTANEA SATIVA) IN BRITAIN: WHEN AND WHENCE WAS IT INTRODUCED, AND WHY? NEW GENETIC, PALAEOENVIRONMENTAL AND HISTORICAL EVIDENCE FROM THE FOREST OF DEAN REGION OF ENGLAND

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1. Chestnuts (*Castanea* spp.) have for millennia been an important food resource for people in upland and marginal lands in N America, Asia and continental Europe.
2. In Europe, *Castanea sativa* has long been regarded as an 'archaeophyte' outside its presumed native range in the Caucasus. The Greeks and Romans are credited with introducing chestnuts across the Mediterranean and the Atlantic fringe.
3. *C. sativa* is now thought to have other Ice Age refugia in Europe, in N Spain, N Italy, Greece, Bulgaria, Turkey, as well as the Caucasus. Palaeoenvironmental evidence had indicated this; genetic analysis has now identified discrete genotypes in these regions. Distinct 'chestnut civilisations' evolved here and still survive in cultural landscapes and chestnut economies.

4. In Britain, *C. sativa* is described as non-indigenous, introduced by the Romans – but there is very sparse evidence for *C. sativa* in Roman contexts and this could be derived from imported materials.
5. A new search for evidence in Britain of a 'chestnut civilisation' similar to that found in continental Europe can benefit from new techniques in genetics, onomastics and palaeoenvironmental research.
6. Genetic studies of chestnuts in Britain might indicate their European origins and any history of cultivation; name studies can indicate when chestnut was significant enough to give a place a name.

This research – using the Forest of Dean and wider region as a case study - will enable a review of the cultural significance of sweet chestnut in England – important given the threat from disease to the ancient chestnut trees and woods extant in Britain.

SA13 A CLOSER LOOK AT ESTONIAN IRON AGE CASTING TOOLS

Ragnar Saage¹, Sebastian Wärmländer²

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Crucible fragments and molds are the most common evidence of non-ferrous metalworking from Estonian Iron Age sites. Despite the numerous finds, no in-depth analysis has so far been conducted on this material. The present study aims to fill that gap in Estonian metal-working research. The majority of Estonian Iron Age casting tools are dated from the 6th to 12th century AD.

The study answers three principal questions: "Where can we find Iron Age casting tools?; What types of crucibles and ladles were used?; Which metals and alloys were cast with them?"

The first question is answered by a survey of the existing literature including field reports. The second question is answered by a typological examination employing photogrammetric and 3D scanning techniques. This allows us to use the 3D models to create cross-sections, measure dimensions, et cetera, and also creates digital copies of the artifacts that can be accessed later on. The third question is answered using pXRF element analysis to investigate a large number of crucibles for metal residues. The pXRF results are then used to select individual crucible fragments for further SEM-EDX analysis, which allows for a detailed characterization of the casting residues. Taken together, these results improve our understanding of metal-working in Iron Age Estonia.

SA1 RHX DATING OF ARCHEOLOGICAL CERAMICS VIA A NEW METHOD TO DETERMINE EFFECTIVE LIFETIME TEMPERATURE

Murray Moinester, Eli Piasezky, Michael Braverman

TEL AVIV UNIVERSITY

Determining the absolute chronology of ceramic artifacts has significant implications for archaeological and historical research. Wilson, Hall *et al.* recently suggested a new technique for direct absolute dating of archaeological ceramics based on a moisture-induced chemical reaction, called rehydroxylation (RHX) dating. RHX dating proceeds by measuring the mass of chemically combined water in the ceramics in the form of OH hydroxyls, and the mass gain rate at the Effective Lifetime Temperature (ELT) that the ceramics experienced over its lifetime. To date, ELT determinations have been based on estimates of the ceramic's lifetime temperature history; taking into account weather and climate data and the depth at which the artifact was found. The uncertainty in determining the ELT can be a major component of the overall dating uncertainty. *Here we propose an alternative method which relies minimally on weather and climate data, and provides more precise determinations of the ELT and the ceramic age.* The proposed method (SAS: Same Age Samples) involves a minimum of four measurements of the RHX mass gain rate constant for two ceramic samples of the same age at two temperatures. We show via simulations that the proposed SAS method can determine the ELT with a precision of 0.2 K which is comparable to the best ELT determination based on lifetime temperature history. The corresponding percent age error is then 1.4%, or 43 years for a 3000 year old ceramic. The proposed SAS method should be tested with ceramic samples of different ages, whose ELT are well known.

SA16 REUSE OF TEXTILES : THE EXAMPLE OF A WORKSHOP IN BRANDES-EN-OISANS (12TH-14TH C., FRANCE). FIRST RESULTS.

Emeline Retournard

UNIVERSITÉ DE BOURGOGNE, UMR 6298 ARTEHIS

Brandes-en-Oisans was a medieval village located at 1800 meters high in the French Alps, at around thirty kilometers from the city of Grenoble. The village, dated from the 12th century to the 14th century, was dedicated to the extraction and the treatment of silver and lead ore.

The archaeological site delivered many organic material as wood, leather and textiles into several excavation areas. One of them was a workshop for the washing of the ore. This context delivered a lot of textiles with a good state of conservation. Some of these textiles suggest a use of this material into an old washing process. In parallel, few decorated textiles could indicate their reuses in this method.

SA5 THE CONTRIBUTION OF CAVE PALYNOLOGY TO THE RECONSTRUCTION OF NEAR EAST VEGETATION: THE SHANIDAR CAVE PROJECT (KURDISH IRAQ)

Marta Fiacconi¹, Chris O. Hunt²

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Shanidar Cave (Zagros Mountains, Kurdish Iraq) is one of the most interesting archaeological sites of the Near East due to the discovery, during the 1950s, of the first adult Neanderthal skeletons in Iraq, some of which were probably burials. This preliminary study presents the result of the analysis of surface samples collected from a transect inside and outside Shanidar Cave to verify the extent to which pollen recorded in caves reflects the outside vegetation. This will enable palynological and vegetational data to supplement the poorly understood vegetational history of that area. The pollen diagram shows both animals and wind as transport mechanisms at Shanidar Cave. Anemophilous taxa (e.g. *Quercus*, *Pistacia*, Cyperaceae and Poaceae) show similar trends both inside and outside the cave suggesting that samples collected inside are representative of the outside vegetation. Entomophilous taxa (e.g. Asteraceae, Rosaceae, *Scabiosa* and *Vicia*), on the other hand, show different trends when comparing the cave with the landscape outside. Most occur at higher percentages inside the cave, likely related to transport by insects, bees in particular, as they represent the principal vector in entomophilous pollination. Previous studies demonstrate the accumulation of large amounts of pollen of those species in bee nests. The results correspond to the vegetation present nowadays in the studied area, characterized by forest steppe of herb-rich grassland with trees sparsely distributed. The work demonstrates the potential of cave palynology to play an important role in vegetational reconstruction in arid and semi-arid areas where other pollen sources are not available.

SA4 COPING WITH THE MOUNTAINS DURING THE EARLY MIDDLE AGES. EXAMPLES FROM SUDETENLAND.

Ewa Lisowska

UNIVERSITY OF WROCLAW, INSTITUTE OF ARCHAEOLOGY

Settlement and human activity in the early Middle Ages in the Sudetenland can be reconstructed based on archaeological data and historical documents. The basis for the recognition of the environmental performance of mountain areas are the results of excavations of more than 50 archaeological sites located in the Polish part of the Sudeten. The most visible evidence we have for the mining activities (gold mining) from the end of the twelfth century and later. As well as mining clearly draws the exploitation of stone raw material in quarries. In addition, many local sites is certified by recognizing local pottery productoin. Other interesting items may include the production of organic materials: tar production and possibly also local winery and bee-keeping.

Strongholds building and intensive forestry resulted in visible deforestation the Sudetenland. The largest forest thinning, however, took place at the end of the thirteenth and fourteenth century, when first glassworks started to work. At this time, regardless of climate change there have already led to a significant input of settlement onwards. The testimony of these processes is growing density of settlement network in the thirteenth century, and the emergence of some new production sites.

SA1 DID BRONZE AGE BRITONS MUMMIFY THEIR DEAD? EVIDENCE FROM THE HISTOLOGICAL ANALYSIS OF ANCIENT HUMAN BONES.

Thomas Booth

NATURAL HISTORY MUSEUM

The internal microstructure of archaeological bone is often altered by tunnelling microorganisms that produce characteristic micro-foci of destruction (MFD). The most common forms MFD are thought to be produced by endogenous bacteria that attack the bone during putrefaction (bioerosion). Assessment of bioerosion within bones recovered from a series of temporally-diverse northern European archaeological sites suggests that bacterial attack varies with taphonomic factors that affect early bodily decomposition. Immediate burial of a corpse prolongs putrefactive decomposition. Subsequently, articulated skeletons recovered from across all sites and periods typically demonstrate high levels of internal bioerosion. A significant proportion of British Bronze Age articulated skeletons show abnormally low levels of bacterial attack, indicative of restricted exposure to putrefaction. Similar diagenetic signatures detected within Bronze Age skeletons from Cladh Hallan, South Uist were interpreted to be indicative of prior mummification.

The purpose of this paper is to establish whether arrested signatures of bone bioerosion are consistent with mummification and determine the likelihood that this practice is responsible for the atypical diagenetic signatures found within Bronze Age articulated skeletons. Previous histological characterisations of mummified bone combined with the microscopic analysis of bone from a Yemeni mummy and an Irish bog body confirmed that mummified bones demonstrate little or no internal bioerosion. Alternative explanations for the lack of bone bioerosion within the Bronze Age remains are inconsistent with specific evidence from each site. These results provide the first indications that mummification may have been practised throughout Britain during the Bronze Age.

SA21 POST-MEDIEVAL POVERTY: AN INTEGRATED INVESTIGATION

Keri Rowsell, Matthew Collins, Mark Jenner

UNIVERSITY OF YORK

Scurvy is the result of malnutrition arising from a severe Vitamin C deficiency. Although frequently fatal in archaeological populations, it can be difficult to identify from human skeletal remains (HSR) as (i) it is not always reflected in bone, and (ii) it can be confused with other conditions. Subsequently, scurvy is under-represented in the archaeological record and this is skewing our understanding of the scale of the problem in the past. By establishing an accurate, low-cost method for identifying scurvy in HSR we can change the way that this disease is understood in archaeological populations and thereby build a more realistic picture of malnutrition in the past.

The humble potato is a surprisingly good source of vitamin C – a 100g potato will provide 50% of an adult's recommended daily intake. During the 17th-19th centuries, it was the potato that contributed to the eradication of land scurvy in England by becoming a staple part of the diets of many, but when exactly this dietary change took place is still unknown. Microscopic analysis of dental calculus may allow us to find direct evidence of potato consumption through starch granules that become trapped in the calculus.

Working with collaborators from York Osteoarchaeology Ltd, the Museum of London Centre for Human Bioarchaeology, and The University of Durham, we are in the early stages of investigating the links between poverty, diet and disease in the long eighteenth century in England.

SA23 FROM FIGURINE TO TUYÈRE: RE-INTERPRETATION OF A GODESS FIGURINE USING ARTISANAL INTERPRETATION OF A FIND FROM THE BRONZE AGE SITE OF PRYSSGÅRDEN IN THE SOUTHEAST OF SWEDEN **Katarina Botwid**

DEPARTMENT OF ARCHAEOLOGY AND ANCIENT HISTORY

Metal craft is intriguing, beautiful and complex. Using the artisanal perspective it is possible to detect tools used in the craft. Ceramics used as tools for metallurgy are often regarded as important artefacts for detecting that metal craft has taken place. If crucibles, casting moulds and tuyères are found together with scrap metal at an archaeological site, the interpretation can be said to be reliable.

In the Swedish Bronze Age Pryssgård material *one* find in particular has been discussed in papers, articles and among archaeologists, namely the Pryssgård figurine. My interpretation of the figurine is that this artefact is in fact a tuyère, shaped like a horse head, blowing on the crucible through its snorting nostrils. The shape is a sculptural study, a life-like depiction of the anatomic features of a horse together with incised decorations. Tuyères from European contexts have been interpreted as zoomorphs or even horselike. These finds will be discussed in this reinterpretation. Often a practical interpretation seems to take the discussions of symbolic actions away. I believe that powerful symbolism can be a part of the artisanal life and knowledge.

I argue that my interpretation is even more plausible because of the horses' strong symbolic value in the Bronze Age Society.

SA24 THE EFFECTIVENESS OF DIFFERENT PRE-TREATMENTS ON CHARRED PLANT SAMPLES FOR STABLE NITROGEN AND CARBON ISOTOPES ANALYSES

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Isotopic analysis of archaeological charred plant remains offers useful archaeological information. However, adequate sample pre-treatment protocols are necessary to provide a contamination-free isotopic signal while limiting sample loss and achieving a high throughput. Under these constraints research was undertaken to compare the performance of different pre-treatment protocols.

Charred archaeological plant material was selected for isotopic analysis ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) from a variety of plant species, time periods, and soil conditions. Preservation conditions and effectiveness of cleaning protocols was assessed through Fourier transform infrared spectroscopy (FTIR) and X-Ray fluorescence spectrometry (XRF). An acid-base-acid protocol, successfully employed in radiocarbon dating, was used to define a contamination-free isotopic reference. Acid-base-acid isotopic measurements were compared with those obtained from untreated material and an acid-only protocol.

The isotopic signals ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) of untreated material and an acid-only protocol typically did not differ more than 1‰ from the acid-base-acid reference. The isotopic offsets between acid-base-acid and untreated samples followed approximately symmetric distributions both for $\delta^{13}\text{C}$ (average = 0 ± 0.4 ‰) and $\delta^{15}\text{N}$ (average = 0 ± 0.2 ‰). Comparatively variable preservation conditions are suggested by the range of sample elemental concentrations and infrared spectra. Samples losses in an acid-base-acid protocol were in average $50 \pm 17\%$ (maximum = 98.4%).

For the range of soil conditions described in this research and provided that the charred plant sample is efficiently cleaned of sediments accurate isotopic values of carbon and nitrogen can be obtained from untreated samples with an assigned uncertainty of 0.5‰. When higher precisions are required an acid-base-acid protocol is recommended.

SA26 ECONOMIC RESOURCES IN CHALCOLITHIC SOCIETY: BIOARCHAEOLOGICAL STUDY CONCERNING THE CUCUTENI SITE OF COSTESTI (IASI COUNTY, ROMANIA)

Luminita Bejenaru, Mihaela Danu, Simina Stanc

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

Bioarchaeological research of pollen and spores, non-pollen palynomorphs, phytoliths and animals remains was performed in Chalcolithic settlement of Costesti (Iasi County, Romania). Archaeological research unveiled a stratigraphy with levels belonging to Cucuteni Chalcolithic culture (Vth-IVth millennia CAL B.C.). Archaeobotanical results are integrated with those of archaeozoology in order to achieve an inventory of economic resources exploited by this Cucuteni community.

Archaeobotanical analysis testified the presence of deciduous trees such as linden (*Tilia*) and oak (*Quercus*). Willow (*Salix*), alder (*Alnus*) and birch (*Betula*) inhabited banks of river whose course goes right near the site. Regarding the herbaceous plants, there were identified both spontaneous taxa and other taxa which could be cultivated. Cereals are evidenced by the dendritic phytoliths. Anthropogenic pollen indicators (sorrel - *Rumex* type; knotgrass - *Polygonum aviculare* type, wormwood - *Artemisia*) are present too.

The majority of animal remains are from domestic mammals (about 71%), with the predominance of sheep/goat (*Ovis aries*/*Capra hircus*), followed by cattle (*Bos taurus*) and pig (*Sus domesticus*). The hunting of wild mammals is quite important in the food provisioning system, whereas the frequency of these remains is about 23%; as game species, red deer (*Cervus elaphus*), wild boar (*Sus scrofa*) and aurochs (*Bos primigenius*) are dominant. Harvesting was mainly addressed to molluscs, but the number of remains attributed to this group is small.

According to these data, the economy of Chalcolithic settlement from Costesti was based on the cultivation of plants and animal husbandry, and also on forest and aquatic resources.

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SA1 THE ONSET OF AGRICULTURE IN EARLY NEOLITHIC IBERIA (5500-3500 CAL BC). FRESH RESEARCH LINES FROM SUMMED PROBABILITY RADIOCARBON DISTRIBUTIONS

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This paper explores a large radiocarbon dataset (c. 950 dates from 285 sites) in order to contribute new insights into the dynamics of the Neolithic transition in Iberia. A recently published twofold introduction model for the Iberian Neolithic (Isern et al. 2014) divides the Iberian Peninsula into two major study areas: 1) Mediterranean and central Iberia, where agriculture arrived earliest and spread most quickly, and 2) the Atlantic/West/North, where farming arrived later and spread more slowly. As a proxy for the population dynamics in these regions, we analyzed the summed probability radiocarbon distributions for the period 5500-3500 cal BC (7500-5500 BP) in different spatiotemporal combinations (e.g., using Köppen climatic classification). Our work demonstrates two patterns. First, a boom-and-bust demographic pattern is clearly identified in relation to the introduction of agriculture, akin to similar processes detected across Europe (Shennan et al. 2013). However, there are important regional differences. The more humid northern-Atlantic zone evinces more stable population tendencies than the Mediterranean, which is marked by greater fluctuations and instability. Despite their uncertainty and preliminary nature, these observations, based on state-of-the-art methods, shed important new light to build up fresh accounts dealing with demographic trends, cultural dynamics and environmental changes in the Early Neolithic.

SA2 MEDIUM AND MESSAGE; APPLICATIONS OF 3D DIGITAL RECORDING. FROM THE MACRO TO THE MICRO, ARCHAEOLOGICAL RESEARCH AND COMMUNICATION APPROACHES.

Seren Griffiths, Ben Edwards

MANCHESTER METROPOLITAN UNIVERSITY

Developments in digital representation have arguably led to revolutions in approaches to recording archaeological sites using 3D digital documentation; as conservation tools for archaeological sites; and as means to present and communicate archaeological discoveries to non-specialist audiences. Our recent experience in digital photogrammetry emphasises the continuum of practice between 'field research' and 'dissemination' to a wide range of audiences. We present two case studies — on survey work from Ireland and Britain — that emphasise the facility of digital 3D photogrammetry as research and digital recording tool, and as a means to communicate research to specialists and non-specialists alike. We suggest that by engaging both archaeologists and non-specialists with more developed spatial records for individual sites, digital 3D photogrammetric recording approaches provide means to marry better understandings of landscapes, with an emphasis on specific aspects of individual sites that have been brought to the fore in recent phenomenological work.

Using our case studies, we argue (cf. McLuhan 1964) that rather than emphasising the medium at expense of the message, the most developed digital recording techniques advance archaeological practice by breaking down barriers in participation, and between recording and survey and dissemination. For archaeologists and non-specialist alike, digital 3D photogrammetry

provides a number of important means to engage with archaeological evidence, which is in part augmented by the accessibility that digital technology offers.

SA1 PREHISTORIC HUMAN-ENVIRONMENT INTERACTIONS – ARE WE GETTING THE FULL PICTURE?

Daisy Spencer

NATIONAL UNIVERSITY OF IRELAND GALWAY

Questions of human-environment interactions are central to our understanding of past societies. These interactions are, however, often very complex and the use of a single palaeoenvironmental indicator such as pollen analysis on its own may not be providing as nuanced a picture as is possible. One way forward is the use of multi-proxy palaeolimnological techniques, (chironomid, pollen and $\delta^{15}\text{N}$ analysis), to the study of ancient agricultural activity. Chironomids, (non-biting midge flies), whilst traditionally used to reconstruct palaeotemperature, have recently been shown to be highly responsive to changes in land use. Recent research at NUI Galway has demonstrated the success of chironomid analysis for land use studies, with agricultural inputs shown to be the primary influence on chironomid communities when farming is present, while analysis of stable isotopes has shown increased $\delta^{15}\text{N}$ in agricultural catchments, likely reflecting the input of cattle manure to lake systems. Building on this work, a new PhD research project 'People, Land-use, and Time' has been developed focused on analysing sediment cores from two lakes within county Clare in western Ireland, alongside palynology, to elucidate changes in land use indicative of farming during the Neolithic and Bronze Age. With excellent correlations between chironomid communities and $\delta^{15}\text{N}$ values at previous study sites, the inclusion of this complementary technique to the current study should support the interpretation that the chironomid data is reflective of farming practices, (and not primarily driven by climatic factors), in addition to being a new application for $\delta^{15}\text{N}$ and chironomid analysis within archaeological science.

SA8 POULTRY EXPLOITATION IN EASTERN ROMANIA DURING POST-ANTIQUITY AND MEDIEVAL PERIODS

Luminita Bejenaru, Simina Stanc

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

Domestic bird remains from Post-Antiquity and Medieval sites in Eastern Romania are described in terms of archaeological contexts, frequencies, osteometry and selection according to age and sex of individuals. The paper synthesizes studies from the area, including also some historical references to poultry exploitation. The species discussed are chicken (*Gallus gallus domesticus*), goose (*Anser anser domesticus*) and duck (*Anas platyrhynchos*).

The Post-Antiquity and Medieval poultry remains found in Eastern Romania come from different sources: birds used by the inhabitants for food; birds chosen to perform a role in ritual activities. According to the archaeozoological studies, chicken was the most numerous species of domestic birds; but their usage rate for feeding purpose appears nevertheless underestimated taking into account the limited preservation of skeletal remains.

Together with other domestic species (e.g. sheep/goat, pig, cattle), poultry were found as offerings (meat and eggs) in inhumation tombs at necropolises of Santana of Mures-Cerneahov Culture (4th-5th centuries). In all necropolises containing animal offerings, the most frequently represented species are sheep/goat, followed by chicken.

SA23 SMELTING OF THE IRON ORE THROUGHOUT DIFFERENT HISTORICAL PERIODS - VIRJE - A CASE STUDY

Tajana Sekelj Ivančan

INSTITUTE OF ARCHAEOLOGY

Archaeological research in the vicinity of Virje yielded interesting data related to the primary processing of iron ore. The site is located in the lowland area on the right bank of the Drava River in the Republic of Croatia. The remains of smelting workshops with bloomery furnaces dating to the early Middle Ages were explored on one position (Volarski Breg), while on the elevation Sušine parts of a workshop with several furnaces from the late Roman period (4th and 5th century) were explored, as well as the remains from the early Iron Age. Previous studies have shown that on the site Virje there are at least two types of furnaces. Besides their different shapes, C14 analysis showed that they were in function during different time periods. Flat-hearth tapped furnaces are with certainty dated since the late 8th and in the 9th century.

That the primary processing of iron was conducted on this site throughout several periods is indicated by the findings of semi-finished products - ingots of iron, which originate from a La Tène structure. Since the manufacturing process of smelting of iron ore took place repeatedly on the same location, the question arises whether the choice of the location was conditioned by natural resources or was there a sort of a reminiscence of this location being suitable for the primary processing of iron, as well as the question whether the change in form of furnaces found on the same location is related with some changes in the processing technology.

SA1 PROTEOMICS AND METAGENOMICS ON A POPULATION THROUGH TIME

Anna Fotakis

CENTRE FOR GEOGENETICS

In this poster we present the outline of a new study at the Centre for GeoGenetics Copenhagen in collaboration with the NTNU University Museum, Norway. This project will focus on the metagenomic and proteomic investigation from human remains from

archaeological contexts from Trondheim. This city was founded in 997 AD by the then King Olav Tryggvason and has been in constant occupation ever since, playing a significant role in Norwegian history. Recently a number of cemeteries have been excavated and over 2000 skeletons exhumed and stored in the NTNU museum. The principal aim of this project would be to reconstruct the oral microbiomes, oral diseases and nutritional changes over time for this population. To do this, dental calculus will be collected and manipulated under the latest ancient protein (aPt) and ancient DNA (aDNA) techniques. Previous research (Warinner and Cappellini 2014) proved that dental calculus is an extremely rich source of proteins related to the oral microbiome. In combination with genomic data obtained from the same population, this would be, to our knowledge, the first complete study where metagenomics, proteomics and genomics are applied to sequential historic populations of a known and geographically limited locality. It would not only provide an elegant example of mass genomic and mass proteomic data obtained from an archaeological population over time, but also provide a large amount of information about how oral health and adaptations altered in these communities, further enhancing our understanding of the quality of life in the past.

SA12 SCATTERED MEANINGS

Fraser Brown

OXFORD ARCHAEOLOGY

At Stainton West, near to Carlisle, Cumbria (UK), just to the north of Hadrian's Wall, a relict palaeochannel of the River Eden was excavated by Oxford Archaeology during the course of road construction. An extraordinarily complex and temporally deep sequence of archaeological remains was discovered. The activity spans the transition from hunter-gathering to agriculture and includes: waterlogged evidence for late Mesolithic woodworking; a very late fifth millennium cal BC encampment or settlement, associated with an in situ scatter of c 300,000 struck lithics; very early fourth millennium cal BC waterlogged wooden structures that acted as the focus for the deposition of objects such as polished-stone axeheads and wooden 'tridents'; and a sequence of burnt mounds spanning c 1400 years, from the early third millennium to the mid second millennium cal BC.

GIS and detailed spatial analysis has been extensively used to help interpret the site. This has included reconstructing the palaeochannel and the organic remains within it in a 3D environment and the spatial interrogation of the lithic dataset to help understand the organisation of the settlement and the practices enacted within it. This paper discusses the methodologies used and presents the results of the analysis.

SA26 SCIENTIFIC ANALYSIS OF MEDIEVAL WINDOW GLASS IN SCOTLAND - ELGIN CATHEDRAL

Helen Spencer¹, Craig Kennendy², Jim Buckman¹

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In comparison to other parts of Britain and Europe, there has been relatively little recent research on Scottish Medieval window glass. In part, this is due to the scarcity of window glass found both in existing medieval buildings and excavated from archaeological sites. There is also a relative lack of archaeological and documentary evidence to show that glass was manufactured or worked, in Medieval Scotland.

There are therefore many unanswered questions as to the manufacture and supply of glass used in Scottish medieval buildings including, where it was manufactured, the trade routes bringing glass into Scotland and where the craftsmen who worked on glazing Scottish buildings came from.

The poster will report on analytical investigations using P-XRF & SEM-EDS of thirteenth century Medieval Window Glass, which was found in excavations at Elgin Cathedral. This is the largest assemblage of Scottish Medieval window Glass to have been investigated in this way. The results of the analysis will be compared with the findings of similar studies of Medieval glass assemblages in England and Continental Europe. Similarities and differences will be highlighted and possible areas of manufacture investigated.

SA12 INSIDE OR OUTSIDE? GEOARCHAEOLOGICAL PORTRAYAL OF EPHEMERAL DWELLINGS AT THE BRONZE AGE SETTLEMENT OF SOLAROLO (ITALY)

Alessandro Peinetti¹, Julia Wattez², David Lefèvre³, Maurizio Cattani⁴

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Since 2006 the University of Bologna has been carrying out archaeological research in Solarolo, a Bronze Age village located in the southeastern part of the river Po plain, in northern Italy. The preserved stratigraphy refers to the central phase of the Italian Middle Bronze Age (about 1550-1450 BC).

The presence of ephemeral dwellings, that normally don't leave clear traces except for post holes, makes the comprehension of built spaces very difficult. In northern Italy, several types of dwellings – dating back to the 2nd millennium BC - are archaeologically documented.

In order to understand the nature of the buildings, a spatial geoarchaeological sampling has been carried out on the site. A first attempt, based on soil micromorphology, is here presented: both the inside and the outside of a presumed roofed space are sampled.

Observations are made on the thin section focus on the local pedoclimatic markers, on the trampling traces and on the provenance and nature of different soil components. The aims of these first observations are to recognize the presence of the roofed space, to understand the real nature of the floor and, generally, that of the building; finally, they tend also to define the evolution of the building during its life.

In this way we can draw a "biography" of a single built space, useful to understand cultural architectural patterns, not always visible in the macroscopic archaeological record.

SA12 SPATIAL GEOARCHAEOLOGY AT THE BRONZE AGE VILLAGE OF MURSIA (PANTELLERIA, ITALY): ACTIVITY AREAS IN A POLYFUNCTIONAL ROOM

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The Bronze Age site of Mursia (XVIII-XV centuries BC) is located on the island of Pantelleria, between Sicily and Tunisia. The aim of this poster is to examine the function and the activity areas of a small room (called F1), using both microstratigraphic data and archaeological feature analysis.

The room F1 is part of a bigger subelliptical dwelling, dating to the abandonment phase of the site. The peculiarity of this room is the presence of a large quantity of casting moulds (28 intact or partially fragmented moulds), probably one of the biggest clusters in a European context. Other artifacts (lithic materials, pottery) and combustion structures suggest the performance of a large range of activities, from domestic to more specialized tasks. The presence of moulds is probably connected to their own production, rather than to metallurgical activity.

In order to understand the organization of household activities and to explain the presence of a large cluster of casting moulds, a spatial soil sampling was carried out inside the room. This is a first essay of the spatial analysis on the site using geoarchaeological techniques. The main archaeological questions concern the presence of more or less specialized spaces within the village and their social relevance.

SA18 A POSSIBLE CASE OF A STILLBORN CHILD IN THE ROMAN SETTLEMENT STUDEN PETINESCA, SWITZERLAND – AN INTERDISCIPLINARY PROJECT APPLYING STABLE ISOTOPE ANALYSIS AND TOOTH HISTOLOGY

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Infant burials in Roman settlements are a common observation. Even though ancient authors provide information many questions remain uncertain. For instance, the burial ritual for stillbirth and infanticide neonates is not specifically mentioned. This study aimed to investigate the application of stable nitrogen ($\delta^{15}\text{N}$) and carbon ($\delta^{13}\text{C}$) isotopes from neonatal bone collagen in differentiating between a breastfeeding signal and stillbirth or a short survival of less than ten days.

Therefore collagen of 11 human and 14 animal bones from the Roman settlement Petinesca (1st - 3rd century AD, Switzerland) was extracted and analysed. Tooth histology was performed on two teeth of the right mandible to investigate the presence of a neonatal line. The age varied between 8.5 lunar months to 2 months. The stable isotope results provided a breastfeeding signal for all except one individual. The histological analysis exhibited no neonatal line, too.

In conclusion stable isotope analysis could indicate stillbirth or short survival after birth. The tooth histology confirmed this. This might indicate that the burial ritual did not differentiate between stillbirth and neonates, who died within the time span stated by ancient authors of up to 40 days of age/ the appearance of teeth. For further justifications additional research will be conducted.

SA24 PEOPLE OF LA MANCHA. DIET AND MOBILITY AT THE BRONZE AGE SITE OF EL ACEQUIÓN (ALBACETE, SPAIN)

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The study uses measurements of stable and radiogenic isotopes from human remains to examine human mobility and dietary patterns at the Bronze Age site of El Acequión. It is one of the most exceptional Bronze Age sites of the Spanish plains of La Mancha, being one of the largest and having a circular fort (locally called *morra*) consisting of two ring walls with storage and habitation space in its interior. Its radiocarbon chronology suggests that it was occupied throughout the Bronze Age (2200-1500 cal BC), even though the intensity of occupation varied considerably in time. Excavations in the 1980's recovered the remains of six human individuals, three adults and three subadults. These burials, both primary and secondary, are associated with different occupation phases. Stable isotope analysis of carbon and nitrogen were used to investigate dietary attributes while strontium and oxygen isotope analyses are applied to reconstruct residential mobility. The results of this study offer insights into diet and feeding habits such as breastfeeding and the weaning process. Strontium and oxygen isotope analysis showed homogeneous local values. We suggest that all the individuals buried at the site came from the same or similar geological background and were acquiring their food webs from the same ecosystem. These results are compared with other ongoing analyses from similar Bronze Age sites and future directions are discussed.

Coauthors: Balsera, V., Waterman, A., Thomas, J., Peate, D., Bocherens, H., Martínez-Navarrete, M.I., Gilman, A., Martín, C. and Díaz del Río, P.

SA1 A SCIENTIFIC STORY ABOUT AN EBA FUNERARY CONTEXT IN EASTERN ROMANIA

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The interdisciplinary approach, the implementation of "new methods" of investigation and the modeling of a new type of discourse represent goals of the contemporary archeology. In this framework encompasses a recent archaeological research carried out in eastern part of Romania. This research did not provide something which is usually specific for the archaeologist work (artifacts, housing remnants etc). In a tumulus was investigated an inhumation grave which provided more data using methodologies and technologies from the natural sciences. To find out the history of a funerary context we used aDNA analysis, pedological analysis, anthropological analysis, microscopic analysis. The aDNA analysis includes in this case, DNA extraction (Yang et al, 1998), amplification of the mitochondrial control region's hypervariable segments 1 and 2, cloning of the resulting 8 fragments, sequencing of 6 clones/ fragment and bioinformatic analysis to assign mitochondrial haplogroup. Thus, we found out that this well represented funeral context (tumulus, wooden flooring, textile structure, funeral pit, ocher deposition) may be assigned to EBA, in a funeral phenomenon called Yamnaya specific for Eastern Europe. The aDNA analysis offered the nucleus for the narrative concerning the mobility of a community or a funeral custom and established a bridge between different genetic discoveries in contemporary Southeast Europe; the analysis of the mineralized textile debris revealed a special treatment of the individual buried in the funerary context and first paleoenvironmental data, as well. In this view the narratives have become a coherent story about the a community at the margin/periphery of a cultural phenomenon.

SA24 CAN BULK ISOTOPES BE USED TO DETERMINE THE USE OF POTTERY?: A VIEW FROM JAPANESE PREHISTORY.

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In Japan, carbon and nitrogen stable isotope analysis is widely used to characterize charred surface deposits or 'foodcrusts' associated with pottery vessels. Foodcrusts are often found on Japanese prehistoric pottery and, given the frequent absence of other organic remains, are a particularly important substrate for AMS 14C dating. In this context, bulk stable isotope was initially used to identify problematic samples, particularly those subject to potential marine or freshwater reservoir effects. More recently, interests have turned to using isotope analysis to reconstruct culinary practices. Here, we point out problems with this approach, which without well defined reference materials and a knowledge of diagenetic alterations, could produce misleading interpretations. Due to these uncertainties, we recommend the use of more rigorous chemical and isotopic analysis of individual molecules, such as fatty acids, that can be readily released from the 'foodcrusts' using a modified extraction protocol.

SA1 REWRITING THE PAST OF THE BISKUPIN TYPE SETTLEMENTS, THE SITE OF IZDEBNO 5, POLAND

Dominika Kofel

NICOLAUS COPERNICUS UNIVERSITY

In the eastern part of Pałuki region, there are 5 sites of the Biskupin type, namely: Biskupin, Sobiejuchy, Izdebno, Janikowo and Smuszewo. They are fortified settlements located close to water reservoirs. Their chronology was established, based on pottery typology and analogies to other settlements of a similar structure from central west Europe, to the turn of 6th/5th BC. However latter, absolute dating methods moved the chronological frame to the turn of 9th/8th century BC.

At the Izdebno 5 site, by reason of numerous similarities, called a twin of Biskupin, a project of interdisciplinary approach was aimed in 70's of 20th century. However due to uncertain factors only few modest analysis were undertaken. Moreover the geological studies suggested that the water level in the lake must have been at least 1,5 m lower than nowadays. Striking fact is that the site is today located on a peninsula. Yet, it is claimed by the author of the excavation that it must have been an island during its occupation in the Iron Age.

The paper highlights a need of double rewriting the past. Firstly, the past of inaccurately conducted/interpreted studies of natural and biological sciences, e.g. absolute dating method moved the chronology of the Biskupin type settlements ca 300 years back in time. Still, nobody seems to be will changing the idea of genesis and abandonment of the settlements. Secondly, the past of human – water relationship of Izdebno inhabitants in the Iron Age.

SA1 MICROMORPHOLOGICAL INSIGHTS OF DEPOSITS AND ACTIVITIES AT TORRE D'EN GALMÉS, MENORCA, SPAIN

Amalia Perez-Juez¹, Paul Goldberg²

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Archaeology commonly relies on material findings, stratigraphy and architecture to interpret human history and activities. This is no less the case in Menorca, Spain, where striking prehistoric megalithic buildings (e.g. talayot, taula, navetas, houses and storage areas) have documented human occupations and constructions dating from the Iron Age to the present. What has commonly been overlooked – in Menorca and elsewhere - is examination of the deposits that fill up these structures or partially enclose them over the landscape. Simple field observation, but above all, soil micromorphology can provide significant insights into short-term events that form an essential part of the archaeological record. We present here some examples of micromorphological analyses of deposits from the Iron Age site of Torre d'en Galmés, Menorca, from within and outside some prehistoric and historic houses at the site. The results reveal aspects of use of space within structures, building techniques, and the nature of extensive quarrying at the site. None of these results were visible by using traditional archaeological methods but soil micromorphology has proven to shed new light to the traditional interpretation, thus enriching and making more accurate the interpretation of the archaeological record.

SA4 CLIMATE EFFECTS ON THE LONG TERM SETTLEMENT ECOLOGY OF THE ANDAHUAYLAS REGION OF SOUTHERN HIGHLAND PERU

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Thanks in part to a number of recent archaeological and paleoclimate research projects in the Andahuaylas region of southern highland Peru, investigators are now well positioned to compare diachronic changes in the climate and archaeological records over the last several millennia in the region. Long term changes in the settlement ecology of prehistoric populations play a particular important role in understanding the impacts and human responses to climate change over time. A recently analyzed lake record from Laguna Pacucha highlights an alternative sequence of wet and dry conditions, the most pronounce of which was a period of aridity peaking at ~1250 CE which co-occured with a pattern of high elevation settlement, often defensive in nature. Taken together, these complementary data sets offer fundamental insights into how these specific populations confronted and adapted to climate change in the form of adjustments in prehistoric settlement and subsistence in a high relief, high altitude landscape. Writ large, this Andean based research contributes to a more nuanced and complete understanding of how prehistoric societies across the globe responded to climate change in a range of convergent and divergent ways.

SA6 GOLD ON THE COAST: THE ABSOLUTE DATING OF THE LATE CHALCOLITHIC VARNA CEMETERY (BULGARIA)

Tanya Dzhanezova

ST CYRIL AND ST METHODIUS UNIVERSITY OF VELIKO TURNOVO

Being well-known for its spectacular gold objects, the Late Chalcolithic cemetery located near Varna (the region of the Black Sea) has been an immense site of interest and also a focus of a number of dating studies. The recent published analyses of bone material (collagen samples) from the site has also yielded a number of AMS dates, which were considered as surprisingly early compared to what the 'traditional' views on the Chalcolithic chronology are. Accordingly, such dates (that differ from the general temporal frameworks of the Late Chalcolithic in the Eastern Balkans) were either accepted as ultimate unequivocal results, provoking even a shift to a new chronological scheme for the Balkan Peninsula or, quite often, rejected without satisfactory scientific reasoning. Certain comments on the possible discrepancies or the probable factors that may have influenced the results have also remained without consideration.

This work is focused on a number of aspects that should be taken into account when analysing the Varna materials and, accordingly, on the evaluation of their probable effect on the offset. Given the site location in the Black Sea coastal area, and furthermore, near a freshwater lake, a number of key factors related to the context and the preservation of the sampled materials, along with particular issues conditioned by the probable diet, will be discussed here.

SA1 PROTEOMIC PROFILING OF DENTAL CALCULUS FROM VIKING SAMPLES IN SCANDINAVIA

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The human microbiota consists of a very complex mixture of bacteria, fungi and archaea in different environments within the host. The composition of these microbiomes alters with disease states or dietary changes, which can be reflected in archeological dental calculus (the mineralized plaque on teeth) that has proven to be a good reservoir for preserving biomolecules including DNA and proteins. With the use of high-resolution mass spectrometry we aim to reveal the protein profile for each of the human dental calculus samples, followed by a comparative analysis allowing for identifications of differences.

In the preliminary data we find that the most abundant species are *Actinomyces dentalis*, *Lautropia mirabilis*, *Propionibacterium propionicum*, *Homo sapiens* and *Corynebacterium matruchotii*. Gene Ontology analysis of the human proteins shows that they are enriched in extracellular proteins and are known to be involved in different immune responses.

We also identify proteins from the bacterial species belonging to 'the red complex' comprised of *Porphyromonas gingivalis*, *Tannerella forsythia* and *Treponema denticola*. This complex of oral bacteria is associated with severe periodontitis and is observed in several samples.

This work will focus on identifying changes in the bacterial composition in different Viking samples originating from Denmark, Sweden, Faroe Islands and Iceland that indicate different food sources and lifestyle. Furthermore variations in human proteins identified will point to the state of the human health. Acknowledgements: This project is supervised by Professor Jesper V. Olsen, University of Copenhagen, NNF Center for Protein Research.

SA12 GEOARCHAEOLOGICAL APPROACH TO RAMMADIYAT: SETTLEMENT DYNAMICS AND PATTERNS OF THE CAPSIAN SITE SHM-1 (HERGLA-TUNISIA)

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The open air Capsian sites are usually composed by mounds, called *rammadiyah*, from whose stratigraphy is not very clear.

The recent excavations carried out on a Tunisian coastal *rammadiyah* (SHM-1) revealed occupation soils associated to a structured village. It is renewing the question about the modes of occupation of these populations, as well as the nature of activity, the organization of the space and the pattern of settlement, if nomadic and/or sedentary.

The geoarchaeological approach presented here is influenced by this research perspective and is based on the micromorphology of soils. The analysis has revealed a sedimentary dynamic strongly influenced by human activity, highlighted by a series of occupation soils, mixed with the aggregates resulting from the erosion of mud used in the construction, and regularly defaced by biological activity.

We present the results of this geoarchaeological approach at SHM-1 through two stratigraphic key studies from the sections of trench 5 and 6. This work aims to discuss the importance of the sedimentary archive of rammadiyah in order to understand the occupation patterns and the impact of Capsian communities on the soils.

SA24 ONLINE DATABASE ON BONE COLLAGEN $\Delta^{13}C$, $\Delta^{15}N$ AND $\Delta^{34}S$ VALUES. A NEW TOOL FOR (PREHISTORIC) DIETARY RECONSTRUCTION IN THE EASTERN BALTIC SEA AREA.

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The database project will provide an easy-to-use, open access baseline data for (paleo)dietary research, focusing on the most commonly used food items like domestic animals, game and fish to inform paleodietary studies and models in the Eastern Baltic Sea area. All published archaeological bone collagen stable isotope data and dating information on animal collagen available for Fennoscandia, Western Russia and the Baltic countries will be collected from literature and entered into the database. Selected vertebrate specimens from the collections of the Finnish Museum of Natural History LUOMUS are also sampled, collagen extracted and analyzed for $\delta^{13}C$, $\delta^{15}N$ and $\delta^{34}S$. The gathering and creating of baseline data for Finland and adjacent areas will benefit, enable and is likely to stimulate, a great number of future stable isotope archaeological research. The researchers will be encouraged to share their new data so that the baseline would remain up-to-date and all the data could be accessed and available in an easily downloadable form.

SA12 SPATIAL ANALYSIS OF ARCHAEOBOTANICAL DATA AT THE IRON AGE HILLFORT OF CASTROLANDÍN (PONTEVEDRA, SPAIN): FIREWOOD, WOODCRAFTS AND CROPS

María Martín-Seijo

UNIVERSITY OF SANTIAGO DE COMPOSTELA

The hillfort of Castrolandín (Pontevedra, Spain) was inhabited since 4th century BC to 1st century AD. The objectives of studying charred plant remains have been: 1) to obtain information about the patterns of firewood consumption -similarities and differences between phases of occupation or areas of the settlement-, 2) to provide insight into spaces and techniques linked to woodworking -studying both end-products and woodworking debris-, 3) to identify the areas of crop processing and storage, and 4) to reconstruct the composition of the woodland environment in the surroundings of the site.

The charcoal analysis indicates that four were the most ubiquitous and abundant taxa: oak (*Quercus* sp. deciduous), Fabaceae, alder (*Alnus* sp.) and hazel (*Corylus avellana*). The micro-spatial distribution of the woody taxa indicates the existence of differences in the consumption of wood resources between structures. The charcoal assemblages include remains of domestic firewood and also manufactured wood and wood-crafting debris. The concentration of woodcrafts and wood-working debris in a court from a domestic unit indicates the existence of a specialized area of activity where wooden objects were manufactured.

The carpological remains had been used also to determine activity areas. The crops identified in the samples were wheats (*Triticum* sp.), barley (*Hordeum vulgare*), broomcorn millet (*Panicum miliaceum*), foxtail millet (*Setaria italica*) and beans (*Vicia faba*). Of the utmost interest is their distribution around two domestic units. The same taxa have been identified in storage areas inside and outside the buildings and correspond probably with two different stages of crops processing.

SA12 UNDERSTANDING THE USE OF NEOLITHIC BUILDINGS AND ACTIVITY AREAS IN JORDAN THROUGH COMBINED ETHNOGRAPHIC, PHYTOLITH AND GEOCHEMICAL INVESTIGATION

Samantha Allcock¹, Carol Palmer², Sarah Elliott¹, John Grattan³, Emma Jenkins¹

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The Neolithic in southwest Asia (~11,700-7800 cal BP) is a major period of socio-economic transition, witnessing the shift from hunter-gatherer to sedentary farmer. Despite their importance, archaeological sites of the period and particularly those dating to the Pre-Pottery Neolithic (~11,700-8250 cal BP) are difficult to interpret due to their ephemeral nature and the poor preservation of biological remains. With the aim of establishing an integrated approach that will enable a better understanding of these sites, we have developed a method based on more durable forms of archaeological evidence that frequently result from human activity. This method integrates complimentary, yet distinctive datasets of ethnographic oral histories, phytolith signatures and geochemical variations, obtained from a recently abandoned village, to help address the problems of interpreting Neolithic settlements and ephemeral contexts.

This combined approach uses ethnographic sediment samples from defined activity areas and building materials to determine if certain anthropogenic actions have particular phytolith and elemental signatures that can help recognise these same areas in the archaeological record. We present here the results from the ethnographic settlement of 'Al' Ma'tan'; an abandoned constructed stone and mud village. This modern site in Jordan was chosen because it provided the best available analogy for the more substantial Jordanian Neolithic settlement sites (i.e. Ain Ghazal, Beidha and WF16), which we are also analysing as part of this project. These results are the first to explore how spatial activity patterns recorded from known actions can be applied to samples from Neolithic archaeological sites in Jordan.

SA23 LATE BRONZE AGE METAL ARTEFACTS FROM THE RIVER DRAVA IN CROATIA: A TECHNOLOGICAL PERSPECTIVE ON THE SOCIAL PRACTICE OF RIVER OFFERINGS

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The proposed poster will present a compositional analysis and discuss the broader social context of six bronze artefacts recovered from the marshlands along the river Drava in northern Croatia. In the light of the find's archaeological context, no visible use-wear, and abundant evidence of such practice in the period, these weapons and everyday use items – two swords of the Sprockhoff type, a flanged axe, a socketed axe, a spear, and a sickle dated to Late Bronze Age (thirteenth century BC) – are interpreted as a votive river offering. Macroscopic and metallographic characteristics, along with the quantitative analysis (EPMA-EDS) of the chemical composition of the bronze alloys, are examined in relation to the artefacts' technological properties, efficiency, and practical use value. These results are further discussed in regards to the social practice of presenting prestigious, newly made, unused, and fully functional items as votive offerings.

SA15 HUMERAL ASYMMETRY AND BURIAL RITE: GAINING INSIGHTS ON THE SIGNIFICANCE AND THE USE OF WEAPONS IN A WARLIKE SOCIETY, THE CASE ON THE ATERNO VALLEY NECROPOLIS (ITALY).

Valerio Gentile¹, Vitale Sparacello², Vincenzo D'Ercole², Alfredo Coppa²

¹LEIDEN UNIVERSITY - FACULTY OF ARCHAEOLOGY, ²

The Vestini of the Orientalizing-Archaic period (800-500 BC) displayed their warlike prowess by including weapons in their burials. We built upon previous studies which suggested that high humeral asymmetry in mechanical strength can be used as a

proxy for adolescent-onset weapon training. We analyzed the degree and laterality of asymmetry in 216 male burials, and the disposition and the typology of weapons in 153 burials.

The frequency of left-handed individuals is normal in both the armed (9.3%) and non-armed (6.8%) burials. However, the right handed sample contains higher percentage of highly-lateralized individuals, (chi-square $p < 0.001$). The burial rite mostly does not seem to take into account the individuals' dominant arm for the weapon placement. Swords, daggers, and spears were placed also in burials of non-lateralized people who presumably were not trained warrior. Conversely, rare and prestigious weapons (according to iconography) such as maces or axes, which appear mostly in rich burials (chi-square $p < 0.001$), are also associated to highly lateralized ($p < 0.1$) individuals, who also have an average higher asymmetry (t-test $p < 0.05$). The scarcity of highly-asymmetric, left-handed individuals is compatible with a military organization based on tight ranks. This is an interesting result, being the opposite of what expected from archaeological evidence. Weapons may have been deposited in non-war-trained individuals, possibly to signal their social affiliation. However, the distribution of prestige weapons suggests a highly 'war prowess' oriented society, in which status and wealth may have been intertwined with the display and practice of warrior ability.

SA17 NON-INVASIVE SURVEYING OF THE ARCHAEOLOGICAL RESOURCES POTENTIAL OF THE BOBOLICE REGION, WEST POMERANIAN VOIVODESHIP

Michał Pawleta

INSTITUTE OF PREHISTORY

The proposed poster presents the results of research involving comprehensive use of the latest non-invasive technologies in archaeology in order to identify, verify and conduct an inventory of archaeological sites in the Bobolice region (West Pomeranian Voivodeship), Poland. The project integrates several field prospection methods in order to create a comprehensive inventory of the area under investigation. Data on archaeological sites were gathered using five methods: (1) airborne laser scanning measurements (LIDAR) based on data from ISOK (*IT System of the Country's Protection against extreme hazards*); (2) analysis of satellite images; (3) aerial survey; (4) verifying field-walking prospection; (5) geophysical survey of selected archaeological sites. One important aspect of this project was the attempt to determine the value of the data amassed using the aforementioned methods. It also investigated whether it would be possible to utilise the research results in the dissemination of information on archaeological resources, in developing outreach programs and in raising social awareness of the need for the protection and rational management of archaeological resources as well as their potential value to the tourism industry.

SA1 ANCIENT DNA FROM WILD CEREALS OF CENTRAL SAHARA ARCHAEOLOGICAL SITES (EARLY-MIDDLE HOLOCENE)

Rita Fornaciari

UNIVERSITÀ DI MODENA E REGGIO EMILIA

Both pollen and macroremains recovered from archaeological sites point to a long-time exploitation of wild cereals and to the prevalence of these plants among those selected and transported to shelters and caves of central Sahara (south-western Libya). Spikelets, florets and grains of Panicoideae are the most abundant plant remains in these sites. The archaeological excavation of the Takarkori rockshelter by the Italian-Libyan Archaeological Mission in the Acacus and Messak - Sapienza University of Rome, exposed a surface of ca. 140 m². Layers were deposited first during hunter-gatherers' occupation and later by pastoral groups. Chronology ranged from ca. 10.200 to 4.600 ca. cal bp. Systematic morphological analysis was carried out on spikelets/florets selected as representative of different chronological contexts. The records of *Panicum*, *Echinochloa* and *Sorghum* showed homogeneous typology and fairly uniform size in each genus and first molecular analysis confirm the morphological identification of the three taxa. aDNA was extracted testing different protocols and then amplification of the chloroplastic barcode regions rbcL, matK, trnH-psbA and trnL was performed. Bioinformatic analysis of the results will allow the African wild cereals remains taxonomic identification and the unravel of the phylogenetic relationships between the archaeobotanical records and the modern species.

This is a joint action of Laura Arru and Anna Maria Mercuri (Università di Modena e Reggio Emilia, Italy), and Savino di Lernia (Sapienza Università di Roma, Italy - School of Geography, Archaeology and Environmental Studies, University Witwatersrand, South Africa).

SA1 3D SCANNING OF THE NEOLITHIC HERITAGE, POLAND.

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Currently the protection of the cultural heritage is a great challenge. Traditional methods of keeping artifacts secured and simultaneously popular, are gradually replaced by the advanced 3D techniques. A chance to virtual reconstruct the artifacts and popularize a 3D models in a digital form via electronic media is currently of a great importance. Digitizing techniques have recently become essential tools also in the field of archaeology. 3D scanning is a unique technique recording analyzed solid

with a very fast speed and exceptional accuracy. As opposed to traditional visual techniques of documentation, such as drawings or photography, usage of 3D scanning provides full objectivity of the measurement shifting the moment of subjective interference in acquired data to the stage of elaboration by a researcher. This type of archaeological artefacts documentation is a form of original materials protection – they are very often in a very poor state of preservation due to their age, quality or external factors. Digital “copies” may replace the necessity of examination of the authentic object and in case of its loss - they would be a credible source of knowledge, accessible to all interested. On the basis of scanner data a complete three-dimensional reconstruction and photo-realistic visualization of selected artefacts were performed using 3D professional modeling software. Within the frame of the NCN project (National Center of Science, Poland) forty early Neolithic artifacts has been digitized. Cult objects (“altars”), small figurines and ornamented vessels all made of clay were selected for 3D scanning.

SA14 LEAD ISOTOPE AND ELEMENTAL CHARACTERIZATION OF ROMAN LEAD FROM ARCHAEOLOGICAL CONTEXTS IN PORTUGAL

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Lead production had a great increase in the Roman world due not only to the large scale silver production but also to its use in public buildings, as plumbing in hydraulic systems, or in the manufacture of military weapons, as slingshots (*glandes plumbeae*). As a consequence, trade routes of lead and lead artefacts were widespread over the Roman world. Therefore, studies of provenance as well as those concerning technologies in use are important to understand this period. Pb isotope ratios complemented with the minor and trace elemental contents of lead artefacts and ores are a powerful tool for provenance studies.

In the present work, Pb isotope ratios and Cu, Ni, Ag, Bi, As, Sn and Sb contents of Roman lead artefacts (44 *fitulae* from Conimbriga and 24 *glandes plumbeae* from Alto dos Cacos) were determined by ICP-QMS. Pb isotope ratio distribution of lead pipes allows the identification of different groups similarly to what was obtained with slingshots analyses^[1], pointing to probable distinct provenances. Elemental analysis shows that 47% of the lead samples were enriched with tin (>1000 mg/g), suggesting the use of recycled lead with remains of tin solder.

[1] S.S. Gomes; P. Valério, M.F. Araújo; A. Monge Soares; A. Guerra (2013). *Caracterização isotópica do Pb em glandes plumbeae do Alto dos Cacos (Almeirim)*. Arqueologia em Portugal – 150 anos, p.835-839.

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SA17 MAPPING OF PRE-COLUMBIAN SETTLEMENT TOPOGRAPHY THROUGH UAS PHOTOGRAMMETRY

Till Sonnemann

LEIDEN UNIVERSITY

Amerindian settlement in the Caribbean are identifiable through the assemblage of artefacts; predominantly large conglomerations of shells, but ceramics and lithics as well. Small mounds are distributed between levelled areas where the wooden house structures once stood. Modern ploughing and looting have dispersed the material over a large area. The limited evidence of Amerindian archaeology asks for novel analysis approaches.

Local scale UAS surveys have mapped several sites in high resolution, the outcome provides an overview of size and distribution of mounds and platforms. After digital clearing of vegetation and extraction of the topography and orthophoto to GIS, filtering and enhancing the results provides the opportunity to analyse the site further, calculating the actual extent of living space and defining more likely zones of habitats.

SA23 RECYCLING, REUSING AND DEPOSITING TECHNICAL CERAMICS DURING THE LBA-EIA

Paul Eklöv Pettersson

LUND UNIVERSITY

Crucibles, moulds and tuyeres or technical ceramics dated to the LBA-EIA are scarcely found in southern Sweden. The usage of these seems to have been uncommon and the deposition context therefore becomes interesting, how did people treat these objects after usage? There are a multitude of find contexts where technical ceramics are found, and the reasons for their deposition therefore might have been many. Most of the objects were probably discarded after being used for bronze casting; however some of the objects were by no doubt re-used. In this presentation I like to discuss how common re-usage was, who was re-using the technical ceramics and for what purpose? The results presented here is based on a registration made of all technical ceramics dated to late Bronze Age – early Iron Age found during excavations in Skåne, south Sweden up until spring 2014.

SA8 DOVE-KEEPING IN MEDIEVAL ENGLAND

Polydora Baker

ENGLISH HERITAGE

This paper focuses on the identification of dove-keeping in the archaeological record. In the absence of secure biometric or morphological criteria for distinguishing between the bones of adult domestic/feral and wild rock dove (*Columba livia*) or between juvenile bones of different columbid species, mortality profiles are often relied upon to indicate the practice of dove-keeping. From the medieval period, domestic pigeon young, or 'squabs', are said to have been culled for human consumption before they were fully fledged at the commonly cited age of four weeks. To explore whether culling and consumption of dove/pigeons at a 'standard' age can be identified, the skeletal element distribution and developmental stage of dove/pigeon bones from two archaeological sites (Windsor Castle, 12th-14th c.; Dudley Castle, 16th c) are compared. Both assemblages include juvenile bones; the Windsor Castle remains, which derive from securely phased kitchen layers and a levelling deposit, possibly midden waste, are interpreted as food remains, while the bones from a garde-robe at Dudley Castle are interpreted as a natural death assemblage. The analysis considers whether particular developmental stages can be identified and how variation observed within and/or between the archaeological assemblages can be explained.

SA26 THE FUTURE OF SCIENCE IN HISTORIC ENGLAND AND THE ENGLISH HERITAGE TRUST

Gill Campbell, Lisa Moffett

HISTORIC ENGLAND

Historic England, formally English Heritage, and the English Heritage Trust launched their science strategy in October 2013. This poster will examine the benefits this has brought for archaeological scientists working in both organisations and the historic environment sector in England. It will summarise what has been achieved in the two years and present plans for the next three years following the launch of Heritage 2020.

The strategy identified three topics where effort should be focussed:

1. Understanding materials and environments.
2. Raising awareness of existing techniques, improving methods, access to information and advice.
3. Capacity, capability and public benefit.

In addition, it identified actions that we needed to take to improve our own practices, share ideas to encourage collaboration and innovation, and also support initiatives designed to help us work more efficiently and to greater effect. Over the next three years we want to build on this work including increasing participation by citizen sciences as well as developing Science 2.0 approaches.

SA8 DESCRIPTION OF D-LOOP MITOTYPES WHICH PARTICIPATED IN FORMATION OF RUSSIAN AND UZBEK CHICKEN BREEDS

Svetlana Galkina, Aleksandr Demin

SAINT-PETERSBURG STATE UNIVERSITY

The nucleotide variability of mitochondrial D-loop DNA sequence was analyzed for a total of 86 representatives of Orloff, Pavlov, Russian White, Yurlov Crower, Uzbek Game and Naked Neck chickens kept in different breeding facilities in Russia. According to observed diversity of a 1232 bp D-loop segment, 32 variable sites that defined 21 mitotypes were identified. All populations, except representatives of Uzbek Game, revealed high values of mitotype and nucleotide diversity. This fact together with the previously identified high rate of heterozygosity of microsatellite and biochemical markers indicated a wide variation in Orloff, Yurlov Crower, Pavlov, Russian White and Naked-neck chickens and absence of genetic stability. We found that in the formation of mtDNA gene pools of Russian chicken population mitotypes of three mitogroups (A, E1, C1) had participated, with the largest contribution from the mitogroup E1. To reconstruct the time of appearance of these mitogroups on the European part of Russia, we sequenced short (252-420 bp) fragments of D-loop derived from fossil bones of chickens recovered during excavations in Novgorod (9th cent.), Azov (13th-14th cent.), Pskov and St.-Petersburg (18th cent.). Three ancient mitotypes belonged to mitogroup E1, but the mitotype from Pskov belonged to C1. We assume that chickens of the mitogroup E1 appeared in the 9th century, probably from Western Asia and Greece. Chickens – carriers of mitotypes from C1, could spread across the European part of Russia directly from China not later than in 17th-18th centuries, when common border was established between two countries and direct trade relations flourished.

SA15 WARFARE AND SYMBOLOGY IN PROTOHISTORY: DECORATIONS ON WARRIORS' WEAPONS IN SOUTHERN ITALY DURING THE EARLY IRON AGE

Stefano Abbate

UNIVERSITY OF ROME "LA SAPIENZA"

The Early Iron Age (950/900 – 800 BC) in Southern Italy appears to be strongly characterized by several and different communities; in these societies, warriors played a role of absolute privilege: the possession of weapons gave them the honor (and burden) to protect and coordinate social groups they belong to, through military combats and battles, contributing to the definition of social identities. Their responsibility included, among others, a widespread brokerage needfull to maintain the whole social relationships with other communities. Among the many warfare case studies, very interesting is the one related to the symbolism represented on weapons: infact, a high percentage of finds, from different contexts (graves and hoards),

presents a variety of symbolic decorations, sometimes figurative, that feeds a fascinating discussion about their real meaning. The aim of this contribution is, therefore, to present the results of an analysis conducted over several decorations localized on the metals of different categories of weapons (swords, spears, javelins, daggers, greaves) and accessories attested in Southern Italy (Campania, Basilicata, Puglia, Calabria regions) during the Early Iron Age, in order to define, or not-define, if there were associations between particular type of decoration and specific weapon's category. This analysis could be useful for to define particular symbolic issues related warfare, apparently linked on beliefs and worships, certainly attested in the European Protohistory and to grasp their meaning.

SA1 BIOMOLECULAR COMPOSITION OF CULTURAL ARTEFACTS FROM THE NAHAL HEMAR CAVE

Caroline Solazzo¹, Mike Buckley², Jacques Connan², Holly Barden², Bart van Dongen², Blandine Courel², Arie Nissenbaum²

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The Nahal Hemar cave, discovered in 1983 in the southern limit of the Judean desert, is known for the extraordinary discovery of six human skulls (radiocarbon dated to the Middle to Late Pre-Pottery Neolithic B (PPNB)) decorated with a black substance applied in a net pattern to evoke a headdress. The substance (initially believed to be asphalt due to the close proximity of the Dead Sea (Nahal=valley, Hemar=asphalt)) had also been applied on artefacts of the cave as an adhesive to bind and line objects such as baskets.

Initial analyses in the mid-90s found evidence of proteins, and the presence of collagen lumps in the cave layers suggested the most ancient use of collagen glue. Here we have re-examined samples of the coating substance from one basket and one skull using proteomic techniques, amino acid analysis and Gas Chromatography/Mass Spectrometry. The basket samples successfully yielded collagen and blood proteins associated with the *Bos* genus as well as a protein from sea squill (genus *Charybdis*), a plant native of the Mediterranean coastal regions. Various samples from the skull failed to produce diagnostic peptides but contained traces of amino acids that could be consistent with a protein origin. However, GC/MS and Py-GC/MS have revealed the presence of cinnamate and benzoate derivatives, suggesting the use of a styrax-type resin (balsam).

SA25 LANDSCAPE AND SUBSISTENCE AT IBIDA FORTRESS (DOBRUDJA, ROMANIA): ZOOARCHAEOLOGICAL DATA

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Ibida Fortress, situated in Dobrudja (Slava Rusa Village, Tulcea County, Romania), belongs to the Roman Age, Roman-Byzantine Age and Early Medieval Age. The integration in the Roman Empire of the territory between Danube and Black Sea has changed the character and functioning of the Ibida settlement; given the strategic importance of this settlement, a great defence system was build.

This paper discusses faunal assemblages recovered during the archaeological excavations at the Ibida Fortress (Ist-VIIth centuries AD). Temporal analyses of several characteristics, including taxonomic frequency, indicate changes in local landscape and subsistence strategies that took place in the settlement. The archaeozoological quantification aimed at evaluating the relative frequencies of species in order to estimate the animal resources and subsistence practices (animal husbandry, hunting, fishing).

The majority of animal remains are from mammals and fish, and few pieces from birds. The settlements of Ibida have a large faunal spectrum, 27 species being identified in the archaeozoological samples: 8 of domestic mammals, 9 of wild mammals, 7 of bird and 13 of fish. In the category of wild mammals, the forest species (red deer, wild boar) are dominant. The subsistence economy was dominated by domestic mammals (cattle, followed by sheep/goat and pig), a pattern similar to other roman and post-roman settlements in the region.

SA23 YOU SHALL NOT APPEAR EMPTY-HANDED: THE GODS AND COPPER METALLURGY IN EARLY IRON AGE GREECE

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In the aftermath of the Mycenaean palaces, thousands of metal votive offerings have been deposited in the Early Iron Age sanctuaries of Greece and eastern Mediterranean. These cult places have been said to promote the urbanisation which led to the city-states in the Archaic and Classical periods. The assemblage of copper-based dedications at a central Greek sanctuary in Thessaly, namely that of Enodia at ancient Pherae, is hereby used as a proxy in order to address issues of identity expression and negotiation of contemporary communities. The archaeometric study of this assemblage consisting of some 6,000-7,000 artefacts showed that different technologies have been represented at the Enodia sanctuary during its early periods of use in the 8th and 7th centuries BC. A local metallurgical tradition is prominent in the sample pointing to the key role of Pheraean community in the consolidation of a Thessalian identity with ethnic characteristics, while external elements are also present suggesting the communication between distinct social groups in mainland Greece. This paper places the local and foreign aspects of copper technology into the socio-economic context of the early Greek communities and their development in the transition period from the Bronze Age palaces collapse to the more egalitarian urbanisation of the 1st millennium BC.

SA26 TOWARDS THE UNDERSTANDING OF THE PALEODIET OF UKRAINIAN POPULATIONS FROM THE 4TH TO THE 2ND MILL. BC: CARBON ISOTOPE ANALYSIS OF ORGANIC RESIDUES RECORDED IN CERAMIC VESSELS

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The late Eneolithic and early Bronze Age period (4500 to 2300 BC) of the Dnieper region of Ukraine is considered a key period for the understanding of the prehistoric Pontic steppe (Rassamakin, 1999). Important issues related to economy, horse domestication and overall the lifestyles of the Eurasian people are associated with this region. The aim of this project is to reconstruct the paleodiet of the ancient Ukrainian populations through the study of material culture, faunal evidence and organic residue analyses.

The molecular and isotopic evidences recoverable from absorbed organic residues preserved in archaeological pottery are proving to be a powerful tool in reconstructing ancient diet and economy (Evershed 1993, 2008). Compound-specific stable carbon isotope analysis of preserved fatty acids ($\delta^{13}\text{C}$ and $\Delta^{13}\text{C}$ values) allows the identification of animal fats (e.g. non ruminant/ruminant adipose, ruminant dairy), whereas compound-specific stable deuterium isotope analysis (δD values) allows resolution of more challenging fats, such as equine milk and adipose fat (Outram et al., 2009).

Over 200 potsherds have been targeted from five Ukrainian settlements. Lipid extraction and screening by gas chromatography has revealed good preservation of animal fats. $\delta^{13}\text{C}$ values of the fatty acid methyl esters (FAME fraction) indicates exploitation of equine products in all the settlements under study, with a prevalence in those located in the forest-steppe, and a presence of ruminant dairy in the sites of the steppe. An economic change seems to occur in different locations suggesting that the environmental conditions played an important role in social and economical decisions.

SA6 DATING WINDBLOWN SAND HORIZONS ON COASTAL ARCHAEOLOGICAL SITES: CHALLENGES IN THE CREATION AND INTERPRETATION OF CHRONOLOGIES

Emily Gal

UNIVERSITY OF ST ANDREWS

Aeolian sand horizons are a recognisable feature within some coastal archaeological sites in Scotland and beyond, with some appearing to have inundated settlements and their immediate environs. Their presence in the archaeological and palaeoenvironmental record has been used to identify periods of increased storminess through time (e.g. Sommerville 2003) and as a chronological indicator when suitable materials for radiocarbon dating do not survive. They also provide an opportunity to explore possible climate change impacts through themes of marginalisation, sustainability and the abandonment of sites and agricultural land.

However, just as sand can inundate so too can it be deflated and subject to erosive processes. This leaves an imperfect and chronologically confused record, which can have significant impacts on understandings of site formation and climate change impact chronologies. These horizons are commonly dated and constrained using OSL and radiocarbon dating, but a number of issues associated with the precision of luminescence dating and the formation of these horizons can make it an imperfect method. This, along with other practical issues including sediment supply and localised coastal geomorphology, requires a cautious approach to interpretation.

This poster will explore sandblow horizons as localised manifestations of broader north-west European climatic deterioration, as well problematic issues of interpretation. Discussion will be framed by case studies and preliminary results from PhD research undertaken in Orkney and the Outer Hebrides, which concerns windblown sand horizons in the prehistoric context.

SA24 POTENTIAL OF ZN ISOTOPES AS NEW PALEODIETARY INDICATORS: DENTAL ENAMEL AND BONE DATA FROM A TROPHIC CHAIN IN KOOBI FORA, KENYA

Klervia Jaouen¹, Melanie Beasley², Margaret Schoeninger², Jean-Jacques Hublin¹, Michael P. Richards^{1,3}

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Recent advances in mass spectrometry now allow the measurement of the isotope ratios of a number of elements in mineralized tissues that are not usually employed for dietary reconstruction. This paper focuses on the application of the measurements of zinc (Zn) isotope ratios in modern plants, and bone and teeth of modern herbivores and carnivores. The samples come from a modern food web located in Koobi Fora, Kenya. We focus on a small geographical area and present Sr isotope data to show that the animals that were sampled were from this localized area. The Zn isotope measurements data are also compared to previous preliminary results from other foodwebs as well as other isotopic measurements from the same animals. We show that Zn isotopes allow a better distinction between carnivores and herbivores than other dietary proxies. We conclude that Zn isotope ratios in bone and dental enamel from these modern animals have a significant potential to be an additional palaeodietary proxy.

SA1 ESTABLISHING AN ABSOLUTE CHRONOLOGICAL FRAMEWORK FOR THE MESOLITHIC AND NEOLITHIC OF SOUTH-WESTERN POLAND

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Before the end of the 20th century, less than thirty C14 dates were available for the middle and younger Stone Age in Lower Silesia. That is why models of cultural change and chronological divisions relating to the Lower Silesian Mesolithic and Neolithic were based mainly on analyses of material finds. During the last fifteen years, thanks to a number of research projects and large-scale rescue excavations, nearly a tenfold increase in the amount of absolute chronological data for south-western Poland has been possible. Moreover, greater awareness of sample selection has led to obtaining more valuable data, especially during the most recent excavations and environmental research.

A larger database of C14 dates together with advancements in typo-chronological research enable a revision and reinterpretation of models of Mesolithic and Neolithic cultural change in Lower Silesia. Furthermore, the improvement of radiocarbon dating techniques in recent years, has enabled more precise determinations of the particular periods of time when this region was settled by different middle and younger Stone Age communities, and identification of crucial points in the evolution of the regional cultural landscape.

The main goal of the paper is to present the latest results of absolute dating of Mesolithic and Neolithic sites in Lower Silesia and their impact on reconstruction of the chronological framework and reinterpretation of socio-cultural processes which took place in south-western Poland during the middle and younger Stone Age.

SA3 THE TARASCAN FIRE STRUCTURES OF THE MALPAÍS PRIETO, MICHOACÁN, MEXICO: TO A CULTURAL GEOARCHAEOLOGY

Mélaïne Stevanato

UNIVERSITÉ DE PARIS I PANTHÉON-SORBONNE

Tarascan culture has expanded during the Postclassical period of the Pre-hispanic era into the central part of West Mexico. One of the main characteristic of this culture is the preeminence of fire, which is one of the god Curicaueri's attributes. So, Tarascan people practiced rituals, using different kinds of fire structures. Nevertheless, despite their obvious significance, they have never been the subject of specific investigations. Geoarchaeological research, based on soils micromorphology, was undertaken in order to understand the functional history of the hearths (domestics, rituals, specialized) and their standing. This is an absolutely innovative approach to the Tarascan fire structures. It is applied to those discovered on the Malpaís Prieto, an urban site excavated by French archaeologists since 2008. During the excavation, different kinds of hearths partially built with earthen material were discovered. Their morphology varies according to whether they are open air or in-house fire structures: large circular exterior platforms with earth made edges and cooking areas; and in-house little rectangular hearths with earthen cooking areas. Understanding the techniques by which mud is prepared and used is a necessary prerequisite to apprehend hearth functional history. So that, the purpose of this paper is to present the first results of the micromorphology analysis on construction techniques used for the Malpaís Prieto structures.

SA26 A TALE OF TWO TECHNOLOGIES: CUCUTENI PAINTED AND SHELL TEMPERED POTTERY FROM EASTERN ROMANIA

Florica Matau

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

The aim of this study is to investigate the main technological characteristics (raw materials selection and processing, firing process) of the Cucuteni painted and shell tempered pottery from Eastern Romania. The shell tempered Cucuteni (Cucuteni C) pottery was mentioned by the archaeologists starting with the first half of the 20th century, being considered as a "foreign and inferior" ceramic, representative for the contacts of the Cucuteni- Trypillia communities which evolved during the 5th-4th millennia BC with the ones coming from the steppe region.

Multielement analysis of 50 pottery fragments sampled to represent the stylistic and technological diversity of the Cucuteni C shell tempered pottery sherds was done for determination of chemical composition in order to study their provenance. The chemical analysis was carried out by X-ray fluorescence (XRF) and the data were analyzed by using principal component analysis (PCA) and hierarchical cluster analysis (HCA) in order to define grouping by obtaining information about their similarity and clustering. The results of the chemical analysis provided persuasive evidence that the Cucuteni shell tempered pottery sherds from eastern Romania have different sources of provenance.

In order to investigate the technological attributes of the Cucuteni C shell tempered pottery we have analysed the mineralogical transformations caused by the firing process and the microscopical structure. The results for the shell tempered pottery analysis were compared with previous results obtained on the Cucuteni painted pottery.

SA17 MAPPING AND DOCUMENTATION OF BURIAL MOUND CEMETERIES IN WEST BOHEMIA BY THE HELP OF AIRBORNE LASER SCANNING

Petr Kristuf

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The region of western Bohemia is an area with very frequent occurrence of barrow cemeteries. These are archaeologically studied since the 19th century. This part of Bohemia is also largely forested, which provides perfect conditions for applying airborne laser scanning in research of ancient landscape. Airborne laser scanning is modern archaeological method, which brings high-quality data for landscape archaeology.

This poster presents the project "Mapping and documentation of burial mound cemeteries in western Bohemia by ALS," which has been addressed by members of the Department of Archaeology of the University of West Bohemia in Pilsen since 2014. The project focuses on the identification and subsequent verification of anthropogenic features identified on a digital elevation model, particular attention is paid to burial mound cemeteries. The aim of the project is to create a map of barrows and barrow cemeteries in western Bohemia.

This poster deals with method of identification of burial mound cemeteries. Different methods of interpolation and visualisation are compared and advantages in visualisation of barrows of individual methods are discussed. Second, we present the first results of the project in the form of ground plans of barrow cemeteries. Beside the barrows, attention is also paid to a landscape context of individual sites and its spatial relation to other archaeological features (eg. hollow ways, deserted villages etc.). This paper in fact shows the potential of airborne laser scanning for research of specific type of archaeological sites and also sets the methodological criteria of such research.

SA1 EVOLUTION OF THE HUMAN GENOME THROUGH 1000 YEARS

Inge Kristine Lundstrøm

CENTRE FOR GEOGENETICS

This research study is part of an interdisciplinary collaboration between Centre for GeoGenetics and NTNU Museum of Science, Trondheim, Norway.

In Trondheim has human skeletal remains of approximately 2000 individuals been excavated from a cemetery complex, and are now contained at NTNU Museum of Science, Trondheim. The city was founded in 997AD by the Viking king Olav Trygvason and was until 1217AD the capital of Norway. During the Middle Ages, Trondheim was the most important Christians pilgrimage site of Northern Europe. This collection of individuals is an exceptionally unique record of human presence, as not only is the collection osteologically described, well-dated and well-preserved, but coming from a single location they thus provide a valuable temporal series of human samples spanning the last ~1000 years in time; from the Viking Age to the Industrial Revolution. Preliminary testing has recovered 5-50 % endogenous DNA, with target capture of both the mitochondrial genome and the exome, and with whole genome shotgun sequencing. Subjecting the genomic data to temporal analyses for directly observing what parts of the genome are under selection, which parts are under drift, and then correlate the result with both demographic and historical events (e.g. migration and plagues), will offer the potential to characterize micro evolutionary change in a single human "population" at high resolution, throughout a period of significant human societal change. By correlating the genomic data with metagenomic and proteomic data retrieved from dental calculus, it provides an exclusive possibility to investigate evolution in progress

SA17 CIRCLES IN THE RYE: NEOLITHIC „TWIN” ENCLOSURES ON THE SOUTH OF CARPATHIAN BASIN, CROATIA .

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This poster aims to investigate changing perceptions on Neolithic landscapes in eastern Croatia and to reconsider the dynamics of human-environment interactions. It will also explore possibilities of landscape reconstructions by mapping the specific Neolithic settlements through aerial remote sensing approaches. Detailed analysis of satellite imagery and aerial photography will provide data of strategic use of landscape during Sopot culture of the late Neolithic on "twin" enclosures which are situated in Slavonia region of eastern Croatia. The enclosures are approximately 150-200 meters in diameter and are situated in close vicinity. The poster will focus in first results of the analysis of satellite imagery and aerial photography, also showing achieved results during the low altitude aerial survey. The satellite imagery and aerial photography data were analyzed to examine any kind of correlation between environmental, archaeological and aerial images data and the results were compared with the results of the field survey that was conducted on Neolithic „twin” enclosures.

SA23 ACCIDENTALY TRACING USE ON COPPER ALLOY ARTEFACTS: THE CASE OF CRASTO DE PALHEIROS

Ana Abrunhosa

UALG / ICAREHB

Crasto de Palheiros (Vila Real, Portugal) is a *castro* – a hill-top fortified settlement dated from I Iron Age – in northern Iberian Peninsula. Occupied from the IIIrd millennium to the II century CE it has indigenous and roman influenced artefacts. Among them various metal artefacts of diverse types were found.

The copper alloy adornment artefacts were studied under an archaeometry perspective with the aid of a research grant given by Santander Totta and the Young Researchers Investigation at University of Porto.

The study was developed by non-destructive methods at CEMUP – Centro de Estudo de Estudo de Materiais da Universidade do Porto – in University of Porto using SEM-LVMSEM/EDS analysis and micro visualisation to detect possible manufacturing traces.

Unexpectedly, during the study, use wear traces were detected on two of the copper alloy adornments analysed by micromorphology picturing with scanning electron microscopy. We were able to differentiate traces of use from the ones caused by corrosion. The detection of use wear traces may have implications on the interpretation of the archaeological site and opened new windows of study for the future.

SA1 WHAT'S INSIDE COUNTS: PALEORADIOLOGY AND NON-INVASIVE ANALYSIS OF METAL FINDS IN BRONZE AGE URNS

Hrvoje Kalafatić¹, Mislav Čavka², Marija Mihaljević³

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Paleoradiology plays an important role in archeology since its first implementation soon after discovery of X-rays. Computed tomography (CT) as a paleoradiological tool in study of ancient cremation urns is described only in few articles.

The implementation of imaging techniques in the study of ancient material has added a lot to our knowledge about human past. From that time on, paleoradiology started to play an important role in many archaeological researches as it allows a fast and non-invasive access to a wide variety of ancient material. This poster presents advantages that arise from the use of computed tomography (CT) and radiology on metal finds in urns, including their efficiency in planning a future micro-excavation of urns in laboratory conditions. Planning ahead in process of micro-excavation is necessary because of poor preservation of bronze objects due to exposure to high temperature on funeral pyre and all obtained information is useful in better preservation of bronze material in final.

SA5 SOCIETAL DECLINE, RISE OF ISLAM AND DROUGHTS IN SOUTHERN ARABIA

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The late Holocene climatic history of the entire Arabian Peninsula is poorly understood due to the lack of detailed paleoclimate records. In order to fill this gap of knowledge a recent stalagmite was collected from Hoti Cave located in northern Oman. Total annual rainfall in this area varies between 50 and 255 mm yr⁻¹, with more than 65% of total annual rainfall occurring between December and March. The chronology of stalagmite H12 is based on 25 Th-U ages, which indicate that H12 grew continuously during the last 2650 years. The H12 oxygen isotope record ($\delta^{18}\text{O}$) is based on 1345 measurements corresponding to a temporal resolution of around 2 years. The comparison of the H12 $\delta^{18}\text{O}$ record with meteorological data reveals that $\delta^{18}\text{O}$ values reflect the amount of precipitation. The H12 $\delta^{18}\text{O}$ record shows distinct centennial- to decadal-scale changes in the amount of precipitation. The most striking feature of the H12 isotope profile is a series of severe droughts between A.D. 500 and A.D. 1000, the most severe perennial drought is centred at around A.D. 530. During this time South Arabia experienced a series of profound societal changes, such as the collapse of the Himyarite Kingdom which was the dominant state in Arabia. Our stalagmite $\delta^{18}\text{O}$ time series from Northern Oman seems to support the hypothesis that the collapse of the 1500-year-old South Arabian civilizations and transition from the pre-Islamic to the Islamic era in the 6th and early 7th century A.D. may have been triggered by reoccurring severe droughts.

SA1 A DNA ANALYSIS OF HUMAN POPULATION FROM EASTERN ROMANIA: IDENTIFYING POSSIBLE FOUNDING HAPLOTYPES AND RECONSTRUCTING POPULATION HISTORIES

Dragos Lucian Gorgan¹, Neculai Bolohan², Florica Matau³, Ovidiu Popescu¹, Mitica Ciorpac³

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In the ancient DNA (aDNA) studies, considerable focus has been posted on exploring the genetics of ancient hominins and the population history of anatomically modern humans. aDNA studies allows us to directly test hypotheses about the genetic affinity of ancient individuals and/or past populations as a whole at a given point in time based mainly on the radiocarbon date of the sample itself or its stratigraphic layer and archaeological context. The content of some discoveries from Eastern Romania offered the possibility of integrating new investigation methods and methodological approaches in Archaeology. The analysis of this remains (2-3 century A.D.) can provide a communication bridge between the sciences involved. Lately, the need to illustrate the genetic population structure at different moments in time in a certain geographic space with dynamic demographics has increased.

The aims of this study are: 1. to infer on the ancient human populations admixture from Eastern Romania using aDNA isolated from bone remains; 2. to present the first aDNA (mostly mitochondrial sequence) results obtained for human population from Eastern Romania and to discuss parallels and differences to various regions in Europe in order to understand the genetic 'palimpsest'.

COMMUNICATING ARCHAEOLOGY PAPERS AND POSTERS

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CA29 INNOVATIVE ARCHAEOLOGICAL MEASURED SURVEY: A CREATIVE VISUAL TOOL TO EVIDENCE AND ENHANCE PERCEPTIONS OF CULTURAL SIGNIFICANCE

Matt Ritchie

FORESTRY COMMISSION SCOTLAND

Archaeological measured survey can be a powerful visual tool for the heritage manager, enhancing knowledge, raising awareness and providing a baseline record for conservation management. The potential of archaeological measured survey to demonstrate and communicate value and significance will be explored using several examples of innovative laser scan surveys undertaken on Scotland's national forest estate. The case studies will include a recent series of laser scans on the Neolithic chambered tombs of Arran; an ongoing programme of condition monitoring by high resolution laser scanning at the Neolithic rock art of Ormaig in Argyll; and the enhanced landscape record provided by aerial laser scanning around the Iron Age dun of Kraiknish on Skye. Whether at a landscape scale, recording stone-by-stone detail or achieving sub-millimetre accuracy, the common thread between these archaeological measured surveys is their creative visual aesthetic, allowing wider public appreciation and understanding. Communicating the results of such work is an important element in project design and commissioning - and we should all be aware of the need to continually develop and practice good archaeological visualisation.

CA3 COLLECTING AS ARCHAEOLOGY, COLLECTING AS ART: THE MUSEUM OF INNOCENCE AND OTHER EXPERIMENTS

Mark Hall

PERTH MUSEUM & ART GALLERY

This presentation will offer a variant perspective on the art & archaeology relationship. Taking a step back from their immediate symbiosis and collaboration it will consider their place within the broader cultural construction that bridges and structures both of them to varying degrees: collecting, or if you like gathering. The inspiration is Orhan Pamuk's *Museum of Innocence*, Istanbul, which playfully uses collecting as art and as archaeology to create a fictional narrative of Istanbul so as to seek out the intimate story of the human past, or rather to understand and value the intricate, intimate human story as the warp to the weft of society at large. The exploration offered will also draw on the work of Grayson Perry and Alan Sorrell and the humanising narratives of several archaeology exhibitions across Europe.

CA17 FROM WILLINGNESS TO DISASTER : DISCOVER OUR PAST BY METAL DETECTING.

Thomas Lecroere

HALTE AU PILLAGE DU PATRIMOINE ARCHÉOLOGIQUE ET HISTORIQUE

As a tool for discovery and understanding of the past, archeology is an essential component of national identity on which are built the Nations. We can also notes that it becomes the instrument of power when a territory is disputed, or a dictatorship seeks to establish its legitimacy. The destruction of the archaeological heritage can only undermine this identity.

Appeared in Europe after the Second World War and in full expansion since the 70s, metal detecting is an opportunity for many enthusiasts to appropriate their heritage by conducting their own research and by exhuming many artefacts of the past. However, this activity is conducted in the absence of any scientific protocol and often any proper training, goes against the first and will cause more harm to the knowledge of the past that it brings new hypothesis.

The paper will explore the different mechanisms set up by the European countries to avoid the destruction of their past by the excessive use of metal detecting : prohibition, tolerance or collaboration.

CA8 UNINTENDED COLLABORATIONS: INTERPRETING ARCHAEOLOGY ON SOCIAL MEDIA

Chiara Zuanni

UNIVERSITY OF MANCHESTER

This paper focuses on the meaning-making processes resulting from archaeologists' interactions with different publics on social media. Digital technologies have boosted communication opportunities for professionals and participatory practices have widely encouraged the use of new media for research and engagement projects. In this paper, I will discuss differences and similarities between the interpretations and values emerging from selected co-produced and crowd-sourced research projects and other 'unintended' online conversations about archaeology. Beyond 'structured' programmes, archaeologists engage with their audiences via blogs, forums, and social media and these platforms are now crucial for satisfying outreach and impact

requirements. On the other side, different publics do also share and comment archaeological news on these same media, and archaeologists may occasionally join these conversations.

Drawing on an institutional case study (The Manchester Museum), an analysis of online comments (on social media and blogs) and images (mainly on Instagram) of the museum galleries, and an investigation of related archaeological news and their reception on social media (primarily Twitter and Facebook), I will discuss differences and similarities in archaeological communications between participatory programmes and more casual interactions between publics and professionals.

In conclusion, this paper aims to emphasise the potential for research (particularly, but not only on public representations of the past) of all these 'unplanned' online interactions between professionals and publics, while discussing different types of collaborations enabled by digital media, more or less structured, but all equally important for communicating archaeology and informing the public understanding of the past.

CA12 SALUBRIOUS SPACES: GARDENS AND HEALTH IN ROMAN ITALY (C. 150 B.C.-A.D. 100)

Patricia Baker

UNIVERSITY OF KENT

In 2013 I published a monograph that explains the use of archaeological remains to scholars and students of ancient medicine. My new project devoted to Roman gardens (150 BC - AD 100) as healthy spaces is informed by the research undertaken for this volume.

Pliny the Younger wrote that he escaped to his gardens to write because the environment calmed his senses and contributed to his health (*Ep.* 1. 9. 4). To understand how gardens were perceived as healthy it is asked what sights, sounds, and smells did people experience that were believed to be beneficial?

To achieve this, an interdisciplinary methodology involving examinations of literature and archaeology is utilized. Roman literature mentioning gardens helps to determine if comparable attributes were described regarding scenery, flora and fauna, sounds, and scents. Images of gardens are studied to note particular features that can alert us to ideal views, sounds, and possibly smells. For example, depictions of birds, shed light onto what might have been considered harmonious to the ear, while flowers can alert us to pleasant smells.

Gardens identified in the archaeological record are compared for their placement within houses and decorative features. Understanding their locations assists in identifying what was envisioned to be salubrious in terms of their views, access to fresh air and water, and positions away from places that were malodorous or cacophonous.

A thorough assessment of the remains provides a nuanced understanding of the desired sensual experiences gardens offered that helped in the formation of health.

CA24 SUSTAINABLE PRESERVATION: PROVIDING SOCIALLY SUSTAINABLE ECONOMIC IMPACTS

Larry Coben, Paul Burtenshaw

SUSTAINABLE PRESERVATION INITIATIVE

The Sustainable Preservation Initiative (SPI) supports the creation of local economic opportunities which simultaneously drive sustainable development and the preservation of archaeological sites. SPI's experience highlights the importance of economic initiatives being integrated with the social and political contexts of communities, as well as operating as real businesses with strong markets. Long-term success of projects relies in part on the strength of local social networks and self-organisation, together with the necessary skills and capacities to run businesses and solve problems. This paper outlines SPI's models, experience and approaches to creating businesses with communities, including how we track and evaluate the economic and social impacts of our projects, and our local capacity programs designed to aid communities utilise their archaeological heritage for socio-economic benefit.

CA24 WE ALL LEARN FROM EACH OTHER – TEACHING ARCHAEOLOGY FOR THE FUTURE

Anita Synnestvedt

UNIVERSITY OF GOTHENBURG

Archaeology has throughout the 1900th - century in various ways been used as a political tool. The Nazis' use of both archeology and ancient symbols of their propaganda are some of the most obvious and cited examples of abuse of archaeological research. Contemporary conflicts also uses archeology as a means to achieve their goals.

Teaching archaeology at the universities is one of the most important areas where it is possible to set the agenda of what's the main issues within archaeological method and theory. Teaching and discussing heritage within the archaeological education is therefore in our present society with its uncertain political situation more crucial and important than ever.

As teachers and researchers we must ask how we can create an archaeological education focused on a democratic, multicultural and inclusive society. The main aspect of our training should be to question and contribute on how to develop today's students into independent and critical citizens.

In this presentation the aim is to present some case studies on how to teach about heritage in a provocative, dialogic, archaeological, inclusive and democratic way for a sustainable future.

CA24 SUSTAINABILITY DISCOURSES IN ARCHAEOLOGICAL HERITAGE MANAGEMENT THEORY AND PRACTICE

Sarah Howard

UNIVERSITY OF BIRMINGHAM

Since the publication of the English Heritage discussion paper *Sustaining the Historic Environment* in 1997, there has been increasing pressure for heritage materials and processes to be sustainable and contribute to sustainable development and socio-economic regeneration agendas. Our contemporary understanding of sustainability is informed by the global discourse of sustainable development that emerged during the 1980s, and over the last 20 years various historic environment policy documents have sought to recontextualise this discourse to transfer the quality of 'being sustainable' to the management and conservation of heritage assets. However, the operationalisation of sustainability has been complicated by the predominant use of 'sustainable' as a noun or adjective describing a desirable condition but not necessarily outlining the ongoing processes required to achieve this. In addition, whilst indicating that action is required to actively sustain or maintain historic environment materials and processes, the use of sustainability as a derivative of the verb sustain discursively maintains the status quo and biases inherited from parent discourses instead of embracing change and encouraging innovation. This paper will introduce the author's research which takes an interdisciplinary approach to analysing the discourses of sustainability within historic environment and planning policy to understand how these have influenced the application of the concept to the materials and processes of archaeology.

CA24 SUSTAINABLE ENTREPRENEURSHIP IN ARCHAEOLOGY

Rocío Varela-Pousa

INSTITUTO DE CIENCIAS DEL PATRIMONIO

Spain is one of the European countries with highest rates of unemployment. With the objective of reducing unemployment, the Spanish Government has passed new laws intended to facilitate and promote entrepreneurship. However, many of these entrepreneurial initiatives are simply the result of attempts by people to find new subsistence means, rather than proper enterprises adding value.

On the other hand, results of DISCO Project (see <http://www.discovering-archaeologists.eu/>) reveal the difficult situation that the archaeological sector is undergoing in Europe since the beginnings of the economic crisis. In the Spanish case, the crisis is devastating given the significance that rescue archaeology had acquired in relation to its tight connection with the building sector. Therefore, it seems necessary to rethink archaeological activity in order to find alternative scenarios, as proposed by the NEARCH project (<http://www.nearch.eu/>).

This paper reflects on the potential to create new business opportunities drawing on the knowledge generated by public research organizations, promoting entrepreneurial initiatives that ensure that the new company creates and adds value, innovating (although not necessarily through technology), creating and promoting social participation, and fostering new and sustainable business models and forms of financing themselves. This position can be criticized by questioning whether it is legitimate to promote entrepreneurship mentalities in a sector whose resources are public, i.e., heritage. However, we strongly believe that public institutions should try to address this issue by providing reflexive solutions to social problems, and these entrepreneurial initiatives can contribute to the necessary redefinition of current archaeological activity.

CA24 ARCHAEOLOGY AND HERITAGE ON THE ROAD TO SUSTAINABILITY

Krijn Boom¹, David Barreiro², Rocío Varela-Pousa²

¹UNIVERSITY OF LEIDEN, ²INSTITUTE OF HERITAGE SCIENCES (SPANISH NATIONAL RESEARCH COUNCIL)

The concept of sustainable development is gaining foothold in the development of various policies, documents and guidelines worldwide. The theory behind the concept has been challenged and adapted numerous times, resulting in a comprehensive and applicable framework for the definition of continual and inclusive growth. Used as a tool to, almost exclusively, characterize economic growth in its early days, sustainable development now incorporates ecological and social factors as well.

For archaeological heritage this concept becomes increasingly important, as the field is still dealing with the economic repercussions in the aftermath of the economic crisis and the inherent struggles for visibility, validation and support. While the economic benefits of archaeological heritage are acknowledged as important, human development and the social impact of archaeological heritage gain attention as well. This development has been noted and underlined by UNESCO and the European Union, resulting in the creation of a set of indicators to assess the effectiveness of development policies in cultural heritage.

We detect signs of awareness in the professional sector, both on an institutional as well as practical level and the need for the incorporation of the sustainability concept into archaeological heritage management in order to create and develop alternative scenarios for an inclusive and robust practice of archaeology. In this session we aim to accommodate proposals arising from theory and practice, as well as research aimed at assessing the impact of archaeology in sociocultural and economic development: all needed to move towards a truly sustainable practice.

CA29 COMMUNICATING EPIGRAPHY THROUGH VIDEO: AN ANALYSIS OF A FIELDWORK.

Antonella Ferraro

SAPIENZA - UNIVERSITY OF ROME

The documentary "Scripta Manent. The Romans and the Inscriptions" was made in 2010, as the final product of a research project at the University of Rome, La Sapienza.

For an historian or an archaeologist, the making of a documentary is an interesting search field and an exciting challenge trying to communicate a scientific content to a non expert audience.

In this case the challenge was double: 1) the realization of an audiovisual product; 2) the writing of the Roman world as an "epigraphic civilization".

The choice of this theme has produced a story entirely built on inscriptions: the complexity of describing these objects deeply influenced the adopted communication strategies. Another important aspect, which defined the structure of this video, was the target audience. In this case we decided to make an educational video, for students that approach this discipline for the first time.

This paper aims to recreate the genesis of this project, the solved or the unsolved problems of this experience and the possible application of this kind of video.

CA24 WHAT CAN WE DO WITH ARCHAEOLOGY OF MALTA?

David Barreiro

INSTITUTO DE CIENCIAS DEL PATRIMONIO

The crisis of global capitalism has also brought the crisis of the archaeology model introduced in Europe in the last decades (i.e. "archaeology of Malta"). Not only by the specific decline of the building sector in Spain (also in Europe) but because Malta has shared some basic principles of late capitalism: creative destruction of the land, and rule of technocracy. It's true that there are relatively positive aspects (greater protection of archaeological remains, training of qualified human capital) but even these can have a price (reification, job insecurity...).

Thinking from a Spanish perspective (a country where two out of three companies have disappeared in the last five years) there are two different but complementary options to achieve a sustainable archaeology (and to contribute to the sustainability through archaeology). By one hand, to convert archaeology in a self-managed practice immersed in processes of community empowerment: politics making from archeology. By the other hand, to provide the public sector of new conceptual and practical tools to manage cultural heritage as an alternative, democratic and participatory way: archaeology making from politics. Both actions will demand a different politic will (although the first one is feasible in a scenario of austerity, the second one maybe not so much) for recovery of genuinely public character of archaeology (which could include some kind of commercial archaeology). This new way of doing heritage policies should imply the end of the submission of archaeology (more or less depending on the context) to the hegemonic economic and political interests.

CA24 TWENTY YEARS AFTER: COMMUNITY ATTITUDES AND PERCEPTIONS OF ARCHAEOLOGY.

Eleftheria Theodoroudi¹, Kostas Kasvikis², Kostas Kotsakis¹

¹ARISTOTLE UNIVERSITY OF THESSALONIKI, ²UNIVERSITY OF WESTERN MACEDONIA

In 1992 the Aristotle University of Thessaloniki conducted a poll-survey in the Toumba neighborhood of Thessaloniki in relation to the ongoing excavation of the prehistoric site lying in the area. The objective of this survey was to understand the attitude of the local community towards archaeology. Twenty three years after the initial survey, we are repeating the survey, on the same area of interest, and with the same basic questions, taking into account the new socioeconomic and demographic parameters.

The original poll took place in a period when archaeology was involved in national politics related to the "Macedonian issue" and to a great extend the majority of the answers were influenced by that. Nowadays, in a period of socioeconomic crisis, the political landscape has changed dramatically. Since last August, new finds at Amphipolis has stirred again the public and official interest on cultural heritage and heritage management, into what has been described as "The Amphipolis Syndrome". This "syndrome", however, seems as an outcome of the current crisis, and potentially very different from previous associations of archaeology with nationalist politics. We expect that the comparison of the two polls presents a major opportunity to understand the social role of archaeology, its associations with political power and public imagery and as a tool for building up collective perceptions. This case study could work like a kaleidoscope to the social role of public archaeology and highlight how research, analysis and interpretation could work in favor of a balanced extroverted and community orientated archaeology.

CA3 ARCHAEOLOGISTS AND ARCHAEOLOGY IN THE FRENCH-BELGIAN COMIC STRIP OF THE SECOND HALF OF THE TWENTIETH CENTURY TO TODAY

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¹INRAP, ²SERVICE ARCHÉOLOGIQUE MUNICIPAL D'ORLÉANS

The French and Belgian comic strip developed greatly during the twentieth century and particularly in the period following the Second World War. Despite the diversity and variety of topics, several hundred works illustrate archaeological sites and depict people in connection with the discovery or the study of remains (archaeologists, Egyptologists, scientists, adventurers ...).

Without delivering a complete list of these publications, this paper will try to analyse them following several lines of thought.

The first step consists of the observation of the physical characteristics of these "fictional archaeologists", taking into account their appearance, clothing and accessories. Secondly, we will endeavor to present the material and the methods used by this scientific community from the discovery, excavation and study of the remains through to the exploitation of the results of their work. Finally, we conclude with a classification of the ways in which archaeological sites are represented in the comic strips (location, period, type, etc.).

This work aims to show how the imagination of comic strip authors, itself strongly influenced by cinema and literature, conveys not only an outdated vision of the discipline and its actors, but also distorted information often far removed from any archaeological reality.

CA4 FROM THE EXCAVATION PIT TO THE MUSEUM SHELF: BUILDING JAMES BREASTED'S EARLY SCIENTIFIC NETWORK

Kathleen Sheppard

MISSOURI UNIVERSITY OF SCIENCE AND TECHNOLOGY

James Henry Breasted's first expedition to Egypt in 1894-95 as a newly minted Egyptology PhD was crucial to his career. Not only did the trip provide him with experience in the field, which he needed in order to be considered a true professional Egyptologist, but it also allowed him to build his dynamic scientific network. This paper focuses on two important nodes of his network: the Director of Antiquities and the Cairo Museum, Frenchman Gaston Maspero, and the British field archaeologist Flinders Petrie.

This paper will examine the importance of place in building and maintaining scientific networks for the field scientist by using Breasted and his early network as a case study. Scientific relationships built primarily in urban areas or within scientific institutions, such as in museums in Cairo, tend to maintain an air of formality in them as well as in the types of work they do together. On the other hand, meeting in a space far removed from the urban setting, such as at an isolated excavation site, allows for the informality and familiarity that field sites and field knowledge often have. By examining Breasted's relationships with Maspero and Petrie, I will reveal the nuances behind these varying sites of knowledge creation and the effect that the urban institution or the rural field site can have on the development of scientific networks, their means of communication, and the scholarship that results from these relationships.

CA4 RODOLFO LANCIANI'S INFORMAL CONTRIBUTION TO THE IMPROVEMENT OF THE BOSTON MUSEUM OF FINE ARTS COLLECTIONS

Francesca de Tomasi

UNIVERSITÀ DI ROMA TOR VERGATA

In 1889 Rodolfo Lanciani (1845-1929) was accused of having played an active role in the sale of archaeological objects to some North American museums. The investigation did not lead to any final resolution, but Lanciani, at the peak of his career, was forced out of his professional positions, except for his teaching posts at La Sapienza University in Rome.

Lanciani was never secretive but rather proud to have established relationships with American institutions. He had always looked at the Anglo-Saxon world with a particular admiration, and in 1886-7 he was invited by many American universities—including Harvard, Princeton, Pennsylvania and Columbia University—to give a series of lectures, which met with huge success. That was perhaps the occasion on which he met the directors of the Chicago and Boston museums who asked him, when he returned to Italy, to contribute to the growth of the two museums' collections. The correspondence between Lanciani and General Charles G. Loring—curator and then director of the Boston Museum of Fine Arts—casts light on the reasons which led the Italian archaeologist to act as a purchasing agent on the Roman antiquarian market. In his letters, Lanciani uses an informal tone to communicate important scientific information about the pieces that would soon afterwards have entered the collections of the Museum of Fine Arts.

CA4 INFORMAL STRUCTURES OF KNOWLEDGE PRODUCTION: OSCAR MONTELIUS AND THE ITALIAN CONTEXT

Anna Gustavsson

DEP OF HISTORICAL STUDIES, GOTHENBURG UNIVERSITY

This presentation will discuss networks and exchange of ideas related to the emergence of a professional, European archaeology during the period 1870–1920, drawing from archival research on correspondence between Swedish and Italian scholars. The aim is to pinpoint factors for the formation of a scholarly network, focusing on informal structures. The presentation is based on private correspondence, travel notes and congress publications.

The key subject of study is Oscar Montelius (1842–1921), affiliated with the National Museum of Stockholm. He travelled all over Europe and became famous worldwide for his typology and for being the first to publish an extensive work on prehistoric

Italy. Today he is mainly seen as a "Nordic" archaeologist, but he was in fact very much involved in Mediterranean research. Despite his fame and the importance of Italy in his work, not much research has been done so far on his specific whereabouts and personal connections within the Italian context. Many scholars at the time considered Rome to be the most suitable center for international archaeological studies in general and a natural meeting place for all scholars. The city offered a very multidisciplinary and international but also local scholarly community. The presentation will focus on the Italian network of Montelius, especially in the city of Rome, and the possible results/effects of interaction. What informal structures, channels of communication and dissemination of knowledge can be traced in the source material?

CA8 CONTRACT ARCHAEOLOGY AND COMMUNICATION THROUGH SOCIAL MEDIA: EXPERIENCES FROM THE EXCAVATIONS IN MOTALA, SWEDEN, 1999-2013

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¹NATIONAL HISTORICAL MUSEUMS, SWEDEN, ²THE CULTURAL HERITAGE FOUNDATION

In Swedish contract archaeology there is a long tradition of making excavation results publicly accessible, for example through guided tours, exhibitions, lectures, and texts. The engagement has often proceeded from the idea that archaeologists are the producers of knowledge and the public the receivers of such. Contacts with the public have been chiefly intended to educate, while there has simultaneously been an interest in legitimating work done on behalf of the citizens, largely financed by public funds. In the last decade, digital technologies have become more commonly used as ways of mediating archaeological fieldwork. Through the use of social media, the interaction with the public is getting more diversified and broadened, in a global as well as local context. In this paper, we focus on the use of digital technologies such as websites, blogs, Facebook, YouTube, Podcasts, etc. and how these are intertwined with traditional methods in the co-production of narratives; on places, archaeological practice, ancient history, etc. Narratives which in turn are being used in different cultural, social and/or economical, meaningful situations. The paper is based on a case study and argues that contract archaeology has great potential to interact with the public, but, in order to fully exploit it, it will need to improve its image. This includes a better understanding of the practice and values of social media.

CA17 THE JERSEY HOARD: A CASE STUDY IN CO-OPERATION

Philip de Jersey

GUERNSEY MUSEUM

In 2012 two metal detectorists in Jersey, in the Channel Islands, discovered the largest hoard of Celtic (Iron Age) coinage ever found. Rather than digging it up straight away, they contacted local archaeologists and the hoard was carefully excavated several months later, by a team including the detectorists and the archaeologists. The detectorists are now working with museum staff on the further excavation of the hoard in the laboratory. This paper examines the recovery of the hoard as a case study in co-operation, and asks whether this kind of co-operation is feasible outside the particular insular situation of Jersey.

CA13 EXPERIENCES OF ONLINE ARCHAEOLOGY - THE URBAN EXCAVATION OF THE EARLY MODERN TOWN OF NYA LÖDÖSE, SWEDEN.

Clara Alfsdotter

BOHUSLÄNS MUSEUM /VÄSTARVET

The excavation of the town of Nya Lödöse is the largest urban archaeological excavation ever undertaken in West Sweden. The town was active between 1473 and 1624 and was situated where Gothenburg lies today. The archaeological project has been ongoing for more than two years and is nowhere near drawing to a close. This has given us the unique opportunity to engage in a long-term public outreach programme with updates straight from the field. The public project is forefront in Swedish archaeology, and is widely recognized.

Aside from physical guided tours, a series of paper magazines, developing teaching materials for schools and organizing theme days, information material etc., we have a strong focus on communicating through different social media, as well as our own webpage.

I will discuss our experiences of using Facebook, Twitter, Flickr, YouTube and our webpage to directly reach a vast public. Our aim is to develop a transparent and easily accessible archaeology for society at large, and not merely a project that goes on behind closed doors until the final line is written.

Traditionally archaeologists have operated everything themselves within projects, however we are glad to have engaged professionals from other fields, such as photographers, web designers and editorial staff.

Our transparency towards the public has generated goodwill, which has not only helped us gain interest from locals, but has also helped us become more attractive within the field of contract archaeology. For archaeology to be legitimate, communication is of the greatest importance!

CA13 LIVE FROM THE TRENCHES – THE SOCIAL MEDIA PRESENCE OF THE MEILLIONYDD EXCAVATION, WALES, UNITED KINGDOM

Katharina Moeller

BANGOR UNIVERSITY

Since 2010, Bangor University has been conducting excavations at the Late Bronze - Iron Age double ringwork enclosure of Meillionydd near Rhiw on the Llyn peninsula in North-West Wales (UK). In the same year a website (<http://meillionydd.bangor.ac.uk/>) and a Facebook page (<http://facebook.com/meillionydddig>) were created; these have been continually used to share our research through social media. Furthermore, in 2014, a twitter account (<https://twitter.com/Meillionydddig>) was set up to share the latest news live from the trenches.

Maintaining an internet presence of any kind is a lot of work. It needs to be updated regularly and new content has to be created to keep the audience interested. While it might be easy enough to post regular news while excavating over the summer, it is much harder to create new content during the winter when there are no spectacular new finds to share.

After more than five years of maintaining a social media presence, we have consulted our Facebook statistics and conducted a survey to see if and how our social media activities have paid off. Who are the people that we reached via the internet? Why did they decide to follow our work and, most importantly, what can we do to maintain or increase their interest in archaeology?

CA28 BEYOND THE SPACE: THE LOCLOUD HISTORICAL PLACE NAMES MICROSERVICE

Rimvydas Laužikas¹, Justinas Jaronis², Ingrida Vosyliūtė³

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Historical space, usually, is considered as the sets of historical place names (which are fixed in historical sources). The transcoding of reality from analogue to digital system performed during the heritage and (or) scientific data (*e.g. archaeology of historical times) digitisation affects the application of HPN used in the real world to artificial system. This way HPN becomes a link between reality and virtuality ensuring quality of digitisation, interoperability of reality and virtuality, internal interoperability within the information system and external interoperability of several systems, as well as efficient communication of digital data in general. However maximizing correctness in the perception of the historical space is important for preservation of HPN (as kind of intangible heritage) and participative interpretation of cultural heritage and for creation of the European narrative.

At this paper will presented the HPN microservice. HPN microservice is the web service, which has been developed in frame of LoCloud (Local content in a Europeana cloud) project in collaboration between Project partners. The HPN microservice has been developed on the basis of HPN Thesaurus, which is intended for aggregation, storage and long-term preservation of historical geo-information. HPN Thesaurus is considered to be a qualification of the CARARE (Connecting Archaeology and Architecture in Europeana project) metadata schema at the conceptual level. HPN microservice perform the following functions: crowdsourcing and enrichment of provider's and aggregator's historical geodata, HPN geodata visualization and HPN interoperability provision.

HPN microservice is accessible online via link: <http://hpn.aksprendimai.lt/unitedgeo/>

CA11 ENGAGING THE PUBLIC TO RESCUE INFORMATION FROM ERODING AND DESTROYED COASTAL ARCHAEOLOGICAL SITES: THE GUIDOIRO AREOSO EXPERIENCE IN NW IBERIA

Elias Lopez-Romero¹, Alejandro Güimil-Fariña², Patricia Mañana-Borrazás³, Xosé Ignacio Vilaseco Vázquez⁴

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The vulnerability of coastal heritage is increasingly coming into focus. Hundreds of archaeological sites are threaten of destruction on the European Atlantic façade as the result of the combined effect of sea-level rise, coastal environment dynamics and human activity. In the northwest of the Iberian Peninsula, the islet of Guidoiro Areoso (Ría de Arousa, Pontevedra) is a good example of this situation. A number of archaeological sites, including several Neolithic and Bronze Age funerary monuments and a Bronze Age paleosoil, are suffering from quick erosion. Two of them, a megalithic chamber (known as "Mound 5") and a Bronze age cist, have recently been destroyed. Local citizens and associations were among the first in warning about the worrying situation of the islet's natural and cultural heritage.

Facing this situation, we recently launched an initiative ("Guidoiro Dixital", *Digital Guidoiro*) to recover image and video records of Guidoiro Areoso from private archives, to integrate them into a wider monitoring analysis (3D modelling), to engage on a dialogue with local communities and to regularly provide them with information on the advances and results of the project. "Guidoiro Dixital" has been disseminated in a number of ways, including the media and a variety of social networks. In this presentation we will summarize the main results of this initiative, and we will discuss why this approach is essential to bring together researchers, heritage managers and the public.

CA28 SPATIAL MANIPULATION AND COGNITION IN ARCHEOLOGICAL SITE EXPERIENCE: THE CASE OF BATTLE OF ASLıHANLAR

Omer Can Aksoy¹, Gizem Kahraman²

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War is a wayfinding at the moment of a conflict. Although a strategy is developed in advance for victory, the momentary decisions are made towards the ever-shifting, encountered situations. However, when this experience is introduced to public, people come across bald material remains and manipulative architectural site navigation. This paper is an interdisciplinary presentation seeking to establish a publicly inclusive medium through wayfinding in a battlefield site. Our area of research is the site of the Battle of Aslıhanlar took place between the Turkish Army of Grand Assembly and the Greek Army of Asia Minor on August 30, 1922. We have been carrying out the first archaeological and ethnographic survey of the battlefield covering the villages of Çalköy, Allören and Yüylük in Kütahya/Turkey since 2012. Throughout this survey, we made interviews with the local communities, evaluated literature about the war and mapped the material remains in order to develop a wayfinding strategy that promotes the authenticity of war experience regarding ethno-archaeological survey and spatial analysis of the site. Our wayfinding strategy defines a less confined circulation for the visitors to introduce an independent environment of exploration. This approach proposes to reverse the current one-sided wayfinding approach in the site to a more authentic experience where a multivocal medium for public interpretation can be achieved.

CA12 IMMATERIAL MATERIALITY, OR, WHEN IS A THING NOT A THING? APPROACHES TO SPACE, PLACE, AND OBJECTS IN CLASSICAL ARCHAEOLOGY

Daniel Stewart

UNIVERSITY OF LEICESTER

Historical explanation has long been mapped on to archaeological results as if there was an unproblematic correlation between identifiable historical events and changes in material culture. Pottery typologies have been dated on the basis of textual records of the destruction of cities, the topography of sanctuaries has been interpreted on the basis of ancient travellers' reports, and approaches to domestic space have been coloured by architectural descriptions.

These authors represent objects and space in a way that seems familiar and intelligible. They talk about things - real and fictive - using language that is familiar to ourselves. This (often implicit) textual component to archaeological interpretation confers an added level of authority and authenticity to the material. In many respects, the authority we cede to material culture in Classical Archaeology is filtered first through the ancient authors. The identification of specific sites, objects or archaeological horizons drawn from text is foundational to the discipline, but is there a necessary 'structure of similarity' between our conceptions of materiality and those of the cultures we study?

This paper takes this question, and using case studies drawn from Lindos on Rhodes, Olympia in the Peloponnese, and the author Pausanias, develops a response that suggest that ancient representations of objects and places could operate in an entirely different way than has hitherto been suggested within Classical Archaeology, challenging dominant ideas about authority, authenticity and archaeological material.

CA10 OVER THE HORIZON AND BEYOND THE FORESHORE: ARCHAEOLOGY OUTREACH ACROSS CULTURES AND BETWEEN ENVIRONMENTS

Emily Stammitt¹, Diarmaid Walshe, Sgt.²

¹UNIVERSITY OF EDINBURGH, ²RAMC

Dreamers Bay, located at RAF Akrotir which lies with the UK Sovereign Base Area in Cyprus is now host to the Defense Archaeology Group's (DAG) "Operation Nightingale". It is a dynamic site, with terrestrial remains, marine features, and a rich surrounding archaeological landscape. In conducting "Operation Nightingale" in the late spring of 2015, the challenges of conducting successful underwater and landward archaeological outreach became prominent, given the divergent needs and interests of active duty military personnel, veterans with disabilities, archaeology students, members of the local and international community, and attending family members. Combined efforts of Operation Nightingale coordinator and underwater archaeology outreach developer resulted in outreach programmes that progressed beyond traditional community outreach works. Plans were designed to engage participants both physically and mentally. Employing water-based learning opportunities and events that were made accessible to all, community stakeholders are participating that traditionally do not engage with heritage. Positive, cross-cultural communications and innovative planning techniques are key components to effectively communicating archaeology in such a variety of settings and to vibrant, multi-cultural persons. Dreamers Bay and its environment serves as an idiosyncratic case study for community outreach, veteran assistance and good cross-cultural communication that transcends culture, environment, additional support needs and disciplines. It brings toward the fore the realisation of a community based archaeology programme that works not only in its own right as archaeological training, but also as the ever-present satellite of anthropology, striving to understand the human condition and engage with it in the past, present and the future.

CA2 ARCHAEOLOGIST FOR A WEEK – VOLUNTOURISM IN ARCHAEOLOGY

Katharina Moeller

BANGOR UNIVERSITY

Many people dream of becoming an archaeologist, but when faced with a career choice most opt for “something sensible” instead. In the UK, for example, these people have a wide range of volunteering options available that will allow them to get involved with archaeology in their spare time nonetheless. In other countries (e.g. Germany and Austria) volunteering options in archaeology are limited at best, if they exist at all. Therefore, some people are willing to pay to be able to spend their summer vacation on an archaeological excavation.

Supply for archaeological voluntourism is sparse, however. As a recent study conducted by Bangor University shows, travel agents do not see a viable market in archaeological excavations. Our own experience with our excavation at Meillionydd, near Rhiw in North-West Wales (UK), gives us reason to believe that there in fact is a market and that archaeologists could consider it as a possible funding opportunity.

But what do people expect if they pay to work as an archaeologist? Is it even possible to combine voluntourism and research? What do archaeologists need to offer to attract voluntourists? Based on the results of a recent survey, this paper will try to answer these and further questions.

CA17 METAL DETECTING IN SPAIN: THE CASE OF ANDALUSIA

Ignacio Rodríguez-Temiño

JUNTA DE ANDALUCÍA

Andalusian legislation prohibits unauthorized intervention on archaeological sites, either excavations carried out by professional archaeologists or amateurs searching for archaeological objects with metal detectors. These devices are only permitted within research teams or in places where finding archaeological remains are not expected. Violations of these provisions are punishable by fines and confiscation of devices.

The underlying reasons for these restrictions, contrary to the popular belief of many Northern European archaeologists writing about this issue, are not the habitual use of these devices in major archaeological spoils, much less a mistrust between professional archaeologists and amateurs, but others of axiological nature: A) The law establishes the destination and public ownership of archaeological heritage as a social achievement which lies above particular interest and the right to private property. B) The legislation is also aware that archaeological heritage is a finite and non-renewable resource, as well as the obligation of transmission of this legacy to future generations. C) The legislation promotes archaeological activities guided by an interest in historical knowledge and not based on the mere pleasure of location of 'treasures'.

The regular enforcement of this policy has resulted in the decrease of the number of detector users freely looking for archaeological remains in sites, as well as the proliferation of users of these devices on beaches, but also the integration of detector users in archaeological research teams. Consequently, and unfortunately, this has led many spoilers to go to other Spanish regions where law enforcement is more relaxed, to make archaeological spoils.

CA12 LUSTRUM CONDERE: WHERE WERE THE MID-REPUBLICAN CENSUS RECORDS KEPT?

Elizabeth Pearson

UNIVERSITY OF MANCHESTER

The Republican census period was closed in a ceremony commonly referred to as *lustrum condere*. Otto established that this phrase had a meaning unique to this context: symbolic storage of census records embodying the citizen population. Thus the composition of the citizen body was ritually confirmed by sanctifying the census process' inclusions and exclusions. However, the storage location of these important documents, which fulfilled practical roles as lists of taxpayers and military manpower, is uncertain. Modern scholars state the location, naming for example the *aedes Nympharum* (close to the location of the census proceedings), the *atrium Libertatis* (the 'office' of the censors) and in particular the *aerarium Saturni* (the treasury and repository for *senatus consulta*). These statements are usually based on supposition backed by little or no evidence; no ancient statement of the census records' destination is extant. Nevertheless, more can be said. This paper aims to discuss the suggested locations using literary, archaeological and topographical evidence in combination to identify the most probable storage building. Coupling references from Livy and Cicero with physical evidence allows a clearer picture of their role in the ancient census to be drawn. An attempt to map the buildings onto Rome's archaeology, although partly theoretical, aids clarification. The nature of the literary, archaeological and topographical evidence is limiting, but this paper hopes to demonstrate that the combined evidential weight points to the *atrium Libertatis* as the most probable storage location following the *lustrum condere*.

CA14 AN EDUCATIONAL ROLE PLAY

Charlotte Abildgaard Paulsen

SKANDERBORG MUSEUM

Skanderborg Museum with the department Øm Abbey Museum is offering the local community schools the possibility of participating in an educational role play in the ruins of a monastery from the 15th century. There are no orcs or fights, but time for absorption and reflection, and a great fellowship where all are equal to God. The age of the pupils are 10-13, attending grades 4 to 6 of Danish Primary School. The pupils play the roles of novices on probation. As they dress in the woolen black and white suit of the order and receive new names, they enter and experience a part of middle age life.

The role play is facilitated by one of the museum staff, who is an archaeologist and skilled in museum learning. The museum department Øm Abbey Museum is in fact a very large excavation site, revealing the most complete ground plan of a Danish Cistercian monastery.

We experience, that this type of museum learning, a scenario based role play, provide a useful addition to the teaching at the school. At the same time we are aware, that taking classes out of the class room and engaging with external teachers require an understanding of the roles of the educators, both the class teacher and the museums teacher in terms of the responsibility of the learning outcome for the pupils.

We would like to share our experiences of this matter and to tell about our co-operation with schools in reforming the Danish school system.

CA4 "MORE FEARED THAN LOVED". INTERACTIONAL STRATEGIES IN LATE 19TH-CENTURY CLASSICAL ARCHAEOLOGY: THE CASE OF ADOLF FURTWÄNGLER

Ulf R. Hansson

UNIVERSITY OF TEXAS AT AUSTIN

This paper examines collegiality and the instrumentality of informal networks in the production of knowledge in classical archaeology around 1900 as exemplified by the German archaeologist **Adolf Furtwängler (1853-1907)**, whose pioneering work has made a deep and lasting impact in several areas of the discipline. Furtwängler suffered from bad temper and paranoid tendencies which resulted in a highly problematic work situation and strained relations not only with colleagues at work in Berlin and Munich, with whom he interacted in an often aggressive and tactless manner, but with the scholarly community at large. This is evident from his correspondence and even published works and book reviews, where unreasonably harsh judgments and downright personal attacks are not uncommon. We hear from several sources that Furtwängler was "more feared than loved", but always respected for the quality of his work. This paper is based on a reconstruction of Furtwängler's various networks from unpublished archive material and discusses his strategies for creating and maintaining necessary relations on a professional level with colleagues and other contacts who were considered indispensable or useful for his own work. Furtwängler's vast personal archive and extensive information channels, which encompassed an exceptionally wide international spectrum of archaeologists and art historians, museum curators, collectors, art dealers, administrators, and politicians are comparable to those of Philipp von Stosch before him and John Beazley after.

CA4 SKULLS, CHANTS, AND BATTLE SONGS: ANTIQUARIAN NETWORKS IN THE ANTEBELLUM AMERICAN LANDSCAPE

James E. Snead

CALIFORNIA STATE UNIVERSITY, NORTHRIDGE

Histories of American archaeology continue to emphasize the development of the "professional" discipline in the context of late-19th century projects, institutions, and legislation. Antiquarian scholarship was, however, well-established in the United States a full two generations prior to the Civil War. Although intellectual discussions regarding the history of the Native population took place in the coastal cities, the material remains of the indigenous past were most thoroughly examined by residents of the "western country" in the interior. These local antiquarians were often teachers, doctors, and lawyers who pursued their studies with minimal resources. In some locales they came together as communities of inquiry, often associated with the small colleges that sprang up along the frontier. Some of these "circles" were more formally constituted than others, but all were nodes in a network that connected local entrepreneurs with patronage and opportunities for cultural/intellectual achievement. Collectively, they represent a model for antiquarian scholarship that has seen little study. This paper will discuss the western antiquarian networks of the antebellum era with particular emphasis on the Jefferson College and Washington Lyceum, which functioned in vicinity of Natchez, Mississippi, during the late 1830s. Principals included planter Benjamin Wailes, Dr. John D. Monette, and Caleb Goldsmith Forshey, a West Point-trained surveyor. The activities of this eclectic membership, and the evolution of the group over time, represent a distinctive case for a widespread "popular" engagement with antiquities in the American landscape that challenges conventional perspectives.

CA13 PODCASTING ARCHAEOLOGY - A TOOL FOR STARTING CONVERSATIONS AND EDUCATION

Chris Webster

DIGTECH LLC

Since the first podcasts were available on Apple's iTunes in June of 2005, podcasting has become a powerful way for anyone to deliver information to the world from the comfort of their home. Podcasts can be informal conversations to expensive productions from major networks. Archaeology podcasting has seen shows come and go and has had a rocky past. The only podcast focused on issues related to CRM Archaeology has been recording since February of 2013 and has tackled everything from ethics on the job to issues specific to women in archaeology and in the workplace. We've found that podcasting is a great way to engage with thousands of professionals and the public alike. We don't run conversations, we start them. Podcasting is a medium that is here to stay and the archaeological community should recognize it as a valuable and useful resource.

CA14 AMONG KNIGHTS AND BEGGARS - KNOWLEDGE TRANSFER AT MEDIEVAL MARKETS

Franziska Pfenninger

EXPERIMENTA

Every weekend thousands of people visit so-called medieval markets where they can throw axes, watch a bobbin lace maker work or enjoy a medieval meal containing red pepper and corn. Archaeologist and historians tend to avoid such events. Instead of dismissing these markets as historically inaccurate, however, we can use them as a platform for knowledge transfer. With this vision, the association „ExperimentA“ (a group specialised in experimental archaeology and knowledge transfer) started a project focussing on medieval handcraft around 1300 AD. Its aims are:

- to impart knowledge rather than to practice reenactment
- to exhibit local archaeological finds as witnesses of handcrafts performed around 1300 AD
- to demonstrate the use of the displayed finds by working with replicas
- to create an interesting setting by wearing period costumes, yet acting normally

The project was set up in 2011 for the Medieval Spectacle in Zurich. This market takes place every third year on the „Münsterhof“ in Zurich, a former archaeological site. Among the revealed finds are evidence of several medieval handcrafts (paternoster beads and waste from their production, spindle whorls and weaving tablets). At the market, the archaeological finds were displayed in display cabinets, whereas visitors were invited to work with replicas.

In my talk I would like to present our project and reflect on our experiences and the problems we faced in the past few years.

CA29 FAILURES OF NARRATIVE IN COMMUNICATING ARCHAEOLOGY

Donald Henson

UNIVERSITY OF YORK

Many archaeologists over the last 25 years have called for a greater use of narrative in communicating the results of our work, beginning with Ian Hodder in 1989. However, with a few exceptions, it is obvious that these calls have gone largely unheeded. Archaeological discourse is still dominated by academically instilled third person, heterodiegetic narration of descriptive or explanatory texts. Subjective, first person, homodiegetic narration is rare, such as that by Steve Mithen in 2001. Even archaeological collaboration with fictional authors is rare, although noted as especially fruitful, e.g. Elphinstone and Wickham-Jones 2012. I will argue that a narrative approach involving the use of stories can both invigorate archaeology and help us to connect with popular audiences through paying greater attention to characterisation, setting, events and happenings within a narrative discourse. We can avoid archaeological communication being dry and boring, and instead be engaging and entertaining without sacrificing our academic credibility or expertise. I will present examples to support my argument from the world of Mesolithic archaeology.

CA12 BETWEEN WALLS AND WORDS: APPROACHING A LIVED EXPERIENCE OF THE ANCIENT ROMAN VILLA

Hannah Platts

ROYAL HOLLOWAY, UNIVERSITY OF LONDON

This paper highlights the importance of employing multi-sensory analysis when studying both the textual and archaeological remains of ancient Roman villas. Whether we are considering Pliny's idyllic descriptions of his villas or Seneca's description of Scipio's villa, that these complex residences had the potential to effect (and affect) a plethora of sensorial responses is clear. Currently sensory responses to the ancient home have largely been restricted to examining sightlines within and outside the house as well as ways of movement within it (e.g. Grahame 1997 & 2000; Bergmann 2002; Klynne 2003; Leach 2004; Platts 2011). By foregrounding vision and movement, however, in studies of ancient domestic space above examinations of the other senses experienced, we risk a simplistic understanding of life in the Roman home.

Our understanding of contemporary sensory experiences of these dwellings stems mainly from elite literary descriptions of these residences (belonging either to themselves, their peers or predecessors). By proposing the use of smellscape and soundscapes, for example, and methodologies measuring vision and movement within the Roman villa and its landscape, in combination with literary evidence, it is aimed we might bridge the gap posed by the epistemological problems of combining textual and archaeological evidence on ancient villas. In so doing such approaches seek to enable a more nuanced study of the dialogues between an owner's intentions for, and visitor / viewer responses within (and to), experiences in the villa realm.

CA17 AULD ENEMIES - COMMON 'PROBLEM', DIFFERENT SOLUTIONS: RECORDING ARCHAEOLOGICAL FINDS FOUND BY THE PUBLIC IN ENGLAND AND SCOTLAND

Michael Lewis

BRITISH MUSEUM - PORTABLE ANTIQUITIES SCHEME

In both England and Scotland metal-detecting is legal, as long as finders have the landowner's permission to search and those looking for archaeology avoid protected sites. Both countries also have mechanisms to record archaeological finds found by the public - the Treasure Act 1996 and Portable Antiquities Scheme in England, and the common law of Treasure Trove in Scotland. However, these systems contrast considerably in their scope and function, explained by practical factors such as archaeological potential and contrasting population sizes. Consequently the approach in England has been to mix enforceable

legislation for the reporting of some categories of finds with a voluntary approach to recording, whereas in Scotland exists mandatory reporting. Needless to say both systems have aspects that work well, and those that are less successful.

In this paper an assessment will be given of the contribution that metal-detecting has made to the archaeological record in England and Scotland based on the last 15 or so years' experience of liaising with the metal-detecting community. Highlighted will be some of the problems associated with recording metal-detected finds, particularly in terms of dealing with the quantity of finds offered for recording and the resources available to record them, obtaining archaeologically useful contextual information, as well as working with individuals that do not want to embrace the spirit of liaison. A further aim of this paper is to look to the future, providing advice and experience that might be helpful to those elsewhere in Europe looking to establish metal-detecting finds recording systems.

CA13 "DOES ANYONE REALLY THINK THAT A RAISED PLINTH WILL DETER DRUNK GLASWEGIANS?" TRAFFIC CONE PRESERVATION AND THE ONLINE DEMOCRATISATION OF HERITAGE

Donna Yates¹, Gavin M. Doig²

¹UNIVERSITY OF GLASGOW, ²LAY SCHOLAR

For 30 years Glaswegians have, through pouring rain and drunken hazes, bravely scaled a Duke of Wellington statue to place a traffic cone on his head. The cone-ing of the statue has come to symbolise many of the qualities that residents see in themselves: cheeky fun, delight in the absurd, and not taking anything unnecessarily seriously. Wellington-plus-cone is emblazoned on mugs and T-shirts and is a stop on bus tours. The cone has become a salient part of Glasgow's identity. In 2013 when the City Council announced plans to spend thousands of pounds to prevent the cone-ing, we were shocked.

We discuss how an online petition by the authors (who probably had better things to do) turned what would've once been an unseen planning decision into an international media storm. Within 24 hours we had 10,000+ signatures and the council relented. In this example of the success of direct action for preservation of heritage we believe the digital medium is what is important, especially because the heritage in question was threatened by the body tasked with protecting it. Online, signers were able to leave long comments articulating exactly what made the cone important. Rather than leaving heritage to be defined by those in power, the internet is a means for alternative, wildly popular conceptions of identity to be factored into planning decisions. We believe that despite the puns and silly photos the Glasgow Cone was a challenge to opaque decision making and a call for a more democratic heritage preservation process.

CA26 ALTAMIRA LIFE HISTORY

David Barreiro, Felipe Criado-Boado

INSTITUTO DE CIENCIAS DEL PATRIMONIO

The Cave of Altamira, inscribed on the World Heritage List in 1985, was closed to public visitors in 2002. It is not widely known that this decision was taken as a provisional measure, at the time following an alarming degree of deterioration in the paintings. Following political and media pressure to re-open the Cave (mostly from regional agencies) the Board of Trustees of Altamira approved in 2012 a Research Programme on the Preventative Conservation and Accessing Regime to the Cave. The programme is devised to provide scientific and technical information aimed at a potential regimen of public access to the site.

The research included a special project to assess the social value of Altamira. This study acknowledged the materiality of Altamira, and its past and current social role, its life history and its history as a living agent, from a transdisciplinary approach. The strategy started with the definition of different operating scales, from local and regional to national scale. This definition became important to clarifying the identities and ownership processes that surround Altamira and are argued by different agents, audiences and publics, revealing a heterogeneity that is a fundamental aspect of the polysemy of heritage assets.

The research intention was not only to identify the social value of Altamira, but to contribute to preserve the Paleolithic paintings. The writers are not totally satisfied with the results, but they managed within this technocratic discourse to integrate critical concepts such as 'loss of value', 'commodification', 'conflicts of identity' or 'social fractures'.

CA4 COMMUNICATING KNOWLEDGE: FIELDWORK NETWORKS IN TWENTIETH CENTURY BRITAIN.

Julia Roberts¹, Anwen Cooper²

¹UCLAN, ²SCHOOL OF ARCHAEOLOGY

This paper examines the informal networks of knowledge and communication created by 20th century British fieldworkers. For most of the century the information and skills needed to develop excavation techniques and practices were largely gained through reading archaeology manuals or on-site mentoring. It was only in the 1980s and 90s that the situation changed. Yet, beginning with the Wheelers' work at Maiden Castle in the late 1930s, excavations could attract hundreds of volunteers and, while many worked for just a few weeks, for some this was their initiation and inspiration to pursue a career in archaeology. How did the mentoring system manage with such large numbers of workers to be trained?

By comparing and contrasting the first and second halves of the 20th century we look at the unofficial systems that were in place to encourage and enable these 'serious' volunteers to develop their interest into a profession. Additionally, we explore how good excavation practice was defined and how notions of good archaeological practice were inculcated and

communicated. In particular, we consider the view that field archaeology was entirely dominated by male archaeologists, yet there were always women involved in excavations. Through oral history, biography and more traditional archive material from contemporary participants we assess whether their experiences were exceptional or the norm for archaeologists.

CA12 VOICES FROM THE BATTLE: HERACLEA LUCANIA, A CASE STUDY

Carlo Lualdi

UNIVERSITÀ CATTOLICA DEL SACRO CUORE SEDE DI MILANO

The battle of Heraclea was the first confrontation between the Roman Republican military forces and a Hellenistic army. We argue that the primary literary sources about this struggle are very limited and, therefore in order for us to obtain a more complete comprehension of the episode, of its development and its memory we should broaden the scope of the investigation by adopting a new multi-disciplinary approach. In particular we found that comparative studies in iconography, together with selected archaeological evidence, observations from earth sciences, further contributions from the epigraphic field and the study of the Hellenistic and the Italiote coinage can tackle more effectively the informative gaps of the literary sources. By proposing such a new approach we will integrate the teachings from a wider spectrum of disciplines in order to make a useful and dynamic "chorus of classical voices" allowing us to observe more clearly the subjects of our analysis.

CA14 FROM SPECTATOR TO PARTAKER - CHANGES IN VISITORS TO THE PAST

Ane Jepsen

THE LAND OF LEGENDS LEJRE

Living history - past, present and future in The Land of Legends Lejre, Denmark. With enthusiasm as the driving force The Land of Legends in Lejre, Denmark, has undergone numerous changes in reason d'être and circumstances in the last 50 years. Enthusiasm in exploring everyday life in prehistory, educating visitors through living displays of the past and professionalizing experimental archeology and reconstruction has characterized the early years of the center.

But new competition and new public expectations have spurred on development of the center. Substantial visitor analysis reveal that approachable and relevant education, coherent historical narratives and authentic hands-on experiences are a must in modern presentation of the past. This sees a change in the role of the visitor from *Spectators on Time Travel* to *Individualized Partakers in the past*.

Now the enthusiasm that created the center is driven to take on another form, where concepts like Showmanship, Value-for-money, Experience Design, Entertainment and the Relevance of the Past to the Present drive on the development. A new reason d'être has arisen - creating coherency between modern and past living conditions and a perspective through the ages, that sparks meaningful reflection with visitors of all ages. Early results show, that personalized narration of well-researched historical themes and presentation methods taken from the salesman's, actor's-, teacher's- and craftsmen's tool box resonate with the public. This affirms that professional, authentic reenactment, that qualifies - rather than discards - popular interest in the past, has a future.

CA4 THE INTERNATIONAL CONTACTS OF 20TH-CENTURY SPANISH ARCHAEOLOGY

Margarita Díaz-Andreu

ICREA-UNIVERSITAT DE BARCELONA

Intense international communication between experts is not a feature of today. In Archaeology it is possible to find examples from its very beginnings. There are several avenues experts use for information exchange: international congress, study trips and lectures given in other countries are complemented by the publications scholars publish in other countries and the works that are translated and reviewed in their own. Professionals also receive knowledge from others during studying periods in other academic centres abroad and also from expatriate archaeologists lecturing in their own countries. The exchange of ideas is obviously not only restricted to the academic sector, because museum personnel also form part of the same professional networks and also in others more specific to their occupation. The transaction of archaeological objects between museums at an international level was once common practice, and these did not come without a professional context in which knowledge about them was exchanged. Finally, there are international projects where a high level of interaction takes place. My paper will discuss all these issues using documents now in archives to explore mid-20th-century Spanish archaeology as a case study.

CA7 IT IS OUR PAST THAT MATTERS: GREEK PRIMARY TEACHERS' ATTITUDES AND PERCEPTIONS ABOUT ARCHAEOLOGY

Kostas Kasvikis

AUTH

The past in Greece defines many aspects of social life. Archaeological knowledge and practice is very often exploited, or even manipulated, to serve political endeavors and national claims. Since the 19th century archaeological resources were and still are fundamental for reinforcing the national imaginary and constructing identities. One of the most notable uses of archaeology can be identified in formal and informal education, including school textbooks, education and outreach programs of archaeological sites and museums, children's illustrated books and digital applications. This paper focuses on the role and meanings of archaeology in formal education in Greece and aims to present the preliminary results of an extended survey on

how primary education teachers perceive and appreciate the social and educational values of archaeological knowledge. A detailed questionnaire was distributed to schools all over the country and answered by over 1,200 educators.

The data analysis indicates that Greek teachers carry stereotypical views and misconceptions about archaeology and its role in contemporary society. Additionally, Greek primary teachers appraise archaeology a lot, as a tool for historical documentation of crucial national issues and for strengthening national identity. On the other hand, they seem to underestimate its contribution to a broader historical understanding that involves cultural history and the materiality of the past. Finally, teachers appreciate the educational role of archaeology and suggest that archaeological knowledge should be provided to students either incorporated in the existing school subjects or as non-formal and informal learning in the context of museum education.

CA6 THE QATAR NATIONAL HISTORIC ENVIRONMENT RECORD 2009-2015, A MODEL FOR DIGITAL HERITAGE MANAGEMENT

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The development of the QNHER project in Qatar over the past 5 years, has involved the creation of the first national HER in the Middle East, combining practical aspects of developing high profile research teams with sustainable capacity building and infrastructure. The challenges of rapid regional development presented significant challenges, in particular the need for a re-evaluation of Eurocentric approaches to the management of heritage. The simple transplanting of heritage management concepts from one region to another is often inappropriate and does not account for a wide range of issues from cultural sensitivity to an understanding of regional taphonomy or alternative conservation approaches in differing environments.

In response to these demands, the QNHER project has developed a range of innovative methodologies based within digital frameworks. Focusing upon the growing issues of cross-communication of idiosyncratic data and the role of holistic software platforms can play in effective interrogation, analysis and dissemination of data, we have integrated Remote-sensing, Terrestrial & Marine Survey, HER software development and web-based applications through appropriate dissemination strategies and the customisation of concepts and data standards to regional needs. These concepts have formed the basis for sustainable capacity building, infrastructure and co-operative practice between government departments, academic missions and the private and public sectors.

CA29 THE RELATIONSHIP BETWEEN AND INFLUENCE OF TELEVISION DOCUMENTARY AND DRAMA ON THE UNDERSTANDING OF THE PAST

Paul Edward Montgomery

UNIVERSITY OF YORK

The subject of screen media is one not well discussed in the discipline of archaeology. As a field of study and interest, it has found significant attention on film and television, and yet the effect its presentation on screen has on audiences remains largely absent of academic research. With the ever increasing television viewing hours of populations, this situation is unsustainable. This study examines paths to public archaeological engagement with screen media through the study of representation of 'Barbarian' people of Early Medieval Europe. As a traditionally misrepresented people, their presentation to the public provides an insight with which public archaeologists may navigate the strengths and weaknesses of the informational narratives of differing screen media formats. This discussion offers a place for historic drama to function within the same conversation of representation as documentary.

CA26 ON THE DEVELOPMENT OF AN ARCHAEOLOGICAL SYNTHESIS CENTER

Jeffrey Altschul

STATISTICAL RESEARCH, INC./SRI FOUNDATION

Archaeological data are being created in quantities never before imaginable. Most of these data derive from archaeological heritage management (AHM) studies. In the United States alone, federal government agencies have sponsored, on average, about 45,000 field projects, with more than 30,000 sites recorded, per year since 2003. Worldwide the annual numbers would easily exceed 100,000 field studies and an equal number of newly discovered archaeological sites. What have we learned from all these data? Most AHM studies focus on regional culture history; they add data points in cultural sequences. We know what happened in the past better than we ever did, but rarely do we get to questions of "why it happened." In a counterintuitive manner, the tsunami of archaeological data has actually hindered synthesis. Now it is nearly impossible to command the archaeological literature for any region of any size. Fortunately, technological advances in cyberinfrastructure have the potential of bringing order to these data and assisting archaeologists sort out what data are needed, where they exist, and how they can be accessed. As part of the Grand Challenges of Archaeology, sponsored by the US National Science Foundation, archaeologists have teamed together not only to determine the grand questions facing modern archaeology but also how to answer them. In this paper, I will present the concept of an Archaeological Synthesis Center and discuss a way forward to bring it to life.

CA11 COASTAL EROSION AND PUBLIC ARCHAEOLOGY IN BRITTANY (FRANCE): RECENT EXPERIENCES FROM THE ALERT PROJECT

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Coastal archaeological sites are facing danger from violent storm surges and anthropogenic pressure. The threat is not new, but there is mounting evidence that climate change is causing an increase in the frequency and intensity of storm events, with more damaging consequences for such a vulnerable heritage.

The ALeRT (*Archéologie, Littoral et Réchauffement Terrestre*) project, has brought together researchers involved in coastal archaeology aiming at establishing an interdisciplinary approach to coastal archaeological vulnerability, site monitoring and heritage management. The problem and need for an improved field data collection and data management procedures led us to develop a web and a mobile application for administering users and adding field data. It reduces the time of data collection in the field and widens the perspectives of collaboration between researchers, heritage managers and the wider community.

In this presentation, we will focus on the results of the collaborative project in 2014 and 2015, when this citizen science has been put to the test. Recent evidences of extreme weather impact on coastal archaeology have provoked a huge mobilisation of local population in Brittany and a growing interest of public archaeology initiatives. As a result of this mobilisation, a specific training in coastal archaeology has been developed for coastguards and local communities. The 'Alert' network is now constituted by thirty active members who cover almost the whole coast of the region, and this network has been recently increased through partnership with the Conservatoire du Littoral, a wildlife conservation public organisation.

CA26 HERITAGE MANAGEMENT & RESEARCH: THE DYNAMICS OF DIALOGUE

Adrian Olivier

UNIVERSITY COLLEGE LONDON, INSTITUTE OF ARCHAEOLOGY

Policy instruments such as the CoE Valletta Convention provide a convenient structure for the articulation of broadly agreed approaches to cultural heritage practice – as such they are a useful tool, but they do not provide a mechanism for the direct implementation of specific national policy and practice; to attempt to deploy them in this fashion betrays an essential misunderstanding of their fundamental character. In his article 'Malta and its consequences: a mixed blessing' (EAC Occasional paper no. 9, 151-156) Willem Willems highlighted delicately but firmly, and with his characteristic humour (*Preservation in situ sucks!*) some of the problems and difficulties inherent in trying to operationalise the Valletta convention. In recent annual meetings, the EAC (Europae Archaeologiae Concilium) has explored the benefits, problems, and challenges of the Valletta Convention (2013), the development of a new agenda to give meaning to European archaeological heritage in the context of contemporary issues and concerns: *Embedding archaeology in society; Daring to choose - between preservation and research* (2014), and how to turn this into practical reality: *When Valletta meets Faro - Balancing Stakeholders; Ensuring quality* (2015). The nature of the relationship between heritage management and research (and associated problems and difficulties - including the so-called research deficit) will be discussed in the context of ongoing changes and developments in archaeological practices that are evolving in the context building public benefit and informing societal values.

CA29 IN THE MIDDLE OF EVERYTHING – COMMUNICATING NYA LÖDÖSE

Christina Toreld

BOHUSLÄNS MUSEUM / VÄSTARVET

The early modern town of Nya Lödöse is currently being excavated in what is the largest urban archaeological investigation in western Sweden. Where Nya Lödöse once stood, during the years 1473-1627, is today a busy hub for public transport connecting the eastern parts of Gothenburg with the city center. This excavation has a major impact on the public domain, and closely tied to the archeological project is a large scale public outreach program.

I will discuss our experiences drawn from performing a public outreach program in the middle of a construction site, in the midst of peoples' daily life, on a site where commuters pass every day. Our aim is public outreach in a broad spectra where the archaeological record such as the dwelling quarters, the artefacts, the church and the vast skeletal material from the churchyard of Nya Lödöse form a background. Together with historical records, results from osteologists, archeobotanists and field conservators we have the material for real stories to be told.

By bringing the 500 year old town to life, by telling the stories of the people who once lived there, their daily lives at work, at home and at school, we hope to bring the people of yesterday closer to the people of today. Maybe the archeological remains and the historical records from Nya Lödöse can strengthen the local community and make a rather unattractive area become more attractive?

CA4 SITUATED CLUSTERS IN A PERMEABLE WORLD

Elisabeth Arwill-Nordbladh

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The 1920ies was a formative decade for the Swedish archaeologist and feminist Hanna Rydh (1891-1964). In order to create a position as a professional and political subject, she was negotiating within and between various groups on a national and transnational level. Rydh's relations to the Swedish archaeological community, to the French archaeological scholarly world and to the national and transnational women's liberation movement demonstrate that these clusters, each with specific driving

forces and aims, were not closed entities. Rather, such clusters can be understood as permeable and reacting social circles, showing how the inter- and intrarelations of clusters were important parts of the scholarly dynamic.

CA29 RESEARCH VS PUBLIC ENGAGEMENT: A US PERSPECTIVE ON RESPONSIBILITY AFTER 50 YEARS OF HERITAGE MANAGEMENT

William Lees, Della Scott-Ireton

FLORIDA PUBLIC ARCHAEOLOGY NETWORK, UNIVERSITY OF WEST FLORIDA

Fifty years after the passage of the US National Historic Preservation Act, which ushered in modern Cultural Resource Management (Heritage Management) in the United States, there is a dearth of meaningful and consistent public outcomes deriving from development-related archaeology. Although public archaeology is today an accepted part of North American archaeology, it is not a standard part of development-driven projects due to lack of a national mandate and to variation in its valuation at the state and local levels. The lack of consistent and meaningful public engagement by archaeologists has failed—despite the expenditure of massive public and private funds over the past 50 years—to improve the understanding of what archaeology is in order to make the case for its essential importance to the general public whose money we are spending as well as to elected representatives, government regulators, and business executives. The result is that archaeology is in a precarious position in a political and economic climate much different than when our current cultural resources (heritage) management began to emerge. We argue that meaningful and regular educational engagement of the public is a personal professional responsibility and a critical corporate necessity regardless of legal or regulatory requirement: any divide between research and public engagement is not only false it is inherently dangerous to the future of publicly funded or permitted archaeology.

CA23 VIKINGS AND WORLD HERITAGE - TOWARDS NEW STRATEGIC SYNERGIES?

Herdis Hølleland

THE NORWEGIAN ACADEMY OF SCIENCE AND LETTERS

As the formal preparations for the World Heritage nomination “Viking Age Sites in Northern Europe” began in 2008, the first large scale studies of World Heritage impact were undertaken. Initiated by governments wanting to get a better understanding of whether one could expect economic gain from the World Heritage listing, the reports all pointed in the same discouraging directions: the World Heritage status does not automatically generate economic gain nor do all World Heritage Sites experience an increase in tourism. However, the minority that did experience growth did so largely because of their active and strategic use of the status. In this paper we discuss how these findings have served as a catalyst informing the recent heritage tourism initiatives between local and regional heritage administration, tourism and volunteer sectors at “The Vestfold Ship Burials” (Norway), one of the seven component parts making up Viking Age Sites in Northern Europe.

CA3 LINEAR DRAWING IN ARCHAEOLOGY: BETWEEN REPRESENTATION AND METAPHOR

Dragos Gheorghiu

NATIONAL UNIVERSITY OF ARTS – BUCHAREST

The representation of objects in archaeology has led to a visual code of illustrating the form by the contour with the help of linear drawing. This type of analytical representation, efficient for the illustration of objects and architecture, has limitations when it is intended to approach “vague” topics such as “space” or “ritual”. In such instances linear drawing could be used in a metaphorical way to evoke absent details and improve the archaeological imagination, art being therefore employed as an archaeological (or art-chaeological) instrument functioning based on analogy; in this perspective, art-chaeology works like experimental archaeology or ethnography.

The present paper will discuss two of the author’s art-chaeological experiments using linear drawing to evoke absent architectural features and ritual activities in two archaeological sites (Monte Velho in Portugal and Barclodiyad Y Gawres in Wales).

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CA28 A DIGITAL APPROACH TO COMMUNICATE ARCHAEOLOGY BY THE USE OF MAPP AND IBEACONS

Cecilia Gustavsen

SLOTTSFJELLSMUSEET

Slottsfjellsmuseet, a museum in the medieval town Tønsberg in Norway, has during 2014 and 2015 participated in a pilot project concerning a new way to communicate digitally via iBeacons. Beacons are developed by LabWerk, a Dutch-based start-up that strives to bring together the online- and offline worlds, creating an integrated user experience that is unlike to any other. They specialize in the development of innovative mobile solutions that harness the benefits of beacon technology.

At Slottsfjellsmuseet the mApp and beacons have contributed to a greater insight for our audience in our traditional exhibitions. At first mApp must be downloaded from Appstore to your smartphone, for free. The small beacons are situated in different exhibitions in the museum, and if you have turned on the smartphone and the app is activated, the beacons will communicate with the app via bluetooth, and you get information on the phone:

Bringing together the online and offline worlds, our visitors are as such able to access engaging content in a range of formats like video, audio and images, participate in interactive activities and have access to an accurate indoor navigation solution. Everything is automated and based on a visitor's location, and can also be connected to Facebook and Twitter. Our museum can now really connect with the smartphone generation. The Beacon-system is new in the world of museums, and I will present our results and feedback from the audience.

CA28 ARCHAEOLOGICAL ATLAS OF BOHEMIA. EXPLAINING ARCHAEOLOGICAL REMAINS IN THE LANDSCAPE.

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There are a lot of archaeological guide books and encyclopedias presenting ready-made archaeological knowledge on archaeology. The aim of the Archaeological Atlas of Bohemia is, however, something else. The goal of this project is to explain to the wide public how archaeological features can be recognized in the landscape, to allow readers to find them on their own and to grasp the logic of their evidence. Rather than "knowledge" is the Atlas trying to create and support a "feeling" for the ubiquitous but fragile traces of the past in the environment we live.

A set of 105 archaeological sites was chosen to show the most typical forms of archaeological remains on the territory of Bohemia. Monuments from the Modern Period up to the 20th century have been included too and their very strong cognitive and emotional potential has been demonstrated.

The project employs modern technologies to get close to the potential data users. At the very core of the Atlas are new maps and LiDAR scans of archaeological sites displaying features that visitors can discover in the field. GPS navigation points and geographic coordinates on maps are given. QR codes navigate readers to the web pages where maps and further information, including fulltext articles and research reports, are available for downloading to computers and smartphones. As a book, the Atlas appears in February, 2015; the web pages (www.archeologickyatlas.cz) will be available (in Czech and English) soon after.

CA14 WHEN THE CELTS ARE BACK IN TOWN...

Christiane Schmid-Merkel

FREILICHTMUSEUM HEUNEURG - KELTENSTADT PYRENE

Every first Sunday of the month the "Heuneurg - Celts" show their Celtic costumes and ancient crafts in the rebuilt houses. And every year on the first weekend of August the "Celtic - Greek Summer Festival" takes place with numerous reenactment groups at the Heuneurg open-air museum. Frequently said words by the excited visitors are: "authentic", "museum alive", "exciting". Visitor numbers beat records on these days. New target groups find their way to the Heuneurg. Only a few are interested in the fact, that this is a more or less accurate reflection of the state of research and not the historical reality.

Another problem is the rising number of "Celtic" reenactment-groups, whose equipment is more reminiscent to "Lord of the Rings", than to the Hallstatt period. A careful and critical selection of the performers is tedious and time-consuming but essential.

As a museum we challenge the question: At which point is it a bit of a stretch? Where is the line between the generation of increasing visitor numbers and the professional museum communication – between balanced budgets and authenticity. Neither do we want to lose contact with the new target groups – who aroused interest in the past through the living history-actions, nor do we want to quit our self-conception as an education site and a monument of worldwide repute.

We are still looking for the optimal balanced way...

CA2 WESTPHALIAN MEGALITHS GO TOURISTIC – ARCHAEOLOGICAL INVESTIGATIONS TOWARDS NEW WAYS PRESENTING PREHISTORIC MONUMENTS TO THE PUBLIC

Kerstin Schierhold

ALTERTUMSKOMMISSION FÜR WESTFALEN

The most recent research project of the Commission for Westphalian Antiquities (Altertumskommission für Westfalen) was launched in July 2014. Its aim is to (re-)investigate the late Neolithic megaliths, a unique group of monuments in Westphalia. In a second step, these impressive and often still visible testimonials of prehistoric burying rituals will be presented to the public. Therefore, cooperation with and integration into the European Route of Megalithic Culture, since 2013 a part of the programme "The Council of Europe Cultural Routes", is planned.

As initiator of the project, the Commission for Westphalian Antiquities owns long-standing empirical and practical knowledge concerning the touristic development of archaeological and historical monuments and routes, as it researched the Santiago De Compostela Pilgrim Routes in Westphalia and developed a concept for different kinds of use (pilgrims, tourists, hikers etc.). Furthermore, Westphalia can be considered as a kind of "megalithic stroke of luck": two late Neolithic societies (the Funnel Beaker and the Wartberg Complex), both burying in collective tombs, but with very different building traditions and grave rituals, meet here in a closely-defined space. This constellation provides lots of possibilities for varied concepts of presentation.

In this contribution, first steps and results, but also challenges concerning the implementation of archaeological research in touristic concepts are presented, taking the examples of some Westphalian megaliths.

CA10 CULTURAL COMMUNICATIONS THROUGH ARCHAEOLOGY AND HERITAGE IN HOKKAIDO

Mayumi Okada

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After “the UN Declaration on the Rights of Indigenous Peoples” in 2007, social movement towards cultural reconstruction and rights recovery of Ainu, Indigenous people in Japan, has accelerated. In academia, archaeologists try to keep away from archaeological interpretation of Ainu culture based on colonial perspectives. In addition, some in Hokkaido have utilized Ainu cultural heritage, which has characteristics of cultural landscapes and intangible heritage, as cultural resource of regional community to create opportunities of communication between Ainu and ethnic Japanese. Most recently, for instance, the Japanese government has launched into establishing “The Symbolic Space for Ethnic Harmony” as a national center for revitalizing Ainu culture in Shiraoi town, Hokkaido. The space will be designed to promote nationwide understanding of the history and culture of Ainu, pass on traditional Ainu culture, and expand the horizons of Ainu culture towards the creation of new culture.

This paper introduces two cases of communication among Ainu and ethnic Japanese over archaeology and heritage related to Ainu culture. The first case from Biratori town where a dense population of Ainu people shows a platform for communication comprehensively utilizing regional cultural resources including cultural landscape and archaeological site deeply related to Ainu culture. The second case is based on the author’s experience through public archaeological works. The dialogue among Ainu youth and us, about interpretation of Ainu ritual ceremony reveals challenges that archaeology conducted in Hokkaido will have to face.

CA11 CLIMATE CHANGE AND THE PRESERVATION OF ARCHAEOLOGICAL SITES IN GREENLAND

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Archaeological sites in Greenland represent an irreplaceable record of extraordinarily well-preserved material remains covering more than 4000 years of human history. Out of the more than 6000 registered sites very few have been excavated and it is anticipated that thousands of sites are still to be discovered in the many unexplored parts of the country. Therefore, the potential of archaeological sites in Greenland to provide further spectacular findings is considered extremely high. However, the climate is changing rapidly in Greenland leading to accelerated degradation of the archaeological sites. Since 2009 the National Museum of Denmark and Greenland and the University of Copenhagen have been collaborating in order to obtain an improved understanding of the link between climate change and the preservation of archaeological sites in Greenland.

In this presentation we will give examples of how permafrost thaw, coastal erosion, increased vegetation and farming are threatening to destroy archaeological sites in Greenland. We will show the results from our decay studies where we have investigated how different organic materials respond to environmental changes. Finally we will present our future research plans and elaborate on how we aim to develop new methods for locating sites at risk – using both high tech solutions (Remote sensing, UAV and GIS models) and low tech solutions where local residents are involved in surveys and excavations.

CA2 HOW TO SHOW BIG STONES? THOUGHTS AROUND A SCIENTIFIC AND TOURISTIC PROJECT FOR THE PRESERVATION AND VALORISATION OF MEGALITHIC HERITAGE OF THE RUFFÉCOIS (CHARENTE, FRANCE)

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¹CNRS, UMR 5608 TRACES, ²CULTURE, DRAC POITOU-CHARENTES, ³DIRECTOR OF PAYS RUFFÉCOIS COLLECTIVITY

Primarily an agricultural land, the Ruffécois area, in the north of the department of Charente (West-Central France), doesn’t have a strong heritage for local population and tourists. But, this small territory has one of the most significant concentrations of megalithic monuments in western France, among the elders of the Atlantic coast.

Unlike Brittany who consider dolmens and menhirs as a symbol of identity and tourism, the megaliths of Ruffécois are unknown to both inhabitants and some specialists. They are undeveloped and threatened with some disappearing. Our project, of which we engaged in 2008, has federated archaeologists, state services of the Culture Ministry (DRAC Poitou-Charentes), local authorities, owners of the sites and elected councillors in and around a global project of research, preservation and enhancement that we want to be of cultural influence and territorial development. But, several issues will be addressed.

How can we make these “big stones”, often poorly conserved, readable and understandable for all the public? How can we reconcile tourist development with an open access to these sites and the necessary preservation of fragile prehistoric monuments? Which are the best mediation tools to use to explain a misunderstood subject and an object of various legends?

Our paper will discuss the genesis and the progress of this project, our thoughts and solutions on the initial questions and the tools we use and develop for the development of these sites and the communication of the latest scientific findings to all the public.

CA17 FINDERS KEEPERS, LOSERS...ARCHAEOLOGISTS? METAL DETECTING IN FINLAND

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For a long time metal detecting was practiced by only few enthusiastic in Finland and it was not considered a bigger problem among archeologist. However during years after 2010 the situation has drastically changed and today hundreds of active detector users are on the move. Opinions among archaeologists vary a lot. In Finland the use of metal detector is generally legal but only if the land owner allows it. The Antiquities Act protects all known archaeological sites and on those detecting is forbidden.

In the paper a short overview of the current situation in Finland is given through few case studies and examples. During recent years some museums have decided to cooperate with metal detector users and organized and supervised small scale prospecting works with the help of amateurs. Also lectures and seminars have been arranged. National Board of Antiquities has opened service e-mail address for detector users and answers all questions concerning metal detecting and ancient sites. Through questionnaires opinions of both detector users and archaeologists have been studied.

Active metal detecting has brought thousands of new finds in daylight and revealed new archaeological sites – and even lead into some sensational finds. But all detector users don't want to play by the rules and some known ancient relics have been robbed. Also great number of finds has created problems: classification and conservation is expensive and takes time. New kind of thinking is needed when considering pros and cons of metal detecting.

CA12 THE CONDEMNATION OF A STRONG WOMAN: FEMALE GLADIATORS IN ANCIENT TEXTS AND ARCHAEOLOGICAL RECORD.

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The phenomenon of women fighting in the arena has been always seen as a transgression of generally accepted roles which a woman was expected to play in the Roman society. Her sex defined not only the purpose of her existence (childbearing and managing household), but also the code of behaviour (she was to stay obedient and amiable). However, the introduction of female gladiators into the world of strictly male *munera* was also symbolising the beginning of both a new entertainment and a new definition of women's skills and possibilities. The aim of this paper is to examine the sources of ancient historians and ancient poets who referred to the female gladiators. The focus will be on the archaeological material which, only together with ancient accounts, can give a clear understanding of the significance of female gladiators. I will additionally argue that despite the general condemnation of female gladiators, the ancient sources' negative attitude towards these women, who were usually associated with strength, aggression and sexual allure, was masking a deep anxiety about the changing social and political environment in the 1st century AD. The literature from ancient times will be juxtaposed with the archaeological record and present a different perspective on women who were participating in *munera*. It will be also argued that the female gladiatorial fights could have had their roots in the personal crisis within the Augustan family, when Julia, the emperor's promiscuous daughter, was condemned to exile due to her immoral conduct.

CA4 DISCOVERING OF THE SERBIAN ARCHAEOLOGY: FELIX KANITZ AND HIS NETWORK

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Histories of archaeology show that our disciplinary knowledge has immensely diverse origins: not just in terms of interactions with other fields of scientific inquiry, but inside the field of archaeology itself. There are routes of communication outside the "regular" academic channels that have great influence on production and transmission of disciplinary knowledge. In other words: the knowledge that is now perceived as canonical has often been conceived through networks outside institutional circles and their rules.

The aim of this paper is to examine one of such networks, webbed around Austrian autodidact, Felix Kanitz, at the beginning of the institutional phase of the Serbian archaeology. In short, Kanitz, in accordance with the Austrian-Hungarian "frontier colonialism", was the surveyor of archaeological remains of Serbia, someone who had "found" and presented them to the academic as well as wider European audience. His iconic status in Serbian archaeology is shown through the fact that even today his works are the starting point of almost every archaeological project in the country. Kanitz was the heart of the informal network which gathered scientists of different statuses, academic and ethnic origins, and political views. For example, his circle included Theodor Mommsen, with his open hostility towards the Slavs, on the one hand, and some of the greatest promoters of Slavic independence, such as Janko Šafařík or Konstantin Jireček, on the other. All of them, and many others, were part of Kanitz's informal cluster, without whom his great work on the Balkan past would not have been possible.

CA19 3D DATA, DIGITAL AUTHENTICITY AND COMMUNITY ARCHAEOLOGY

Gareth Beale

UNIVERSITY OF YORK

The increased availability of 3D data capture technology has helped to ensure that the capacity to generate 3D data has moved from the specialist into the public domain. Tools allowing the management and dissemination of these data are also increasingly widely available. Despite being in their infancy the routine capture and exploitation of 3D data has powerful implications for the way in which cultural heritage is managed and represented. The ability not only to produce but also to manipulate, narrate and disseminate 3D data provides a wide range of opportunities for groups wishing to curate cultural heritage and explore different forms of heritage discourse.

Using case studies from Britain and Canada this paper will consider the cultural, social and political impact which ubiquitous 3D data capture has begun to have upon cultural heritage management. Reflecting upon lessons learned within a range of community archaeology projects it will consider the impact which these technologies and the forms of practice which they afford might have upon the management and perception of cultural heritage. It will also outline some responses which archaeologists can make in order to ensure that the potential value of these technologies (social, political and economic) is more fully realised by community groups and that the potential threats presented by these developments are more fully understood.

CA12 HDT. V 62, 3: [ΟΙ ΑΚΜΕΩΝΙΔΑΙ] ΤΟΝ ΤΕ ΝΗΨΝ ΞΕΡΓΑΣΑΝΤΟ ΤΟῦ ΠΑΡΑΔΕΙΓΜΑΤΟΣ ΚΑΛΙΟΝ ΤΑ ΤΕ ΑΛΙΑ[...]. POWER DYNAMICS BETWEEN DELPHI AND ATHENS DURING THE LATE ARCHAIC PERIOD

Desirè Di Giuliomaria

ITALIAN ARCHAEOLOGICAL SCHOOL OF ATHENS

In the last decades of the 6th c. BC, the Alcmaionid family were banished from Athens by the Peisistratidai, who held the Athenian power since 566 BC. The Alcmaionidai took refuge in Delphi, where they were welcomed by the exponents of the Amphictyonic League. The exiled family undertook the completion of the pedimental decoration of the Apollo's temple, in order to repay the hospitality. This historical event is recounted by Herodotus in his Histories (V 62, 3) and it is archaeologically attested by fragmentary material remains of the pedimental sculptures of the East and West façades, on which are respectively represented the possible epiphany of Apollo and the Gigantomachy of Athena. Many scholars took in consideration the Delphic material evidences in order to recognize a *terminus ante* or *post quem* the realization of the Athenian Gigantomachy that had to decorate the West pediment of the Athena Polîas' temple on the Acropolis of Athens. Several disagreements steamed from the stylistic differences between the two reconstructed pediments from Delphi, which caused consequently many difficulties to define a chronological range as plausible as possible, both for the Delphic pediments and for the Athenian Gigantomachy. My paper aims to make clear on this issue, considering the archaeological evidences together with the Herodotus' passage, for which I suggest a new philological reading. The architectural imagery was expression of power during the Archaic period and it is very probable that the decorative choices commissioned by powerful entouarges reflected the political situation at that time.

CA8 THE MOBILE APP AS TIME MACHINE – HERITAGE STUDENTS AND STORYTELLING

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During the spring of 2015, a group of Swedish students in Heritage Studies were given the opportunity to develop their own stories relating to local cultural heritage, with the aid of a mobile phone application called The Time Machine. The application was originally developed for the visually impaired within an EU project called HaptiMap, in collaboration with the IT company DoFi.

What stories did the students choose to tell and for whom? Which tools within the application did they make use of and why? The application is intended to bring stories to life for different groups in society and also to help the visually impaired to find their way and take part in oral presentations and soundscapes. The possible choices of presenting and communicating via the app are through pictures, movies, writing, sound and direction guidance.

This paper presents the results of our educational project in heritage communication and collaboration. Our main questions in relation to the use and effects of the mobile application concern if this has the possibility to become a tool for everybody, if it is easy to use and how the stories told work in relation to different groups in society. Finally, we wish to see if and in what ways the form and contents can be discussed, questioned, changed and added to as a result of dialogues between producers and users.

CA7 CONSIDERING THE FUTURE OF ARCHAEOLOGY AND OUTREACH

Ben Thomas

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Recent discussions about archaeological outreach to the public have increasingly focused on how information can be shared in an efficient, effective, and sustainable manner. The majority of the public gets archaeological information (usually news of discoveries) through popular media including newspapers, television, and the Internet. Yet many people want a deeper experience and interaction with archaeology and in order to address this need, hundreds of archaeologists and educators around the world provide public programs through museums, educational organizations, and public events. Too often the people who create and present these programs are working in isolation and without much support. Furthermore, the success

or failure of programs is dependent on an individual and even successful programs can end because there are no plans in place to sustain them beyond the tenure of a dedicated founding individual. To address this issue, the Archaeological Institute of America (AIA) recently organized a working conference with the goal of creating a network of archaeology and heritage educators who could work together and support each other; learn from people who have been doing public outreach for a long time; and discuss how to move forward with archaeological education in a collaborative manner. This paper co-authored by Ben Thomas and Meredith Langlitz of the AIA discusses some of the key issues, including collaboration, ethics, marketing, publication, and sustainability that were presented and discussed at the conference.

CA3 VISUAL TRANSLATIONS OF ANCIENT HERITAGE – RE-CONTEXTUALISING ANCIENT EUROPEAN SCRIPT THROUGH CONTEMPORARY VISUAL COMMUNICATION METHODS AND MEDIA

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The purpose of this practice led research project was to apply a design anthropology approach to the visual re-contextualisation of ancient European script, using contemporary visual communication practices and media strategies in order to explore opportunities for creative engagement with archaeological knowledge. Archaeology can grant us access to our history by allowing us encounters with remnants of the past, but how these remnants are translated for us, read by us and what we believe that they tell us is intimately tied up with the context of our own contemporary culture. What role can contemporary visual communication practices play in communicating archaeological knowledge to young audiences by overcoming potential aesthetic or media based barriers.

Like visual design, ancient script deals with visual presentation of meaning and is directly relevant in relation to Frutiger's interest in archetypes and Neurath's Isotype collection. Under the guidance of a specialist Archaeologist advisor and two Design researchers, a team of visual communication designers used their individual creative practices to visually re-contextualise the oldest deciphered and un-deciphered European scripts of Linear A and Linear B, with the goal of engaging a teenage audience.

The aim was to explore how visual communication can facilitate archaeological heritage experiences that explore a multi-layered narrative through co-creative and democratised strategies of engagement.

This investigation raises not only the question of the overall relevance of creative re-contextualisation of archaeological heritage to engaging new audiences, but also to what extent this re-contextualisation can be allowed to undermine the 'authenticity' of the source material.

CA23 ASSESSING THE TOURISM POTENTIAL OF AN HISTORIC AUSTRALIAN MINING TOWN

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The remote mining city of Broken Hill was inscribed on the Australian National Heritage List in January 2015. Although there are many examples of historic city centres and cultural landscapes on the World Heritage List, Broken Hill is the first such inscription on the Australian National Heritage List. The potential of the city's mining heritage to attract tourism and form the basis of a sustainable post-mining economy has been recognised by the City Council and the broader community yet the effects of heritage listing on tourism remain ambiguous due to the complex bundle of interdependent factors that make up any given heritage attraction. A better understanding of the core dimensions of a successful and sustainable cultural heritage tourism product would enhance the effectiveness of the City's strategic planning process. There are few instruments, however, designed to assess the tourism potential of complex and extensive industrial heritage landscapes like Broken Hill. Building on previous work by McKercher and Ho (2006), this paper identifies five core value dimensions for such an instrument – cultural, physical, product, experience and sustainability. The instrument is then tested on Broken Hill and three comparable industrial World Heritage sites. While Broken Hill's cultural, physical and sustainability dimensions rate strongly, the product and experience dimensions rate poorly effectively precluding the city from functioning as a viable attraction in its current state. The city's remoteness and isolation from other attractions, the complexity and deterioration of mining infrastructure, and the lack of a major mining-related tourist attraction exacerbate the weaknesses.

CA13 DEVELOPING A GUIDEBOOK TO HELP ARCHAEOLOGISTS CREATE "GOOD" WEBSITES

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Websites have become a relatively common way to share findings from archaeological research with the public. They are easily adaptable, can reach a wide audience (e.g. location, age, education levels), and can supplement other outreach programs. What makes a "good" one? Answering this requires that one has established goals; and that one has developed ways to assess whether the goals have been met. In our background research, explicit goal-setting and assessment of archaeological-based websites has scarcely been attempted. We recognize that archaeologists may not have formal training in public relations and public outreach, nor can many projects afford to outsource these services. Therefore we are developing a guidebook to help archaeologists create "good" websites. This tool will help website builders establish goals for the site and use those goals as a guide to develop its content. The guidebook will explain how to work within budgetary, skill and time constraints to create

a website of an appropriate and manageable scale. It will cover several software options (e.g. Wordpress, Dreamweaver, Weebly) and how to choose what is appropriate for your project. Drawing on previous social media and education research, we will share instruments to assess whether the goals have been met (e.g., visitor tracking, focus groups, and online surveys) in order to further refine the website.

CA23 THE MISSING LINK BETWEEN THE HERITAGE AND THE TOURISM

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In the past twenty years tourism in Turkey is considered as a perfect solution for preserving cultural heritage as well as a major source for sustaining its management. The intention has been that the income produced by tourism would be a source for maintaining the tangible and intangible heritage as well as to create incentives for the communities who are supposed to protect the heritage. Though this has been in theory a win-win strategy, however, turned out to be more complex in practice and even more complicated to implement across the country. In most cases, tourism caused unexpected and unfavourable affects on the heritage assets, and not only for the tangible heritage but also intangible heritage of the entire region. It has become clear by now that there is a missing link between tourism and heritage. In this paper we will discuss the importance of community agents and the necessity of changing the profit-oriented relationship between tourism and cultural heritage in tourism regions. We will use a case study from Istanbul Grand Bazaar in which we discuss the entanglement of a living heritage site with its own community/ies. In this pilot project we will illustrate how important it is to seek new methodologies and trying to find new ways of how to stimulate and actively engage communities in remembering their values related to this structure in order to reconstruct the essence of this heritage site.

CA19 VIRTUAL AUTHENTICITY: THE MATERIALITY OF 3D DIGITAL ARTIFACTS

Kevin Garstki

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As the role of virtual 3D technology expands to become commonplace in archaeological research, archaeologists creating and interacting with digital artifact models will need to be explicit about the kind of knowledge they create through these interactions. Just as early archaeologists had to come to terms with the type of biases involved in artifact photography in the 19th century, modern researchers have to adequately reconcile their role in the productive act of making a 3D artifact model. As archaeologists, our epistemological tradition has developed with an explicit focus on the antiquity of the object. The way in which we experience artifacts is in part through their 'pastness,' the perceived quality of age and their use in an understood past. How does this aspect of meaning-making influence our interaction with virtual models of artifacts? They inhabit a newly developed liminal space: a piece of the past experienced through a modern medium. Does this virtual medium maintain the 'pastness' and is metric accuracy enough to maintain artifact authenticity? This paper will address these issues, as well as the similarity between the knowledge-creation which occurs in the production of a digital artifact model and the early exploitation of photographic technology in archaeology.

CA19 EXPLORING NEANDERTHAL SKILLS FROM 3D KNAPPING RECONSTRUCTION

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Lithic's meaning comprehension goes through the unravelling of the sequences of gestures and actions that contributed to produce it and through which it was employed. The technological approach first and the experimental activity after, are credited in having perceived and got directly physical and conceptual actions related to knapping. Anyway, the 3D reconstruction tool could be, in our opinion, an instrument even more immediate and archaeologically realistic.

In this paper we present a study focused on a lithic production sequence made out by *Homo Neanderthalensis* about 50ky BP. The starting point was the remarkable discovery, in the site of Grotta di Fumane in Italy, of a small concentration of flakes that we managed to refit with the core, attesting a very complete Mousterian reduction sequence of discoid technology.

To carry out this study, we used a 3D Structured Light scanner to get the 3D reconstructions of each single artifact. Then, through an open source software we interacted with these reproductions in order to refit flakes and core in the virtual space. Finally, the 3D reconstructed refitting was posted on a free platform on the web, with the purpose of sharing informations and data.

However, the main perspective is to create an animated video scan-based, reconstructing the knapping operations which comply with the archaeological record in a more authentic way compared to an experimental reproduction. Only with media design specialists collaborations we can achieve this goal, that we believe may have great informative effect and give us details about Neanderthal skills.

CA11 CITIZAN (COASTAL AND INTERTIDAL ZONE ARCHAEOLOGICAL NETWORK): COMMUNITY RECORDING AND MONITORING OF VULNERABLE SITES IN ENGLAND

Stephanie Ostrich

MOLA (MUSEUM OF LONDON ARCHAEOLOGY)

Significant archaeological sites along England's sinuous coast and on the foreshores of tidal estuaries are continually eroded by winds, waves and tidal scour. Alarmed by the rate of loss, the location of many of these sites has been noted during the national 'Rapid Coastal Zone Assessment Survey' programme initiated by English Heritage and by archaeological groups around the country. To date there has been no national standardised system in place to record these vulnerable sites in detail or to regularly monitor their fate over the longer term. CITIZAN: the coastal and intertidal zone archaeological network is the first systematic national response to natural and anthropogenic forces threatening coastal and intertidal archaeology in England. CITIZAN is a MOLA community archaeology project working with partners Council for British Archaeology and Nautical Archaeology Society and funded by the Heritage Lottery Fund, Crown Estate and National Trust.

The project employs a system of community-based training and outreach programmes. It has created an infrastructure to support a network of volunteers with the skills and systems in place to be able to monitor and survey the highly significant but threatened archaeological sites around England's coast and foreshores. This paper looks at the evolution of the methodologies employed by this nascent project, both archaeological and educational, as well as the implementation of standardised recording and monitoring using crowd-sourced data, and presents key findings from this 'citizen science' programme. Coastal erosion can rarely be halted, but CITIZAN will ensure archaeological sites can be recorded before they are destroyed.

CA14 REENACTMENT OF GALLO-ROMAN RELIGIOUS PRACTICES THROUGH LIVING HISTORY

Meylan Karine

UNIVERSITÉ DE LAUSANNE

Alongside craftwork and weapons handling demonstrations usually present in living history festivals dedicated to the Gallo-Roman era, new initiatives are starting to appear: reenactment of social practices, including rites and religious ceremonies (sacrifices, processions, agrarian rituals, weddings, baptisms, and more).

Considered from the perspective of sharing research results with the general public, these reconstructions are of particular interest. Not only do they convey the current knowledge about the religion of the Gallo-Romans, but they also allow to bring forth and discuss their social interactions and relationships as well as their view of the world.

The exercise however has many difficulties. Beyond the incomplete aspects of the available sources, the reenactors must take into account the evolution of mindsets. While the material reconstruction of the rites is not simple, it turns out to be even more challenging to enable contemporary Western culture audiences to truly experience the centrality of religion in the deeply ritualistic ancient societies.

Based on the research carried out within the framework of Ph.D. studies at the University of Lausanne, our intervention will present examples of rites and ceremonies reconstructions presented during historical festivals in Switzerland (*Römerfest* of Augusta Raurica, *Brenodor-Fest* in Bern, *Fête de Petinesca* at Studen) and in France (*Vinalia* at Saint-Romain-en-Gal and *Grands Jeux Romains* in Nîmes). We will present how and which aspects of the religious life of the ancients are put forward, what part the public plays in these reconstructions and overall what image of the Gallo-Roman religion is transmitted through living history.

CA14 THE USE OF UNDERWATER AND EXPERIMENTAL ARCHAEOLOGY IN UNDERSTANDING SCOTTISH LOCH DWELLINGS, OR CRANNOGS, AND THEIR PRESENTATION TO THE PUBLIC.

Nick Dixon

THE SCOTTISH TRUST FOR UNDERWATER ARCHAEOLOGY

In Scotland, loch dwellings called 'crannogs' are being excavated underwater by the Scottish Trust for Underwater Archaeology. Submerged sites, because of the cold, dark, peaty water in which they lie, have a mass of well preserved organic material preserved on them including structural timbers, floor coverings, wooden artefacts and a mass of organic material that gives a clear picture of the houses and the way of life of people in the prehistoric past.

There is sufficient evidence to make accurate reconstructions, or recreations, of these early dwellings and the way of life of the people who lived in them. Using the evidence from the underwater excavations, crannog was recreated as authentically as possible as the centrepiece of the Scottish Crannog Centre in Loch Tay in the Highlands. It was built over three years by volunteers using the same sort of timbers and other materials used in the past. The authenticity of the structural elements attracts up to 25,000 visitors each year and involves archaeologists, students and members of the public in experimental archaeology and ancient technology from the Scottish Iron Age.

CA6 HACKING ARCHAEOLOGY- BUILDING AN OPEN API FOR ARCHAEOLOGICAL DATA

Joanne Cook

ASTUN TECHNOLOGY

As part of Lancaster's Beyond the Castle project in 2014, a 24 hour Hackathon was held, using data from the city's Urban Archaeological Database (UAD), along with other local datasets. The UAD made available a set of historic maps of the city, along with spatial and tabular data about excavations, finds, and documentary sources. A set of open source tools were used to create fully flexible api for accessing the data, both for display in spatial and tabular formats, and for complex analysis. This

allowed hackathon participants to create exciting new visualisations of the data, and also to draw their own conclusions about the resource. Both of these outcomes prove that the data has a lifespan and usefulness beyond the remit of the original project, and that it can be made engaging for non-archaeologists. This talk will discuss the technical implementation of the api as a potential toolkit for making other archaeological resources available online in an interactive, flexible, sustainable, and low-cost fashion. It will also discuss some of the issues that were encountered in opening up the data, and suggest some possible remedial actions.

CA8 WHO ACTUALLY PROFITS FROM WEB-BASED CROWDSOURCING AND CROWDFUNDING IN ARCHAEOLOGY? A CRITIQUE OF THE SHORT AND LONG-TERM IMPACTS OF CROWDWORK

Sara Perry

UNIVERSITY OF YORK

Crowdsourcing and crowdfunding seem increasingly to be the go-to means for accruing capital (financial, material, intellectual) in archaeology today. These methods rely upon volunteer labour to do the work of archaeologists and archaeological institutions, and whilst they are grounded in a long tradition of philanthropy in the discipline, they tend to be couched in a 'progressive' rhetoric of advancing democracy. Much like the obfuscating discourse of the social web that has been subject to increasing critique both within and beyond archaeology, such practice is bound up in relations of power, control, freedom and exploitation, with consequences that portend real instability for the cultural sector and for social welfare overall. Only a handful of archaeologists, however, are seriously deliberating these matters, which suggests the discipline is setting itself up to be swept away by our unreflective investment in the cognitive capitalist enterprise that marks much current web-based work. Here I argue that the immediate benefits of crowdsourcing and crowdfunding are eclipsing concern for their profound longer-term impacts. This paper opens a debate around whether such methods are truly productive for archaeologists, and to what extent they might be construed as dangerous practices characterised by little – if any – future-orientated sensibility.

CA8 CO-PRODUCING RESEARCH DATA AND KNOWLEDGE WITH MICROPASTS

Chiara Bonacchi

UNIVERSITY COLLEGE LONDON

This paper will present the results achieved by the MicroPasts project in the period of 18 months that was seed-funded by the UK Arts and Humanities Research Council (October 2013 – March 2015). MicroPasts is the first example of joined-up use of crowd-sourcing, crowd-funding and forum technologies to foster collaborations between communities and higher education and heritage institutions, with the aim of co-producing research in archaeology online and offline. The presentation will review the ways in which different web-based methods were leveraged to: (a) create new open data; (b) use these resources to revisit existing scholarship; and (b) fund community archaeology initiatives. It will examine the extent to which the three platforms that make up MicroPasts have worked in synergy and user groups have overlapped, and how the profile, motivations and behaviour of participants have changed in time. The impact of different engagement approaches and kinds of exchanges with contributors will also be considered, together with their effects not only on volunteer experiences but also on the type, quantity and quality of the information that was generated. Conclusions will highlight the public value of co-produced research in archaeology, resulting from the negotiation of the interests, skills and knowledge of the academic, museum and citizen archaeologists who were involved in MicroPasts (micropasts.org).

CA26 PROTECTION OF THE WORLD HERITAGE AGAINST ARCHAEOLOGICAL RESEARCH: THE CASE OF THE PREHISTORIC PILE DWELLINGS AROUND THE ALPS REGISTERED AT UNESCO

Pierre Corboud

UNIVERSITY OF GENEVA

In 2004, when we undertook the drafting of the application to UNESCO of Prehistoric Pile Dwellings around the Alps, we had several specific objectives for justified this process. The first objective was to obtain recognition, nationally and internationally, of the importance of this heritage for the knowledge of an important period for the development of the Neolithic and the Bronze Age cultures, around the alpine regions. This recognition should allow, on the one hand, better protecting and conserving very fragile archaeological sites, still more threatened by natural phenomena but also by human activities. On the other hand, the purpose of this approach was also to increase our knowledge of this heritage, to promote collaboration between researchers working on these sites in six countries engaged in this project and to better disseminate the knowledge and interpretations obtained on this serial object.

The question between the conservation and integrity of the sites and further researches on these sites was soon at the center of discussions. The requirements of UNESCO over the need to preserve intact sites as quickly emerged as contradictory with the need to continue the excavations on these sites, to improve the knowledge and interpretations.

Recall that a Pile Dwelling site, unlike an architectural monument, mainly contains organic and mineral vestiges whose study requires inevitably sampling and therefore the partial destruction.

The purpose of this presentation is to seek to resolve this contradiction and to propose ways to reconcile protection of heritage and archaeological research.

CA7 TEACHING RESEARCH AND HERITAGE MANAGEMENT FROM THE BEGINNING: ARCHAEOLOGICAL FIELD SCHOOLS AND AN EXAMPLE FROM BOSTON UNIVERSITY IN MENORCA, SPAIN

Amalia Perez-Juez¹, Ricardo Elia¹, Meredith ANDERSON LANGLITZ²

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The role of research in archaeological heritage management (AHM) is becoming marginal and rarely included in projects and budgets. On the other hand, AHM is frequently treated as an appendage to traditional research rather than an essential element to be planned for from the beginning. Is this disconnection related to the way we are training our professional archaeologists? The reason for this growing gap might not only be created by more rigid structures, frameworks or practices, but also because of traditional teaching methods.

Over the past several years, we have been incorporating AHM as an integral part of teaching archaeological research. We have developed and implemented an archaeological field school that goes beyond the traditional training in the practical skills of survey, excavation, recording, and artifact processing. In this paper we describe our experience in running an archaeological and heritage management fieldschool on the island of Menorca (Spain) from 2009 through 2014. We teach archaeology from a holistic perspective that incorporates the theory and practice of archaeological stewardship: preservation, interpretation, management, and public outreach of archaeological resources as well as field work and traditional research.

We want to share our efforts to deal with the growing distance between research and AHM by implementing a new system of training students in values of preservation and stewardship as an integral view of what Archaeology means, and to lessen the disconnection between archaeological research and AHM that continues to be effective treatment of the material remains of the past.

CA6 DIGGING THE CROWD: THE FUTURE OF ARCHAEOLOGICAL RESEARCH IN THE DIGITAL AND COLLABORATIVE ECONOMY

Brendon Wilkins, Lisa Westcott Wilkins

DIGVENTURES

By better connecting practitioners, stakeholders and communities, co-production (the process of producing research 'with' rather than 'for' communities) has been presented as a timely response to the growing demand that research 'impact' must be expanded to express our social and public purpose. As a counterpart to this driver, a new digital and collaborative economy is emerging, representing new ways of thinking about business, exchange, value and community. Drawing on 2014's Digital Dig Team pilot project, this presentation will aim to address the challenges and opportunities for archaeology presented by this shifting landscape – financial, political, ethical and methodological. Based on a bespoke cloud-based software platform built entirely on open-source technology, 'Digital Dig Team' is the first dedicated system enabling archaeological researchers to publish text/photos/video/3D models directly from the field using any web-enabled device (such as a smartphone or tablet). With read/write password access for the project team and partners, the born-digital archive is instantly accessible via read-only open-access on a dedicated website. This innovative approach has major implications for trans-border European and global research partnerships, with geographically dispersed specialist teams able to collaborate during the data collection stage of field projects. By nesting this data within an engaging, immersive storytelling microsite, the system builds and harnesses new audiences for research projects, enabling archaeologists to co-fund, co-design, co-deliver and co-create value with their communities. The potential is to create an access step-change for archaeological archives, as well as a limitless ability to share and communicate our research through digital and social channels.

CA14 ARCHAEOLOGY BROUGHT TO LIFE @ THE SCOTTISH CRANNOG CENTRE: EDUCATION, ENTERTAINMENT AND EXPERIENCE

Barrie Andrian

THE SCOTTISH CRANNOG CENTRE

The Scottish Crannog Centre is an award-winning archaeological open air museum featuring the experimental recreation of an early Iron Age loch-dwelling, authentically based on the excavations and research of the Scottish Trust for Underwater Archaeology. Exhibits, guided tours, 'hands-on' activities and special events bring prehistory and archaeology to life since the Centre opened in 1997.

The recreated Crannog in Loch Tay, Perthshire, provides a platform for living history-style interpretation with guides dressed in period-inspired clothing. In an outdoor activities area, they also demonstrate a range of crafts and technologies before inviting the public to 'have a go'. Visitors can wear Iron Age style clothing to help immerse them in life 2,500 years ago. Meanwhile, inside the exhibition hall there are displays of artefacts, videos and storyboards that provide a context for the ancient crannog dwellers and our archaeological discoveries.

Using this personal, interactive approach we aim to inform the public in an entertaining manner without sacrificing authenticity. However, as a self-funded organisation in the heritage tourism sector, we must be creative and innovative in order to be sustainable. Striving to balance the education-entertainment scale is an on-going challenge.

As people learn in different ways, flexible methods of interpretation are critical to success. We collect extensive visitor feedback onsite and through online surveys and social media platforms. Knowledge transfer can be measured not just by how many facts are retained, but also by the level of emotional engagement: visits are experienced as authentic, memorable and inspirational.

CA13 DIGITAL PUBLIC ARCHAEOLOGY IN ITALY: WHAT IS CHANGING AND WHY IT IS IMPORTANT

Domenica Pate, Antonia Falcone, Paola Romi

INDEPENDENT RESEARCHER

At the beginning of 2013 a structured network of archaeologists who focused on the popularisation and online communication of archaeology was still missing in Italy. Since then much has changed, with old and new ventures trying to make up for deeply felt deficiencies in the way archaeology is communicated to the wider public, off- and online.

The ever growing network of Italian "archaeobloggers", as they called themselves from an idea by Cinzia Dal Maso, met for the first time during the XVI Mediterranean Exchange of Archaeological Tourism in 2013: the declared goal was not only to take stock of the situation, but also to decide upon shared objectives. As a result, they organised participation in the fourth *Day of Archaeology* and from that experience a new editorial project ensued, "*Archaeostories. Unconventional Handbook of Experiencing Archaeology*", edited by Cinzia Dal Maso and Francesco Ripanti, that will be released in March 2015 and is thought as a *trait-d'union* between off- and online experiences in communicating archaeology.

Simultaneously, Italian archaeobloggers became aware of their role in giving voice, alongside professional associations, to the day-by-day issues of archaeologists all over the country, taking part in the ongoing debate about the profession and workers' rights.

This paper will outline the changes made in communicating Italian archaeology online and describe how in Italy the Internet is becoming more and more the framework in which to address concerns about the profession as well as a fruitful laboratory for the inception of spontaneous and organised communication experiments.

CA2 THE EUROPEAN ROUTE OF MEGALITHIC CULTURE - PATHWAYS TO EUROPE'S EARLIEST STONE

ARCHITECTURE

Daniela Stefanie Hauf

MEGALITHIC ROUTES E.V.

The European Route of Megalithic Culture serves as a platform for museums, Geoparks, scientists, and experts in tourism from Denmark, England, Germany, The Netherlands, and Sweden to underline the outstanding importance of the megalithic culture for European history, to rediscover and promote the tourism value of its monuments and, in this way, improve their protection as part of the common cultural heritage.

The project was incorporated into the programme "The Council of Europe Cultural Routes" in 2013.

The Cultural Routes programme was launched by the Council of Europe in 1987. Its objective was to demonstrate, by means of a journey through space and time, how the heritage of the different countries and cultures of Europe contributes to a shared cultural heritage.

The Priority of the European Route of Megalithic Culture is given to the use of existing roads and nature routeways as well as promoting mobility in harmony with nature and current social and recreational trends such as hiking and cycling. Moreover, museums and educational institutions such as schools, colleges, universities, charities, and public bodies are being encouraged to develop new cross-border collaborations in the field of youth education and European exchange programmes for children and young people.

CA12 THE ECONOMETRICS OF ANCIENT GREEK BUILDING PROJECTS: ARCHAEOLOGY AND TEXTUAL SOURCES

Jari Pakkanen

FINNISH INSTITUTE AT ATHENS

The presentation will reevaluate the role of different types of source materials in estimating the costs of ancient Greek building projects. The main categories are archaeological material, ancient building accounts, other textual sources and modern ethnographical data. Econometric studies of Greek architectural programmes have one substantial advantage over other types of archaeological data: contrary to the great majority of ancient artefacts, most public buildings in well-excavated cities and sanctuaries have left some traces in the material record. Greek architectural practice also tends to be conservative, so even relatively few building elements allow for reliable reconstructions of the usual buildings types. In addition, the construction accounts inscribed on stone give a wealth of detailed evidence on Classical and Hellenistic building. The presentation will propose a model how the supply of building materials and the construction process of a large-scale Greek building programme can be quantified.

Econometric quantification of building projects can provide more reliable foundations for future considerations of the economic and social importance of construction and maintenance of the architectural complexes. One of the case studies used in the

presentation will be the fifth- and fourth-century-BC Athenian building programme in the Piraeus: by 330/329 BC the total number of shipsheds in the military harbours had reached 372. Using different sources allows cross-checking between the various work-rate estimates and makes the econometric calculations more reliable. For example, previous assessments of the cost of building stone and roof-tiles in Classical Greece have overestimated the price of locally quarried and produced building materials.

CA13 FACEBOOK AND SOCIAL MEDIA IN ARCHAEOLOGY: BETWEEN UTILITY AND WASTE OF TIME.

Edoardo Bedin

UNIVERSITÀ DI PADOVA

The Internet sped up the research processes by visibly reducing distance between scholars who, in the modern era of technology, discuss their concepts via Skype, organise conferences online and upload their most recent papers and abstracts on some acknowledged websites such as Academia.eu. The purpose of this paper is to address the most pertinent questions regarding the link between archaeology and social media: what is the utility and purpose of social media, and how do they affect Archaeology in practice? What are the goals and benefits?

The first part of my paper aims at answering these questions through the examination of Facebook pages of the well-known archaeological sites and museums, while comparing and contrasting them with pages of less-known sites and museums, in order to establish the major differences between these online pages. The author is going to propose a theory on the most effective means for involving the enthusiasts, but more importantly- the less keen online users, in engaging with the online media and, consequently, for encouraging people to visit archaeological sites and museums.

The second part of the paper will present the work of the author on running and managing a website and Facebook page on Archaeology. With no external financial funding the page reached as many as 5.500 "likes" in just two years and provides help in disseminating information on current archaeological excavations and projects, using solely social media and vast online research as the only means of communicating with the online users.

CA11 ROUSAY, THE EGYPT OF THE NORTH: THE STORY FROM THE SEA

Stephen Dockrill, Julie Bond

ARCHAEOLOGICAL SCIENCES, UNIVERSITY OF BRADFORD

Rousay is the sixth largest island in Orkney at 11,937 acres. The centre is formed by high moorland, surrounded by a coastal fringe with one of the richest concentrations of archaeological sites in Orkney. The archaeology is a magnet for visitors, who explore the many chambered cairns. Some visitors climb down to the Neolithic cairn and Iron Age broch at Midhowe and return along the coastline, passing a significant number of actively eroding sites.

Excavation of the eroding archaeology at two multi-period settlement sites, South Howe and Swandro, indicate the magnitude of the potential loss. The topography, availability of agricultural land and access to the sea made this a favoured location. The loss along this coastal stretch will be irreplaceable, with no equivalent sites surviving inland.

The Swandro sequence includes a Neolithic chambered cairn and an Early Iron Age to Norse period estate associated with the Westness Pictish and Viking burials. The surviving archaeology, although eroding, is providing valuable data both on the settlement itself and on the process of erosion on this active boulder beach. Excavation of the wave-cut terraces of the settlement mound is challenging, the site being subject to both the water table and the regular incursions of high tides. Recording methods have been adapted and new technology such as laser scanning utilised. A central aspect of this long-term project is to work with the island community to communicate the findings, to enhance visitor experience and to raise awareness of the potential loss.

CA29 PUBLIC ARCHAEOLOGY, KNOWLEDGE MEETINGS AND HERITAGE ETHICS: COMPARING TWO CASES FROM SOUTHERN AFRICA

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What do researchers and heritage practitioners do when their concepts of place do not coincide with those held by local communities? Discussing two case studies from southern Africa, Manica in Mozambique and Mapela in Zimbabwe, against their wider regional backdrop, this paper argues that professionals cannot overlook that many rural communities in this part of Africa do their version of 'archaeology' by reconstructing the past via their ancestors. Our primary concern is to establish a common ground for epistemic levelling between 'scientific' and 'other' knowledges and an ensuing heritage ethics, from which to articulate a set of key tenets for future engagements with local communities and public archaeology. In order to develop an approach which is inclusive and within the scope of 'a truly engaged archaeology', we explore the potential of encounters between different epistemologies, between those of professional practitioners and those of the public they engage with.

CA17 IS IT BETTER THAN NOTHING? CONSIDERING THE 'POSITIVE CONTRIBUTION' OF HOBBYIST METAL DETECTING.

Natasha Ferguson

TREASURE TROVE UNIT

Those who engage in 'responsible hobbyist metal detecting' are often praised in the UK, and in some European countries, for their contribution to our understanding of the past through the discovery of archaeological objects. However, what we can consider to be a positive contribution from metal detecting has become blurred. What demands can heritage legislation effectively make of a recreational activity? Is the requirement for accurate findspots too demanding, or is a 'better than nothing' approach the best option to encourage reporting, even if it risks the loss of valuable archaeological information?

I would argue there is a fine line between a contribution and impact, even from responsible metal detecting. What may be regarded as a contribution by the metal detecting community may in turn place considerable pressure on already strained heritage resources. For example, requesting an archaeological presence at large scale metal detecting rallies to record and identify finds, or, as is occurring more frequently, the excavation of complex in-situ discoveries such as substantial Viking hoards. In both cases there is an expectation by metal detectorists for archaeologists to respond in order to avoid the loss of contextual information; inability to do so may be regarded as incompetence or lack of interest.

Using selected case studies to draw on the perspective of both archaeologists and hobbyist metal detectorists, as well as experience of working within Treasure Trove Scotland, this paper will aim to explore what we consider to be a 'contribution' and to offer an alternative framework.

CA11 GUFUSKÁLAR: AN ERODING FISHING STATION

Lilja Pálsdóttir

INSTITUTE OF ARCHAEOLOGY IN ICELAND

The archaeological site of Gufuskálar sits on the northern tip of Snæfellsnes peninsula in Iceland. It is a late medieval fishing site of great importance that is being rapidly eroded and exposed by marine and wind erosion. Since 2008 an archaeological research has been undertaken at the site by an international team of archaeologists, environmental geologists and zoologists including an excavation of a 15th century fishing booth, field survey, test trenching, topographical survey, kite and drone photography.

None of this, however, would have taken place had it not been for a resident at a local town who noticed the erosion and began to ask questions about the site. Growing interest from the community has also helped in the team's effort to continue the research.

In this talk, I will introduce the site, the challenges we have met and the progress we have made so far both on the excavations and in further involving the community.

CA10 COMMUNICATING THE VALUE OF ARCHAEOLOGY OF THE CONTEMPORARY TO SKEPTICAL PUBLICS

Larry Zimmerman

INDIANA UNIVERSITY-PURDUE UNIVERSITY INDIANAPOLIS (IUPUI)

Stereotypic images of what archaeologists study and how they do it tend to confuse the public about what archaeology might contribute to contemporary life. To them, archaeologists are adventurers who go to exotic places and dig up old stuff—the older and more exotic, the better. With such images created and fostered by popular media and even some archaeologists, the information archaeology provides may seem to be little more than enrichment or entertainment. Few realize that archaeology is actually about material culture, not just time. What archaeologists study can be recent, nearby, and from the culture of both the archaeologist and the public, producing knowledge that promotes better understanding of, and even solutions to, contemporary social problems. When the public, including some colleagues in related disciplines, choose not to listen, or archaeologists communicate results poorly, resistance to projects can come from institutional ethics boards, granting agencies, local government, media, and more. Archaeologists either can find ways to communicate within expected stereotypes or to "camouflage" what they actually do. These problems and, to a degree, their solutions have become clear in recent projects that use archaeology to study homelessness in the US and UK. One approach has been to define homelessness as exotic heritage, linking contemporary problems to those evident from early urban life. Another has been to tie archaeology and teaching homeless people about it as a way to promote wellness. Neither has been entirely successful, but both show promise.

CA10 COMMUNICATING STORIES THROUGH OBJECTS AND ACTIONS

Carol Ellick

ARCHAEOLOGICAL AND CULTURAL EDUCATION CONSULTANTS

What do you see when you look at a pile of rocks? Is it simply a pile of rocks or is it more? As archaeologists, much of what we know derives from context and the scientific process. Due to preservation variables and a lack of cultural context, we will never know the full story. We further limit our ability to tell a broader story by failing to acknowledge and incorporate other voices. We also limit our audience by creating programs that are accessible only to those who speak and understand "our" language. When conveying information about the archaeological process and the past, telling the story from only the western scientific perspective limits what can be told and also leads to exclusion of alternative ideas about the past. Using educational theory and communication techniques, in conjunction with the correlation of traditional cultural stories and archaeological information,

the Parallel Perspectives method has been successful in developing informal and formal teaching materials and programs. Drawing on examples from three international programs, this presentation will illustrate how the incorporation of archaeological and traditional cultural knowledge has created opportunities for various audiences to relate to and gain a fuller picture of the past. In this manner archaeology is impacting broader social issues by raising awareness about contemporary underrepresented communities and cultures.

CA10 COMMUNICATING WITH COMMUNITY: ADAPTING COMMUNICATION STYLES TO THE COMMUNITY

Joe Watkins

ARCHAEOLOGICAL AND CULTURAL EDUCATION CONSULTANTS

As archaeologists, we are often called upon to discuss our work with groups that share our interest in the human past, to communicate with those whose heritage we study, or to explain our findings to other 'stakeholders.' As communicators, however, we often bore them with jargon, dazzle them with brilliance, or lose their attention all together. And, even when we do not confuse them with acronyms, we take it for granted that the words we choose are understood in our intended manner. Archaeologists are also generally unaware that people communicate at different levels depending on cultural preference and interpersonal relationships. In 1976, Hall differentiated between high- and low-context communication as a means of explaining the role cultural differences play in the ways humans present and accept information. While these are arguably generalizations, high-context communication occurs when most of the information is either in the physical context or internalized in the person, while very little is in the coded, explicit, transmitted part of the message. Low-context communication occurs when the majority of the information is vested in the explicit code. High-context and low-context communication is used in all cultures, but one form tends to predominate. Coupled with the context of communication is the directness with which information is presented – low-context messages are more explicitly (directly) presented while high-context messages are generally implicitly (indirectly) presented. The following paper explores ways we can better communicate archaeology by recognizing and utilizing the ways communities accept and process information.

CA11 INDIGENOUS RANGER GROUPS' CAPACITY FOR THE MANAGEMENT OF CLIMATE CHANGE IMPACTS ON HERITAGE SITES

Bethune Carmichael¹, Bethune Carmichael²

¹CHARLES DARWIN UNIVERSITY, ²AUSTRALIAN NATIONAL UNIVERSITY

The threat posed by climate change to heritage and archaeological sites began to ring alarm bells for heritage practitioners over two decades ago. Only quite recently, however, has work progressed beyond hypothesising potential impacts. Four risk analysis frameworks and prioritisation methodologies for the management of climate change impacts on heritage are considered. These involve either an approach that is professionally generated ('top-down'), or professionally generated but with additional stakeholder input ('middle path'). This paper argues that in remote northern Australia, where sites continue to be used, valued and maintained in a traditional cultural context, a stake-holder led approach ('bottom up') may be necessary. It proposes that a planning framework be developed for this purpose. A primary distinction between generic climate change adaptation planning frameworks and the limited number of heritage adaptation frameworks is that the latter do not have an explicit 'project framing' phase. In a bottom-up planning process such a phase is fundamental. The paper describes the synthesis of generic climate change adaptation frameworks and heritage climate change frameworks. The synthesis is ultimately designed for use by Indigenous Ranger Groups. Ninety such groups now exist across Australia. They use traditional knowledge in natural resource management (NRM) on expansive, remote and heritage-rich Indigenous owned and controlled lands. A predictive model is presented for the exploration of Indigenous Rangers' capacity for such planning. Preliminary fieldwork with Indigenous Ranger Groups in Arnhem Land, northern Australia suggests further testing of the model is warranted.

CA11 LANDSCAPE AND CULTURAL CHANGE ON THE SOUTH ALLIGATOR RIVER, KAKADU NATIONAL PARK, NORTHERN AUSTRALIA

Sally Brockwell, Bethune Carmichael

AUSTRALIAN NATIONAL UNIVERSITY

The vast floodplains of the South Alligator River contain iconic freshwater wetlands internationally renowned for their natural and cultural values. These low-lying floodplains are particularly vulnerable to sea level rise, which threatens devastation to freshwater flora and fauna and Indigenous cultural heritage sites. For the past three years, an inter-disciplinary research programme involving archaeology, palaeoecology and social history has been documenting occupational and environmental histories associated with the river from mid Holocene to historical times. The major outcome will be a greater understanding of the implications and management challenges associated with climate change, by contextualising threatened change in a history of past change.

CA11 THREATENED HERITAGE AND COMMUNITY ARCHAEOLOGY ON ALASKA'S NORTH SLOPE

Anne Jensen

UIC SCIENCE LLC

The North Slope of Alaska is home to many coastal sites. Due to the cold climate, preservation is spectacular. The sites have generally been considered stable. However, the changing climate has altered the situation. Erosion rates have increased tremendously, due to warming permafrost, sea ice retreat and longer ice-free seasons. For example, measured coastal retreat at one site is averaging 10 m a year. Coastal erosion revealed a house at another site. Funding was sought to excavate the structure, but a single storm the next autumn removed over 30 meters of the site and destroyed the structure.

North Slope excavation and post-excavation work are extraordinarily expensive, due to remote locations and the huge volumes of organic materials recovered. Current funding mechanisms do not lend themselves to such situations, as the process is such that funds cannot be available during the next field season, even if a successful proposal is prepared on very short notice. Many of the sites are on private land, so no agency has responsibility for the heritage resources.

North Slope residents are very concerned, as these sites represent their cultural heritage. There is a municipal government agency that has heritage responsibilities, but they cannot handle the issue alone. A variety of avenues for community participation are being developed to provide opportunities for members of the public to assist in protecting their heritage.

CA6 A NEW ONLINE PLATFORM FOR ARCHAEOLOGICAL AND CULTURAL HERITAGE DISSEMINATION AND DISCUSSION

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The advent of social networks, media repositories, online communities and social forums have revolutionised the way we create and share knowledge. However, there has not been a thematic social network of relevance based on Archaeological and Cultural heritage studies and their commercial applications yet.

Here we present a solution that can unify many aspects of archaeological practice, research, simple discussion and commercial applications. We propose doing this by creating a platform where the power of choosing and customizing personal interest is given to the user. He/she will be able to pursue a number of different tasks such as for example viewing, uploading, job searching, publishing, interacting, exploring places of common interests and much more.

Many features will rely on a concept that "everything is editable and tag-able".

Moreover, while archaeological projects can be by nature very fragmented, due to a series of issues such as the lack of funding and time, accessing this central community can help through crowd-sourcing and crowd-funding. On the commercial level it is important that listed projects are reached also by everyone and that human skills can be put together in order to achieve common objectives and to gain more experience. We hope that within a span of time this platform will become a compendium of archaeological knowledge around the globe.

CA6 HERITAGE HACKATHONS: TOOLS AND INTERACTIONS FOR BRINGING THE PAST INTO THE PRESENT THROUGH OPEN DATA

Roger Whitham

LANCASTER UNIVERSITY

Hackathons have become a popular way of bringing together skills digital designers and makers to work with open data and rapidly create new apps and services. This paper reports on a hackathon designed around archaeological and historical data sets, Hack Lancaster, held in November 2014 at Lancaster Castle. Over 24 hours, the hackathon produced novel apps, websites and data visualisations of local historical data, running alongside a public exhibition of data enabling direct interaction between digital makers and local citizens. Crucial to the success of the hackathon were a range of key design decisions discussed in this paper that included selection and preparation of data sets, development of APIs, event promotion, venue selection and venue preparation. Bringing together a diverse range individuals and skills to work in a semi-directed manner, hackathons also turn on appropriate creative facilitation methods and tools to support group decision making and enhance collaboration. This paper presents the outcomes of the Hack Lancaster hackathon and provides recommendations for designing similar events. The general opportunities and challenges of hackathon events to engage people with heritage data are discussed, pointing towards new models for engaging people with local history through digital technologies.

CA19 AUTHENTICITY AND IMAGE-BASED 3D RECONSTRUCTED EXCAVATIONS AND ARTEFACTS

Jeroen De Reu

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Image-based 3D reconstruction has the potential to revolutionise the practice of archaeological fieldwork and artefact studies. It holds great opportunities for increasing the quality of archaeological documentation, study and interpretation, but it also brings new challenges and risks.

This paper will focus on the application of image-based 3D reconstruction for the documentation of archaeological excavations and artefacts, and how digital copies aid their study and understanding.

Based on a series of examples, we will present how we try to systematically apply an image-based 3D recording workflow for the documentation of excavations, how we use the 3D data during the excavations and the post-excavation processing and how it aids the study, interpretation and understanding of the site.

In a second case study, we will evaluate how digital copies can aid artefact studies, in particular when one has no access to the original. We will argue that, although nothing compares to the real artefact, image-based 3D reconstruction is a simple, apposite method for the 3D recording of certain archaeological artefacts, producing digital copies that are as suitable for analysis as the originals.

Besides the opportunities, we will also highlight new challenges and risks encountered while applying image-based 3D reconstruction.

CA14 LIVING HISTORY AND THE PUBLIC IN MITTERKIRCHEN, UPPER AUSTRIA

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In 2011, a Living History project started in the open air museum of Mitterkirchen, Upper Austria. The museum is dedicated to the early Iron Age, having been built following 10 years of excavating a large early Hallstatt period cemetery in the 1990ies. The scenery, consisting of a group of reconstructed buildings of different purpose and a reconstructed tumulus, among other features as a small restaurant etc., is usually „inhabited“ by women who act as guides and teachers during workshops. In order to add another attraction for visitors, and for filming a documentary, a project called „Prunkwagen und Hirsebrei“ started in summer 2011. A group of 11 people (among them some archaeologists) moved into the museum village and tried to live a Hallstatt period live, as authentically as possible. As the project was considered a success by all participants, it has been repeated every summer since.

One of the most important parts of this project is the contact to visitors. People seem to be interested and glad not to have missed this rare opportunity of being able to talk to specialists and watching them try to live like people in 800 BC. But how much of what we try to transfer does reach visitors? Are they even interested in our striving for authenticity? What are visitors thinking about the past, before and after their visit? To answer those questions, two surveys have been carried out in Mitterkirchen. The results help understand visitors' interests and needs.

CA19 THE SIGNIFICANCE OF 3D MODELS OF EKTYPA FOR AUTOMATIC ANALYSIS OF LETTERING TECHNIQUES

Eleni Bozia, Angelos Barmpoutis

UNIVERSITY OF FLORIDA

Epigraphists and Classicists have focused on the study of the digital reproductions of the inscriptions in their attempt to pursue further research, examine lettering techniques, and pursue dating conundrums while not on site. An historical artifact that has been understudied and the possibilities it offers underestimated are epigraphic ektypa—housed in museum, institution, and office repositories— they contain a wealth of information that has yet to be unearthed.

The Digital Epigraphy toolbox (www.digitalepigraphy.org) focuses on the digitization of ektypa. A novel technique was developed that automatically creates the 3D model with the use of an office scanner. The toolbox offers a multitude of visualization options and several options for automatic post-processing analysis. The purpose of the aforementioned computer-assisted analyses is to facilitate and enhance research possibilities, pairing of broken fragments, and study of big data that is not always manually feasible. We have tested the algorithms with various collections, namely *Res Gestae Divi Augusti* from the Monumentum Ancyranum, the Epidaurus collection at the University of Florida, and we are currently working on the Thessaly inscriptions housed at HISOMA, as well as certain Latin inscriptions from CIL. The conclusion that has been reached is that the 3D model enhances the readability of the ektypon, especially in case of weathered ektypa or inscriptions; the lettering techniques can be analyzed automatically and then quantified by scholars; linguistic annotation promotes transdisciplinary study as we are in a position to peruse letter variations and vocabulary changes throughout antiquity by cross-examining Greco-Roman inscriptions and medieval manuscripts.

CA6 PRESENTING THE PAST: A CASE STUDY OF INNOVATION OPPORTUNITIES FOR KNOWLEDGE DISSEMINATION TO THE GENERAL PUBLIC THROUGH PERVASIVE TECHNOLOGY

Christian Butterworth, Daniel Kershaw, James Devine, James Gallagher, Jack Croft

LANCASTER UNIVERSITY

Open access data has been a growing trend over recent years within the archaeological community with the growth of linked data stores and open access initiatives. However the tangible output of this work to the general public has received little attention. By utilising the general public's growing acceptance of pervasive technology, as well as the continued development of high powered, innovative mobile technology, this paper presents a case study of new innovative applications of open access archaeological data, which emerged from an intensive 24 hour hackathon. The work focuses on three technology-driven areas: Location aware engagement with data through gamification in a heritage site; Data mapping and route planning for exploring archeological data within a city-wide location; and Human Computer Interaction with this data through a virtual reality platform. Throughout this paper we will analyse how our solutions, a subset of possible solutions, could be used to benefit the

archaeological community as a whole and the impact that technology could have on archeology. In concluding this paper, we will identify the limitations of the current data formats, and varying forms of access from a development ease perspective, taking into account the views of an archeological data specialist. We will also explore the limitations of current technologies and speculate on what could be possible in the near future through developments in archaeological data access and available technologies.

CA7 PRESENTATION AND PROMOTION OF ARCHAEOLOGY

Gerit Schwenzer

UNIVERSITY OF VIENNA

Archaeology, as part of historical and cultural aspects in life, faces difficulties like many other sciences in being transmitted from the expert to the public. The diverse media that are available to provide information often show clichés. They are not able or willing to rectify what has been demonstrated over the last century, feeding a wrong picture of what archaeology actually is or what archaeologists are really doing. They show a very monotone picture of a job which offers such a variety of different working fields and so many possibilities in interdisciplinary science. Also, some political motivated media use it for or against their purposes and falsify its image or use. Even in museums which are sort of THE institution to gain correct information one sometimes gets the idea that it actually hinders rather than supports the impart of knowledge.

The paper critically discusses a few examples of these problems we face at least in Germany and Austria, but probably more or less everywhere else. A few suggestions to oppose the present situation will be presented, but everybody is invited in the discussion afterwards to bring up ideas how to change the difficulties we have to deal with when meeting the public!

CA2 THEN AND NOW: DISCOVERING SWITZERLANDS UNKNOWN PAST

Cynthia Dunning Thierstein

ARCHAEOCONCEPT

The Roman villa of Pully and the UNESCO World Heritage of Lavaux in the canton of Vaud – the Swiss border fortifications of the 1st WW in Umbrail - Val Müstair, canton Graubünden – the early modern baths of Weissenburg in Simmental, canton of Bern – a Neanderthal cave on the Rigi, canton of Luzern: these Swiss archaeological sites are certainly less impressive than those of ancient Greece, but not less interesting. Therefore ArchaeoConcept and the association ArchaeoToursim2012 decided to promote Swiss archaeology, landscapes and treasures through a unique and original sustainable tourism project.

The particularity of this project is the strong collaboration between archaeologists, palaeontologists and tourism professionals, as well as local historical associations.

The project is organised on two levels, a national and a local level, each with its own responsibilities. Twelve projects are developed on a local level, promoting regional cultural aspects linked to the touristic infrastructure. During one chosen month, one site in one region of Switzerland is put in the spotlight. The local promotion is taken over by the local tourism offices. Linking these twelve sites, coordinating the activities and national communication, through a website and a number of publications, is done on a national level. This should lead to the integration of archaeological sites in the regular touristic offer of these regions.

The project started in June 2015 and we would like to present the impressions and results of the first three months.

CA23 SUSTAINABLE TOURISM THROUGH STANDARDS OF GOOD PRACTICE

Cynthia Dunning Thierstein, Annemarie Willems

ARCHAEOCONCEPT

Tourism in relation with heritage and in particular with monuments and sites is a challenging exercise that requires much attention and intuition. There is no single way to manage tourism on an archaeological site, but defining standards of good practice may help to avoid worst case scenarios. Developing these standards is one of the main aims of ICAHM and should be done in collaboration with other ICOMOS scientific committees in particular the International Cultural Tourism Committee (ICTC), who has already developed the ICOMOS International Cultural Tourism Charter which was accepted in Mexico in 1999. Effective and sustainable archaeological tourism can be based on several principles. The ICOMOS International Cultural Tourism Charter defines principles applicable to the management of heritage and subsequently archaeological sites. The implementation of an archaeological tourism project demands sustainable management of the archaeological sites, including training; preservation and protection; quality and authenticity; relevant and enjoyable interpretation respectful for the place and the people; cooperation and exchange with community involvement. External factors influencing this management are politics, economy, social and cultural aspects. Archaeological tourism project managers should understand the decisions and consequences of their actions. It is important to start thinking about directives or at least codes of good practice for tourism projects. Communication and collaboration should stimulate the gathering of all partners who can establish effective sustainable management of archaeological tourism, responding to the demands of the tourism industry, archaeologists and visitors interested in archaeology.

CA4 A GENTLEMEN'S AGREEMENT? ON THE SUBJECT OF THOUGHT COLLECTIVES IN ARCHAEOLOGICAL PRACTICE AND CONTEMPORARY CONSTRUCTIONS OF PAST MASCULINITIES

Elin Engström

STOCKHOLM UNIVERSITY

The question of how informal networks of scientific practice affect knowledge production is unmistakably connected to gender politics. In this paper, I will use the concepts 'thought collective' and 'situated knowledge', provided by Ludwig Fleck and Donna Haraway, as analytical tools to highlight how these informal and gendered networks in contemporary archaeological practice interact with interpretations of gender in the past.

The point of departure is the Eketorp fortification, a cultural heritage site on the island Öland, Sweden. The Eketorp Research Project, launched in 1964, is one of the largest archaeological projects in Sweden, involving international participants and interdisciplinary collaborations, resulting in numerous research publications. Alongside the archaeological project the Swedish National Heritage Board launched a full scale archaeological reconstruction and museum on the site which also placed Eketorp in the centre of a large heritage debate. The site is still today one of the island's most popular tourist attractions.

By comparing the scientific publications with the archival material connected to the Eketorp research project, I will show how the dynamics of its participants, covering several heritage and scientific institutions over four decades, created and maintained interpretations of past masculinities. Furthermore, by paying closer attention to the materiality of the archive, I will explore how the network of this gendered thought collective manifested notions of contemporary masculinities, and thus sustaining power structures of the archaeological practice itself.

CA24 "YOUR(S) ARCHAEOLOGY – PORTRAYING YOUR PAST": A CALL FOR EUROPEAN CITIZENS AND NEW CITIZENS

Maria Pia Guermandi, Salvi Antonella

ISTITUTO BENI CULTURALI REGIONE EMILIA ROMAGNA

One of the NEARCH project action is a call to invite people to consider their relationship with archaeological heritage through photography, video or drawings aiming at illustrating people's sensations and interactions towards it. It was clear that we had to bring into question aspects often ambiguous and generally given for granted and related to audiences' perception of this discipline. What does actually mean European archaeological heritage? How can we measure the "negative" perception towards many archaeological situations? How can we encourage people to express also the critical point of view of archaeology and not only its oleographic images, like Indiana Jones archetypes?

The call is definitely worthless if run to celebrate the discipline. On the contrary, it can be a very effective and telling tool to investigate the perception of our past in everyday life and in so doing it can bring issues relevant to measure the sociocultural impact of archaeology: the first step to sustainability. The call is strictly related to the statistic surveys foreseen by the NEARCH project, but in a different way: the call for people's perception is a totally free and creative investigation unlike a statistic survey which is "closed" and pre-determined in variables. The data processing is thus completely different in order to have significant and telling outcomes often unexpressed by statistics.

The lecture will present the first call results and the analysis of answers in terms of quantity and gradient of variability trying to understand their relevance in relation to a sustainability analysis.

CA23 A METHODOLOGY BASED ON THE VISITOR'S PERCEPTION IN HERITAGE MANAGEMENT OF ARCHAEOLOGICAL REMAINS ABANDONED IN BIG CITIES'S PERIPHERAL TOWNS AS A FORM OF MAKE A SUSTAINABLE TOURISM WITHIN MOUNTAINS'S TRADITIONAL ROADS.

José-Antonio Mármol-Martínez¹, Miguel-Ángel Marín-López²

¹AUTONOMOUS UNIVERSITY OF MADRID, ²UNIVERSITY OF MURCIA

The mountain routes are very useful itineraries in order to teach and give value to the local heritage, especially when there are archaeological remains in natural environments which belong to the identity and the History of the different villages, particularly in big cities' peripheral towns, but they are not entirely rural sites. Through a study case, Beniajan town in Murcia, we have tried to create a methodology and carry out its practical application in order to create an appropriate strategy for the divulgation and communication of that archaeological Heritage's values. This method consist of the three main features: a qualitative research to know the perception of the hill walkers with the objective of laying out strategies adapted to the case study for the divulgation of their archaeological remains; to use of audiovisual tools for the creation of an objectives record documents which could enable better interpretations and the study of the image in the use of creative processes when it's time to divulgation actions; and the delimitation of a route according to the identification and research of the related archeological remains. The application of this methodology will be used to transmit and disclose this unknown Heritage, physically and on the website. This will be used to promote tourism toward the involved towns, the sustainable exploitation of the rural environment and from the archaeological point of view, the knowledge of how archeological remains affects to the identity of the towns, in order to the integration of Archaeology in the local environment.

CA3 HERITAGE SITE: VISUALISING AN UNREACHABLE HERITAGE

Nicky Bird, Stuart Jeffrey

GLASGOW SCHOOL OF ART

This paper centres on a major industrial heritage landmark in central Scotland known as the 'Five Sisters' on the edge of West Calder, a small town in West Lothian. Two hundred and forty metres high, the Five Sisters are spoil heaps (or 'bings'), products of the oil shale mining industry active in this area in the nineteenth century. Since the demise of this industry the site has been the subject of various Land Art, Geo-Science, and community-led town planning activities. Once considered eyesores, the Five Sisters have now completed their transformation from utilitarian industrial structures to being a nationally recognised heritage site by being given Scheduled Ancient Monument status in the 1990s.

This fascinating transformation is the context for *Heritage Site*, a new media art and archaeology project provoked by local community memory of a house that is buried deep within the Five Sisters bing. This living memory – belonging to the familial, domestic sphere - will soon become 'history' as a generation passes. In terms of intangible cultural heritage and social identity, as well as the practicalities of visualising an impossible to reach site, the project faces compelling challenges. Informed by these challenges, the paper addresses two pertinent questions: how can the practices of new media art and heritage visualisation come together to investigate this site of layered histories and shifting identity politics? How might the project work with fact and hard evidence as well as memory, imagination, and speculation?

CA6 BEYOND THE CASTLE: ENGAGING COMMUNITIES IN THE PAST, PRESENT AND FUTURE OF LANCASTER'S CASTLE HILL

Laura Conerney

DACA

This paper describes and evaluates the novel approaches to community engagement deployed to support the exploration and improvement of Lancaster's historic Castle Hill area including popup exhibitions, landscape management training, informal archaeology sessions, seeding of friends groups, formal lectures, data hackathons and historical walks. Since April 2014, the Beyond the Castle project has employed a wide range of innovative engagement approaches to involve citizens of Lancaster in the discovery and preservation of the Scheduled Ancient Monument site on Castle Hill. Led by the local authorities, the project has placed active community participation at the forefront, giving local people direct access to live and archival archaeological data, while simultaneously providing relevant heritage skills training to devolve some of the ongoing maintenance of the site to local people. This paper describes the engagement approach adopted for this project, outlining the challenges faced in the engagement design process, the successes enjoyed and the learning outcomes across the project team. Recommendations for best practice in this area are presented, including practical suggestions for sharing raw archaeological data with citizens, encouraging and guiding community interpretation of data, heritage skills training, and the deployment of digital technologies to engage citizens in both the past and future of important historical sites.

CA12 HOW TWO ARCHAIC ATHLETIC DEDICATIONS CREATE AN HISTORICAL NARRATIVE

Cameron Pearson

AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS

Different narratives of Alkmaionid exile have been constructed on the basis of archaeological and literary evidence. This paper argues that when we take into consideration Alkmeonides' two surviving athletic dedications (*IG I³* 597 and 1469), the manuscript reading of Herodotus 1.64.3 makes more sense. Davies (1971) doubts his own conclusion that if the manuscript of Herodotus, "can be trusted, Alkmeonides had succeeded his brother Megakles (II) as head of the family by 546..." (p.373). Yet, Alkmeonides' new prominent role would explain why we have two dedications by him, both dated by their letter forms: One from the Athenian Akropolis dated to 550 BC (*IG I³* 597) and the other from the Sanctuary of Apollo Ptoios in Boiotia (*IG I³* 1469) dated to 540 BC. These athletic and religious dedications are typical of elite behavior, both in exile and when trying to establish political authority (Kyle 1987).

Two recent articles have appropriated Davies' idea for retaining the mss. reading of Herodotus (Fortunato 2008 and Dillon 2014) but they leave out the significance of the narrative created by Alkmeonides' dedications and naturally focus on Herodotus. Work on the epigraphic side of the narrative focuses on the archon list (*IG I³* 1031a) which revealed that "[K]leisthen[es]" was archon in 525/4 (e.g. Alexander 1958-59; Thompson 1959-60; Eliot 1960; Dillon 2006). This paper furthers the scholarly debate about Alkmaionid exile by demonstrating how archaeological evidence, such as these two dedications, can be the basis of an historical narrative in their own right.

CA29 CONCEPTION OF PAST LIVES – DIORAMAS IN ARCHAEOLOGY

Ruth Beusing

ROMANO GERMANIC COMMISSION OF THE GERMAN ARCHAEOLOGICAL INSTITUTE

Didactic dioramas and life scenes are frequently used to spread out complex conceptions about life in past societies. They successfully form public opinion about the past as well as ideas about the world. In 1999 Stephanie Moser in her article 'The dilemma of didactic displays [...]' studied the genesis of dioramas, drawn on the example of displays of early man. She observed that those life scenarios displayed in archaeological exhibits strive for both, realistic complexion as well as scientific

authenticity, closely interlinked with the archaeological records they are derived from, moreover towards aesthetic concessions. As a result stereotypes in appearance as well as in behavioural aspects have been produced that partly still dominate the public perception of prehistoric cultures. In the last decades there have been made efforts to overcome those stereotypes especially in the representation of early man (e.g. by playing with disassociation in order to transport new interpretations). This contribution investigates the current landscape of archaeological museum dioramas. It denotes developments in modern archaeological dioramas based on observations in German museum but also in comparison to their usage in other countries. It explores the changes in agenda since Moser's diagnosis, but it also shows up the challenges inherent in the current way they depict topics and social settings and landscape surroundings. Further observations lead to the intrinsic ideological messages these dioramas currently transport towards public audience and aims to identify examples that visualise awareness and a more experimental and problem oriented approaches.

CA2 STAGING THE PAST: THE POSSIBLE MEETING GROUND BETWEEN ARCHAEOLOGY AND TOURISM IN CONTEMPORARY POLAND

Michał Pawleta

INSTITUTE OF PREHISTORY

The aim of this paper is to analyze the interconnectedness between archaeology and tourism. The main issue will be discussed on selected examples from present-day Poland, observed at archaeological festivals, living history presentations and in open-air museums. Taking as a starting point one of the nowadays widespread tendency in the presentation of the past to the public, namely the so called "theatralisation" of the past, it seeks to find the meeting ground between archaeology and tourism. Thus, I analyze specific elements that constitute such a way of presentation of the past to the public. They include among others such issues as direct sensual contact with the past, authenticity of experience, interactivity of spectators, aesthetization of the past, etc. I argue that theatralisation of the past is not about passively observing what is performed but mainly it is about an active participation in the staged events from the past. Thus, it fits perfectly in the "3xE" formula of new tourism. The aspects of "theatralisation" of the past are then discussed, with special consideration of the potential they have to offer for the creation of archaeological tourist products. The aim of the critical analysis is to identify not only their advantages and disadvantages but also the potential they can offer to the tourism industry.

CA13 ARCHAEOLOGY IN THE VIRTUAL: DAY OF ARCHAEOLOGY 2015 IN POLAND

Alicja Piślewska, Michał Pawleta

INSTITUTE OF PREHISTORY

Popularization and social comprehension of archaeology in Poland is now beginning to be a popular issue. A project of virtual event of Day of Archaeology, regarding additionally newest ways of communication via tools of web 2.0. area., is trying to answer this growing social interest in archaeology. Our paper presents a summary of project outcomes and evaluation of its organization. It discuss the preparation phase of this event which has preceded the culmination point held in June 2015, namely the Day of Archeology. Taking into account the need of examination of trends appearing in social way of comprehension and desired way of exposition of the past, we also carried an online survey in which we asked respondents if they have ever taken part in only virtual event. Furthermore we have also researched the background of popularization of archaeology in Poland in the past. We underline pros and cons of the whole process, and define our ideas in the light of gained experience for the next year edition of the virtual Day of Archaeology event. For now we are operating within international European project NEARCH, which assumes culmination point of the Day of Archeology undertaking in 2016, but our goal is to initiate Day of Archaeology as an annual event serving popularization of archaeology within widely ranged Polish society.

CA29 PURPLE ENGRAMS WANTED — DESTINY'S CRYPTARCH AND ISSUES OF UNETHICAL ARCHAEOLOGICAL BEHAVIOR IN VIDEOGAMING

L. Meghan Dennis

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In September of 2014, *Destiny*, a multi-console game developed by Bungie and distributed by Activision-Blizzard, sold more than \$500 million worth of copies in its first week alone. Internal numbers indicate that over 13 million people have played since launch. While these numbers are positive for the companies involved and for the industry's bottom line, the content of the game itself is ethically problematic from an archaeological standpoint. In *Destiny*, the 'Cryptarch', a non-player character presented as an accredited and official expert on antiquities, and who is tied into the game's monetary and item progression system, one of its core mechanics, is, at base, a consumer and reseller of artifacts lacking provenance. His presence, and his actions identifying and providing valuations of artifacts for resale, is symptomatic of a public misunderstanding of the role of archaeologists and the rights of individuals to own objects of cultural patrimony. Of secondary but not lesser concern is that through forcing interaction with the Cryptarch, to accrue funds and items necessary to progress in the game, *Destiny* puts the player in the position of behaving unethically themselves, functioning as a looter of antiquities, collecting items from buried contexts and the dead. Through an examination of the role of the Cryptarch in *Destiny*, we can better understand the popular, though mistaken, view of the work of archaeologists, and can consider steps towards correcting those misconceptions in both mass and new media.

CA28 DISSEMINATION THE MEMOLA PROJECT

María Teresa Bonet García¹, Lara Delgado Anés², José María Martín Civantos²

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The project "Mediterranean Mountainous Landscapes, an historical approach to cultural heritage based on traditional agrosystems" is coordinated by the University of Granada (Spain) y funded by 7th Framework Programme of the European Commission. (www.memolaproject.eu)

One of the main objectives of this project is the study of cultural landscapes from Late Antiquity until today using an interdisciplinary methodology. There are four study areas: Sierra Nevada in Spain, Colli Euganei, Monti di Trapani in Italy and Vjosa valley in Albania. The archaeological studies have a strong dissemination component based on open access to all the results to local rural communities and a permanent contact with stakeholders with which we're directly working. This strong relation between the project and the local communities will let us know from inside their current situations (problems and demands) to get another main objective which is define criteria for sustainable development policies.

CA17 MAN AND METAL DETECTING

Allison Fox

MANX NATIONAL HERITAGE

The Isle of Man lies at the geographical heart of the British Isles, in the middle of the Irish Sea. Although strongly influenced by its neighbours, Man has its own legislation with regard to portable antiquities. The national heritage agency, Manx National Heritage, oversees the implementation of these laws and works closely with the small local metal detecting community. Over the past six years, the number of artefacts reported by this community has increased, whilst the number discovered by research excavations has decreased. The metal detecting community has a wealth of knowledge about their finds and a willingness to help police the hobby. The strong relationship between this community and the heritage agency (which also runs the national museum service) is vital to the understanding and protection/preservation of the material culture of the Isle of Man.

This case study will explore how the relationship has developed (including sticky points along the way), what the heritage agency does and doesn't do with the information from these finds and how the metal detecting community have been instrumental in changing Manx portable antiquities legislation. It will include thoughts from this community and will reference the finds themselves, many so far unpublished.

CA11 FINDING AND SHARING CLIMATE STORIES WITH CULTURAL HERITAGE

Marcy Rockman

U.S. NATIONAL PARK SERVICE

In 2014, the U.S. National Park Service (NPS) released a policy memo titled "Climate Change and the Stewardship of Cultural Resources." One of the points of the memo is that "Every place has a climate story, many have more than one" and "each park and program should engage its staff, including facilities and maintenance staff, rangers, resource managers, scientists, and superintendent, and its surrounding communities to begin to identify and share their climate stories." To date, a framework of four types of climate stories for cultural heritage (including archaeological sites, cultural landscapes, historic/prehistoric buildings and structures, ethnographic resources, and museum collections) has been developed: how we see change in material culture, how change is being experienced by traditional and other communities, how past societies responded to past environmental change, and how the modern climate situation has come to be. This framework is being incorporated into the NPS National Climate Change Interpretive Plan, and merged with the And-But-Therefore narrative format developed by science communicator Randy Olson. This paper overviews current progress in developing and sharing climate stories across the NPS.

CA10 GROUNDING COMMUNICATION FOR MAXIMUM EFFECT

Cathleen Crain, Nathaniel Tashima

LTG ASSOCIATES, INC.

Anthropologists across the discipline are challenged to communicate both our processes and our findings with both professional and lay audiences. In part, the challenge is that we come to know too much and appreciate that in the nuances there is important information. This tends to lead us to wanting to fully "educate" our audiences by providing complete information rather than to communicate the most important and relevant ideas in the most accessible and appropriate fashion. Our challenge is to understand the needs of our audience for information and to shape messages useful and relevant to them. An important issue for anthropologists is in understanding the audience and in designing messages that account for its culture and concerns.

In this presentation we will talk about how to develop and communicate messages that are relevant, accessible, and that help to shape the audience's educated understanding of the topic at hand. We will discuss both the content and the form that will support the most effective presentation.

CA3 CRAFTING DIGITAL ENGAGEMENTS WITH THE ARCHAEOLOGICAL INTERPRETATION OF A SCOTTISH HILLFORT

Tessa Poller¹, Alice Watterson², Kieran Baxter³

¹UNIVERSITY OF GLASGOW, ²MONUMENTAL COLLECTIVE, ³DUNCAN OF JORDANSTONE COLLEGE OF ART AND DESIGN, UNIVERSITY OF DUNDEE

The archaeological record is being presented to a non-specialist audience with an increasingly sophisticated toolkit of digital visualisation technologies. This paper investigates how this data-rich material is received and explores ways of designing this engagement to be less didactic by better reflecting the uncertainty and subjectivity of the archaeological process and by acknowledging that the creation of the archaeological record is a craft.

A case study, derived from investigations of hillforts in the heart of Scotland (Strathearn Environs and Royal Forteviot (SERF) project), will design and deliver a pilot digital resource which will bring together creative practitioners to explore the possibilities of communicating dynamic archaeological processes and interpretations, from varied perspectives, to a wider audience. The potential for digital media to afford interactivity and accessibility that can more effectively represent the multi-layered, interpretive and ambiguous process of archaeological interpretation will be explored. A framework of research practice which directly engages with a practical application of theoretically-informed visualisation within archaeology will be used in order to understand and develop its role.

CA8 CREATING AMBASSADORS. CULTURE FOR CHILDREN-PROJECTS AND CROWDFUNDING: CASE STUDIES FROM SANDBY BORG, SWEDEN

Ludvig Pappmehl-Dufay, Ulrika Söderström

KALMAR COUNTY MUSEUM

At the Iron Age ring-fort of Sandby borg on Öland, Sweden, five amazing caches of top quality migration period jewellery were found in 2010. Subsequent investigations have revealed the remains of a violent massacre in the late 5th century, where the victims were left lying on the spot where they had fallen. The material culture at the site suggests a high status community with long distance contacts, in which women enjoyed a particularly high ranking. This paper presents some of the work conducted as part of the Sandby borg project with the aim of involving the public. The first case is a project supported by the national programme Culture for Children, hosted by the Swedish Arts Council. Here, children from a local school were invited to visit and take part in excavations. Subsequently, archaeologists visited them at the school, where various themes connected to the archaeology of Sandby borg were discussed and further work was inspired. The second case concerns a recent effort of using crowdfunding as a means of financing archaeological fieldwork. A successful Kickstarter campaign was run in December 2014, enabling the excavation of House 40 at Sandby borg, in 2015. The excavation was fully financed by donations from the public and the most generous backers were invited to take part in the fieldwork. The paper concludes with a discussion of the two case studies and how the public was involved in archaeological research.

CA8 THE KIVIK GRAVE, VIRTUAL BODIES IN RITUAL PROCESSION –TOWARDS NEW INTERACTIVE ARTISTIC EXPERIENCES FOR ACTORS AND INTERPRETERS OF THE PAST

Magali Ljungar-Chapelon

LUND UNIVERSITY

This presentation examines the design process and audience experiences of a full-scale interactive, visual and musical project, a so called Virtual Reality (VR) arts play inspired by cist-slab images from Sweden's most famous Bronze Age grave. The aim of the VR arts play was to engage the user as time-traveller and actor-spectator into a ritual and sensory experience. This play was part of the exhibition "Petroglyfics – Virtual Rock-Carvings Experiences" at Österlens Museum, the culture historical museum of Simrishamn, Southern Sweden (May 2013-December 2014). Museum visitors were invited to physically participate in a burial ceremony and become part of a ritual procession depicted on one of the stone slabs inside the tomb. With body gestures, visitors led a virtual figure interpreting a 3400-year-old ceremony that might have been performed by dancing mourners. Starting from the evaluation of this digital pilot project, conducted via a visitor study involving about 250 museum visitors, it will be discussed how artistic, archaeological and technological skills can be combined in order to explore new ways to engage audiences as interpreters of the past. One of the major results is that full body experiences that simultaneously stimulate several senses involve many visitors emotionally and have a strong impact by nurturing their interpretative process in relation to social, historical and cultural references. Through their horizon of knowledge, visitors take cultural heritage into their life, becoming both actors and interpreters of the past. See also: <http://projekt.ht.lu.se/digital-heritage/projects/petroglyfics-virtual-rock-arts-experiences/>

CA19 AUTHENTICITY AND REALISM: VIRTUAL VS REAL RECONSTRUCTIONS?

Lola Vico

THE CYPRUS INSTITUTE

The use of digital technologies in the field of architectural and archaeological heritage raises a huge number of issues unresolved, such as the concept of authenticity or virtual reconstruction boundaries. Simulation systems of virtual reality allow the visualization of 3D models able to define qualitatively and quantitatively the result of an architectural intervention. However, the improper use of these representation systems can lead to errors in interpretation and communication of Cultural Heritage.

Virtual reconstructions share many elements of the theoretical debate of architectural restoration. Moreover, as we are talking about of Architecture and Construction is logical that many of the criteria for the physical restoration may be applicable to virtual context. The debate about "virtual reconstructions" shares many topics with that one about "architectural restoration." Since Architecture and Construction are the base of both the subjects, the criteria for physical restoration can be also applied to the virtual context.

Although there are many common aspects between virtual and physical restoration, there are also some specific elements that make them different. For example, in the first case we deal with interventions operated on an image while in the other we work on a real object.

Some theories about authenticity, starting from classic concepts in architectural domain (e.g. Cesare Brandi, Umberto Eco, Riegl and Loos), will be reviewed. Furthermore, the principles applied to real restoration domain with Principles and specific Charters for virtual restorations will be compared and analyzed.

CA19 AUTHENTICITY OF 3D MODELS IN ARCHAEOLOGICAL FIELD DOCUMENTATION

Peter Jensen

AARHUS UNIVERSITY

Recent advances in archaeological field documentation show a considerable increase in the use of 3D. This calls for a revision of not only the general workflow of excavations, but re-evaluating the inherent dichotomy of interpretation and observation in archaeology.

For years archaeologists have been addressing the concept of authenticity as a matter of documentation quality - how open to interpretation are our observations? This paper presents research into the augmentation of the scientific quality of data through evaluating authenticity - both as a concept and as a tool in the archaeological documentation workflow. 3D documentation advocates for a new workflow with a more 3-dimensional reasoning, allowing for the utilisation of 3D as a tool for continuous progress-planning and evaluation of an excavation and its results. Just like the general use of models to form hypotheses, it is possible to use 3D models as spatial hypotheses of an ongoing excavation. This allows us to visually realise or spatially conceptualise our hypothesis as a virtual reconstruction and to combine it with our observational data. In combining 'reality data' with 'model data', evaluating the level of authenticity becomes paramount to the quality of excavation documentation, but also integrates as a level of measure, that allows for evaluating the excavation process.

The aim of this paper is to present an approach to integrating this new level of documentation detail into excavations through conceptualising levels of generalisation and authenticity, and in addition demonstrate practical approaches to managing 3D observation data alongside reconstructions and visualisations.

CA11 COMMUNITIES AND COASTAL HERITAGE AT RISK

Tom Dawson¹, Ellie Graham², Joanna Hambly²

¹UNIVERSITY OF ST ANDREWS, ²THE SCAPE TRUST

Coastal erosion presents one of the greatest natural threats to cultural heritage. Thousands of sites are already being damaged, and many believe that sea level rise and storminess, both linked with a changing climate, will exacerbate the problem. Scotland, with its vast, Atlantic-facing coastline, has long had to deal with the exposure and destruction of heritage sites. In response, a wealth of experience has been developed by heritage managers, who have initiated coastal surveys and practical projects over many years, rescuing information from around the entire coast.

The long history of engagement with the problem of erosion has led to a growing awareness of the crucial role that communities can play in the management of threatened sites. This led to the establishment of two national, award-winning projects; Shorewatch and the Scotland's Coastal Heritage at Risk Project (SHARP). Members of communities from around the entire coast have monitored and recorded vulnerable sites and have worked in collaboration with heritage professionals on a range of projects. Groups have nominated sites and worked on project designs, ensuring that their own interests and desires are reflected. Innovative approaches have been adopted and work has been conducted in full collaboration with the communities, thus ensuring greater understanding of both sites and the threat to them.

This paper will detail the vital role that communities can play in helping to save information from sites threatened by climate change, giving examples which will hopefully inspire action in other places around the world.

CA13 EXPLORATIONS OF NEW APPROACHES TO ONLINE PUBLIC OUTREACH ARCHAEOLOGY IN THE AGE OF PSEUDOSCIENCE

Alexis Jordan

UNIVERSITY OF WISCONSIN-MILWAUKEE

The growing number of diverse free online media platforms have to some extent, democratized the ability to share one's content with the wider world. The Internet has become a tool for the dissemination of both professional and alternative archaeological content. Consequently archaeology found on the Web ranges from professional to avocational, to blatant pseudoscientific appropriation and misrepresentation. The online prevalence and accessibility of misrepresentations of archaeology increase the probability that pseudoscientific content may serve as the public's most likely exposure to the

discipline. The long-term consequences of this trend are likely to involve the growth of negative perceptions regarding the validity and importance of archaeological research. As academic disciplines must increasingly justify their existence and relevancy to the wider world, such perceptions can have far reaching impacts. The question is no longer *should* archaeologists address this phenomenon, but *how*.

In an effort to address this phenomenon, I will explore proactive rather than reactive responses to the proliferation of online pseudoarchaeology through the generation of new approaches to online public outreach archaeology endeavors. These include: the centralization and promotion of online archaeology resources; archaeologists as public figures utilizing online social and news medias; and updating and expanding quantitative survey studies to obtain better insight into public perceptions and interests in archaeology. Only through improved communication efforts in web-based medias can we hope to communicate with larger portions of the population and better articulate the realities and significance of professional archaeology.

CA11 THE POCANTICO STATEMENT ON CLIMATE IMPACTS AND CULTURAL HERITAGE

Tom Dawson

UNIVERSITY OF ST ANDREWS

In February 2015, representatives of over twenty US and international organisations met to consider strategies for preserving and continuing cultural heritage in a changing climate. The meeting was organised by the Society for American Archaeology, the Union of Concerned Scientists, the National Trust for Historic Preservation and the J. M. Kaplan Fund. The group gathered at the Pocantico Center of the Rockefeller Brothers Fund - near New York, and at the end of three days of discussion, the participants put their names to the 'Pocantico Statement on Climate Impacts and Cultural Heritage'.

Key to the discussion was the recognition of the crucial role that communities have in preserving threatened heritage. The resulting Call to Action invited individuals, organisations and agencies to collaborate in a number of ways, calling on *'global individuals and institutions to collaborate with existing communities to maintain and preserve cultural heritage through a number of community empowerment projects. These projects will be models for how communities can successfully maintain their cultural heritage in the face of changing climate risks'*.

The first pledge of the statement notes that signatories will *"help empower and support local, descendant, and traditional communities to maintain and preserve what they value, including intangible heritage and subsistence lifeways"*

This paper will describe more fully the Pocantico statement, aiming to publicise the call for action and encouraging heritage professionals to promote community action at sites threatened by climate change.

CA2 TWO FAILED MEDIEVAL TOWNS: INSIGHTS INTO HERITAGE AND TOURISM IN IRELAND

Ian Doyle

THE HERITAGE COUNCIL OF IRELAND

This paper sets out two studies from Ireland involving archaeological tourism projects. Both cases are deserted medieval boroughs, at Newtown Jerpoint, Co Kilkenny, and Rindoon, Co Roscommon. Newtown Jerpoint was founded in the late twelfth century and failed as a settlement in the seventeenth century. Its remains include a ruined medieval parish church, house plots, streets and mill sites. It is one of the best documented medieval failed settlements in Ireland. Rindoon was founded in the early thirteenth century as a means to conquer Gaelic Irish territory west of the river Shannon. It failed due to conflict but today it consists of a length of medieval town wall, a royal castle, a harbour, a hospital and parish church as well as remains of several house sites.

These locations are highly scenic and with ongoing conservation works have grown to each cater for approximately 10,000 visitors per year. Initial steps saw conservation and management plans for both complexes, followed by conservation works and site interpretation activities. Interestingly, the role of heritage professionals has largely been in the planning, conservation and interpretation phases, the provision of a visitor experience and the promotion or marketing of each site has been driven by the local community. This raises interesting questions about how the heritage and tourism sectors could work better and learn together. Visitor feedback will also be examined. Prevailing tourism frameworks and their relationship to heritage will form a wider context.

CA23 EFFECTUATING SUSTAINABLE TOURISM: A MULTI-SITE, REGIONAL, INTEGRATIVE APPROACH FOR MOVING FROM THEORY TO PRACTICE

Elizabeth Bartley

UNIVERSITY OF CINCINNATI

Although UNESCO, the World Heritage Center, ICOMOS and other national and international organizations are calling for sustainable tourism as a means for promoting the protection and management of our cultural resources as a tool for sustainable development, putting this in practice is a complex challenge at any site, but especially within a multi-site cross-jurisdiction region.

The Ohio Hopewell Ceremonial Earthworks, 8 sites at 3 locations over 100 miles apart, as a serial nomination on the US tentative list, creates the opportunity to develop a multi-county strategy for integrative cooperative archaeological protection,

cultural resource management and local and regional development through heritage tourism. We are developing a framework for top-down and bottom up regionalism as a way of extending CRM outside of the sites themselves that requires cooperation and collaboration between local and regional planning authorities and governing bodies, the tourism industry, local communities' members, property owners and stakeholders, and the site managers and professional CRM firms. The goal is to extend the potential heritage tourism benefits to include the connectors between the sites as a means for social and economic development in locations which have seen years of disinvestment.

This paper will be presented as a case study, reporting on the progress we have made and the challenges we face, and on the strategy, framework and potential as a model for approaching the issues of sustainable responsible development of multiple archaeological and heritage sites across a region.

CA10 WORKING TOGETHER AND MAKING TOGETHER

Hirofumi Kato

CENTRE FOR AINU & INDIGENOUS STUDIES

Archaeology is great gear for creating the local identities and giving strong cultural influences to the local communities. In Hokkaido Island, archaeology has been crated archaeological and historical story on prehistoric inhabitants in this Island. This image has been influenced for the stereotype image for Ainu people. And the term of "Ainu archaeology" is not meaning Archaeology for the Ainu. This concept is more described the characteristics of this concept: Archaeology on Ainu for scholars.

In this moment, Ainu people want to get more really status as Indigenous peoples in Japan. And they started to mention for their own history and the seeking to get a chance to participate to the research world. We have to responsibility to answer for their questions. Also we have to crate a chance participating to the research field for them. In this presentation, I would like to talk on our challenge on community-based archaeologies and its reaction from the community sides.

CA23 HARNESSING SUPPORT FROM LOCAL RESIDENTS, VISITORS AND NON-VISITORS FOR HERCULANEUM'S CONSERVATION

Sarah Court¹, Anna Paterlini¹, Francesca Del Duca², Michela Del Tin²

¹HERCULANEUM CONSERVATION PROJECT, ²

An audience development project is underway at the ancient Roman town of Herculaneum, sister site to Pompeii, aimed at overcoming a lack of information on current and potential interest groups. The first year of results, focusing on the archaeological site, already highlight how tourism initiatives need to build a more dynamic relationship between the heritage and its wider context, involving a broader range of actors from outside the heritage sector. Only in this way will forms of sustainable development and sustainable tourism be secured which can also benefit the heritage itself.

The Herculaneum Conservation Project – a public-private partnership – has tackled grave conservation conditions across the site for over a decade and is now seeking to establish maintenance regimes that will help safeguard Herculaneum's future. In this context, the audience development team has begun to look at how local community members, visitors and non-visitors and other interest groups might be better involved in conservation efforts in order to open up the management system to the benefits that other stakeholders can bring – and to ensure that these stakeholders also obtain benefits from their heritage. This is of particular importance in this area of southern Italy which suffers extreme demographics and forms of socio-economic and cultural exclusion. This paper frames how new data being collected is shaping future thinking about management approaches and its relationship to its setting and all those who have an interest in this heritage place.

CA8 HARNESSING THE CROWD FOR BRONZE AGE RESEARCH AT THE BRITISH MUSEUM & BEYOND.

Jennifer Wexler, Neil Wilkin

BRITISH MUSEUM

This paper will look at some of the experiences and results of the AHRC-funded collaborative MicroPasts Project. A key element of the project is a crowd-sourcing platform designed to engage members of the public in assisting with archaeological research, in particular the Bronze Age archives in the British Museum. The main crowd-sourcing focuses on the transcription of the British Museum's National Bronze Age Implement Index; as well as on the creation of 3D models of Bronze Age artefacts, giving us new ways to utilise these important resources. The Index was intended to form the principal instrument of research in the British Bronze Age, and attempted to draw together information and illustrations of all Bronze Age metal objects found in museums and collections across the UK. Since April 2014, 30 applications have been completed with just over 70% of the entire archive (30,000 records) now transcribed and geo-referenced. Additionally, crowd-sourced photo-masking apps have produced over 50 3D models of Bronze Age metal tools, allowing people to access museum objects in ways never before possible. This paper will look at some of our experiences of engaging a wider public in an element of prehistoric archaeology (usually reserved for metalwork specialists) in order to make a valuable research resource publically available, as well as examine how this is informing new curatorial practices.

For more details: <http://crowdsourced.micropasts.org>.

Jennifer Wexler, Neil Wilkin, Daniel Pett (British Museum).

CA6 TOWARDS A COMMON GROUND: DIGITAL DATA AND COMMUNITY ENGAGEMENT IN TURKEY

B. Nilgün Öz

MIDDLE EAST TECHNICAL UNIVERSITY

Approximately 200 excavations and 100 surveys take place in Turkey every year. The archaeological teams and the Ministry of Culture and Tourism both share information digitally. The proceedings of the Annual Excavation Results Meeting, held continuously since 1979, are readily available, as are the lists of all the archaeological excavations and field surveys permitted since 2006, grouped annually.

For projects, websites are becoming more common in disseminating information to the public. The teams use them to share newsletters, scientific excavation reports, sometimes databases, photos, updates about projects, etc. Some use blogs to keep followers/visitors up-to-date during excavation seasons. However, interactivity or engagement does not appear to be a key priority. And, surprisingly, some of the longer-running projects have neither websites, nor any digital means of communication or information-sharing. Where these do exist, as in the case of some foreign-run archaeological excavations, it may be that the information is not bilingual – i.e. there is no Turkish version.

But are these means and levels of communication sufficient to generate interest in these archaeological sites? Is simply 'publishing information on websites' enough for hands-on communicative archaeology? Should there be other, digital means through which local people can use the data being generated? How can the requirement for 'public outreach' be made real and more than simply an exercise in ticking boxes?

CA19 THE USE OF VIRTUAL REPLICAS FOR MATERIAL SPECIALISTS: TIME, COST AND PRACTICALITY

Donald Horne

CAMBRIDGE ARCHAEOLOGICAL UNIT

This paper will discuss the use of 3-dimensional visualisation techniques, primarily RTI, (reflective transformative imaging) in relation to the recording and dissemination of a range of British Flint artefacts from the East of England uncovered through commercial and community excavations.

The virtual 3-dimensional record in archaeology is too often used to record only the finest examples of artefacts: the best preservation, the best excavated and the most aesthetically exciting items. This being the case, it can be seen as a fair criticism that although these techniques provide visually stunning results that can capture the imagination, all they do is that. They do not add anything to the day-to-day recording methodology of materials, with traditional illustration providing diagrammatic representations with the pertinent information set out in a pre-understood lexicon. Currently 3-dimensional recording seems a great distance in actually analysing the bulk of material uncovered through excavation, the process and patterning that archaeology is seeking to understand. Although the usefulness of these techniques is growing rapidly with regards to public dissemination and artefact curation, it still does not occur at the stage of primary analysis between archaeologists.

This examination is hoping to gauge the 'usefulness' and cost effectiveness of 3-dimensional visualisation for the material specialist: How far can these facsimiles be used in analysis before the real thing is needed? Do interactive models provide greater nuances than is captured by traditional drawing or photography? Is the time and effort worth it? Does a virtual catalogue help as a reference collection/teaching aid?

CA2 MARKETING THE PAST TO SHAPE THE FUTURE

Richard Strachan, Gillian MacDonald

HISTORIC SCOTLAND

Historic Scotland is the nation's largest operator of paid visitor attractions and welcomes visitors from around the world to more than 300 historic sites in our care. Both irreplaceable and precious, each property is a wonderful reflection of Scotland's intriguing history, one that takes you over 5000 years. Crucially, our conservation role is supported by the income raised through ticket admissions and purchases at our shops. This paper presents an overview of our audience demographics and customer insights, marketing strategies, and the challenges and opportunities of digital media within the archaeological tourism market.

CA11 CHALLENGED BY AN ARCHAEOLOGICALLY EDUCATED PUBLIC IN WALES

Claudine Gerrard

NATIONAL TRUST

Climate change is not a new concept to archaeologists. In Wales extensive work has been carried out to assess the threat to archaeology posed by climate change both on the coast and inland, the pan-Wales coastal archaeological surveys carried out by the Welsh Archaeological Trusts and the work carried out by the Severn Estuary Levels Research Committee are two examples of such work. A need to respond to this threat has been identified for some time, and a collaborative approach sought. The success of the Archwilio (Wales' Historic Environment Record online) and the Arfordir community focussed coastal archaeology recording programme has created a public who are increasingly aware of the archaeology on their coastline and more widely. The expectations raised by Arfordir (and Archwilio) has engendered increased pressure from the public to see a

quick response to a disappearing archaeology on our coastline and levels. The lack of an agreed pan-Wales mechanism to deal with these issues, being raised by an increasingly aware public, is a challenge facing Wales. Failure to meet expectations proposes a serious risk of alienating a currently supportive public as well as resulting in the loss of irreplaceable heritage.

Problems of who and how should work at sites threatened by natural processes are leading in some quarters to inertia and in others and unrealistic pressure on large landowners such as the National Trust. Hopefully we can begin to address these issues...though time and tide wait for none of us.

CA17 THE NEXT STEP: THE AIMS AND DEVELOPMENT OF A FINDS RECORDING SCHEME IN FLANDERS

Clémence Marchal, Pieterjan Deckers, Dries Tys

VRIJE UNIVERSITEIT BRUSSEL

Although prohibited since 1993, archaeological metal detecting is a commonly practiced hobby in Flanders. In recent years, the archaeological profession has increasingly come to see the potential benefits of a pragmatic approach to this phenomenon for research and even site management purposes. In response, new legislation is expected to come into force this year that provides in a licensing system for detectorists, effectively lifting the ban.

Against this backdrop of changing legislation and attitudes, in October 2014 the MEDEA project was launched at the Vrije Universiteit Brussel with the support of numerous actors in archaeological research and management. Inspired in no small measure by the success of the Portable Antiquities Scheme, the project's aim is to develop an online platform for the voluntary recording of metal-detected finds. This platform will combine the data and expertise of detector users, archaeological researchers and other finds experts, resulting in an extensive database of finds accessible to researchers as well as the wider public. Improved relationships between archaeologists and detector users on the whole will be crucial in not only encouraging correct finds report but also in promoting good practice in the field.

This paper will discuss the current problems and opportunities posed by metal detecting in Flanders, which MEDEA seeks to address. Furthermore, it provides an overview of the goals and current development of the project. Specifically, it discusses its 'user-centered design' philosophy to involve of all stakeholders in development from the very start, and the challenges that this approach brings with it

CA3 TIES THAT BIND - GOVAN UNVEILED

Ingrid Shearer

NORTHLIGHT HERITAGE

In 2012, the north and south banks of the River Clyde were united in a groundbreaking public art event Nothing About Us Without Us Is For Us. It was this event which provided the catalyst for Weaving Truth With Trust, an exploration of the rich textile heritage of Govan through the creation of a woven lace screen for Govan Old Church. The church is home to the 'Govan Stones', a collection of medieval sculpture carved in a unique style which flourished at a time when Govan was the centre of the Kingdom of Strathclyde over 1200 years ago.

The project drew inspiration from Govan's rich history of textile manufacturing - from handloom weaving to silk mills - a narrative that had been largely forgotten and eclipsed by later heavy industries, in particular shipbuilding. Two principal themes emerged during the project - a desire to highlight and celebrate the multicultural influences evident in the Govan Stones, and the lineage of craftsmanship and artistry which extends from the medieval stone carvers, through the early textile workers, to modern day organisations such as Galgael Trust.

This paper will explore the origins and inspiration for the screen, the practice of holistic collaboration, and the journey to create a lightfoot installation celebrating the innovation, creativity and industry of the people of Govan, past and present.

CA19 3D DIGITAL INVASORS: A SOCIAL-DIDACTIC EXPERIMENT OF CULTURAL VALUES CO-CREATION

Cettina Santagati¹, Elisa Bonacini², Mariateresa Galizia¹, Laura Inzerillo³, Marianna Marcucci⁴, Fabrizio Todisco⁴

¹UNIVERSITY OF CATANIA, ²IEMEST, ³UNIVERSITY OF PALERMO, ⁴#INVASIONIDIGITALI

#Invasionidigitali is an Italian bottom-up project dealing with a collective participation aimed at the creation and sharing of cultural contents in order to enhance and promote Italian cultural heritage, through use of web and social media. This year within the third edition, we propose an innovative educational experiment by involving students from Engineering courses of University of Catania and Palermo. The students will be able to create 3D digital replicas of several archaeological works by using image-based techniques. These 3D models will be given to the involved public administrations that, according to open access paradigm, will share them on web sites and social media. The creation of a virtual replica becomes a moment of study, deepening, growth and interaction with cultural heritage: each 3D model becomes a bridge between the original artwork and its knowledge. Therefore, we will have a huge number of students, with different cultural backgrounds, that will capture 3D models of high-cultural value archaeological objects. This unique experiment carried out on such a sample will give us the opportunity to study and deepen the delicate and complex relation between reality and its virtual reproduction, focusing the

attention on topics such as: value of 3D digital and physical replicas of ancient material culture; authentic representations of our cultural heritage or just virtual and physical 'fakes'.

CA9 POWER TO THE PEOPLE! PROMOTING COMMUNITY ARCHAEOLOGY SCHEMES IN CROATIA

Sanjin Mihelić, Jacqueline Balen

ARCHAEOLOGICAL MUSEUM IN ZAGREB

Arguably, reasons for the pervasive inertia of heritage institutions when it comes to empowering the uninitiated in enhancing their role in heritage action of any variety are many and varied. Still, most of all it is due to the fact that the transfer of know-how, same as other necessary steps in this process, does not only demand considerable investments of resources, but at the same time actively promotes a type of devolution that in the opinion of some might eventually strip them of their own power base. One way to combat one's self-preservation instincts of this type is to remind oneself of the inherent responsibility to the community all heritage institutions share. Another one is to espouse a strategy that would ultimately benefit all – heritage, community and the professionals alike. The Archaeological Museum in Zagreb has recently introduced a community empowerment strategy along the described lines, implemented through projects entitled "Archaeological Encounters", "Current Archaeological Investigations in Croatia" and "Croatian Heritage in the Archaeological Museum in Zagreb", all aimed at raising the level of knowledge about and awareness of the value of heritage, but most of all, at broadening the base of those actively involved in heritage action. The objective of this contribution is to discuss the described and related issues and share experiences with professionals from around Europe.

CA19 BRINGING LIFE BACK – 3D TOOLS AND DATA-RECYCLING FOR ON-SITE INTERPRETATION IN A MEDIEVAL CONTEXT

Maria Dorigana De Padova

SAPIENZA UNIVERSITÀ DI ROMA

Digital archaeology is seen nowadays as an effective method to interpret "on site" archaeological data. "Reconstructions" are no longer needed, as excavation data are brought back to their original 3D shape for new "real-time" interpretations. Computer Vision tools are among the best tools to bring houses, burial contexts, everyday objects back to life, after an -obviously destructive- excavation. Given different interpretations made by different people working on-field, traditional techniques are less effective and are integrated with advanced technological tools, creating opportunities to visualize and interpret ancient contexts and possibilities to evaluate even small details. The potential of Computer Vision and MeshLab is used to evaluate and analyse, in a noninvasive way, medieval artefacts. Their function can be assessed, small features inspected and accurate measurements taken on their real shapes. This permits comparison with similar objects found in the same context, providing a new way of "re-interpreting" the excavation, thanks to a quick, affordable and effective acquisition of similar objects excavated in different past campaigns, sometimes during several decades. Acquiring graves in "real-time", georeferencing them, connecting them with furnishings found in houses and workshops, helps reconstructing a perfect timeline and finally finding a connection between dead bodies and spaces belonging to living people. Even old pictures, used carefully and processed with Computer Vision tools, can contribute to bring ancient objects, buildings and environments back to life. An experiment, led in an Italian excavation site, allowed to visualize, as a live image, a medieval oven, collapsed a few years earlier.

CA26 DIGGING DEEPER - FOR LONG LINES AND BIG ISSUES

Carsten Paludan-Müller

NIKU, NORWEGIAN INSTITUTE FOR CULTURAL HERITAGE RESEARCH

During the last five decades, the practice of archaeology has increasingly become dominated by developer led investigations. Basically archaeology has to a large degree become determined by the interaction of the legal framework with sources of funding rather than by the interaction of research questions with sources of funding. The result in the short run is not less money invested in archaeology but rather a poorer return of archaeological insights from those investments.

With the financial-legal logics in the drivers seat we have seen a fractured archaeology focused on single site-specific issues more than on big questions and long lines that used to occupy the discipline.

The substitution of a strategic-research-funding rationale by a tactical-judicial-funding rationale in the guiding of our practice has brought our discipline into a vulnerable position where it loses relevance in contemporary society in ways that threaten to delegitimize much of our practice.

In order to remain a viable historic discipline archaeology needs to reconnect to what occupies people living in today's world. We as archaeologists must address big issues and identify long lines when we shape the questions that guide our research strategies.

Archaeology has a privileged position from which it can illuminate us with insights into crucial issues such as the logics of urban development across time and space, cultural hybridity and connectedness, conflict and change, state and non-state interactions, climate and culture, and epochal transitions. These are highly relevant issues in today's world.

CA29 MAKING VIRTUAL HISTORY FROM RESCUE ARCHAEOLOGY

Alan Miller, Sara Kennedy, Iain Oliver

UNIVERSITY OF ST ANDREWS

The Virtual History project has aimed to create 3D digital models of archaeological sites threatened with coastal erosion. It has been a collaboration between: the University of St Andrews, Scottish Coastal Archaeology and the Problem of Erosion, Taigh Chearsabhagh Museum and Art Centre, the Eyemouth Museum, Timespan Museum and Art Centre and the Shetland Museum and Archives.

This paper will set out the goals of the project, the technological challenges these presented and the lessons learnt. Creation of the 3D exhibits has been a collaborative process involving many actors. The exhibits themselves have been well received, prompting significant increases in visitor numbers and receiving positive reviews. They have also enabled outreach with community workshops and sessions in local schools.

Each of the exhibits have their own character, influenced by the subject, the evidence available, and the space the exhibit occupies. The Fethaland Fishing station exhibit is located in a gallery with relevant artefacts and boats. The Brora Salt Pans are located in a "story telling room" with three synchronised screens, the Eyemouth Fort is in a purpose built booth, complemented by artefacts and interpretation and the St Kilda model was exhibited in its own Gallery. The 3D models themselves contain contextual audio, and interpretive material. Interactive pop ups of audio, video, images and text which enable the user to explore both the physicality of the past and what the lives of people who lived there would have been like.

CA26 A BETTER FUTURE TO THE PAST: LARGE SCALE DEVELOPMENT PROJECTS AND THE MANAGEMENT OF ARCHAEOLOGICAL HERITAGE IN ROMANIA

Corina Bors

MUZEUL NATIONAL DE ISTORIE A ROMANIEI

About 25 years ago a new reality emerged in Romania: the large-scale rescue/preventive archaeological excavations occasioned by the construction of industrial and infrastructure development projects. The National History Museum of Romania (MNIR) was involved since the very beginning in coordinating such archaeological projects set in given circumstances and took part in all the major preventive archaeological projects related to infrastructure and industrial developments undertaken up to now in Romania. The paper will provide an overview on the most important components in regard to the archaeological heritage management in the framework of such projects, analyzing the role of the research in this perspective. On the same time the paper will refer to the current policies of archaeological heritage management in Romania, the correlation of national legislation with the European one in regard to this topic. Last, but not least there will be pointed out the necessary improvements still required for implementing a better strategy and policies for the archaeological heritage management in Romania, considering the European standards and guidelines in practice nowadays.

CA12 SHIP CONSTRUCTION AND SOCIAL UPEHAVAL: HOW CHANGING NAVAL ARCHITECTURE HELPS TO EXPLAIN THE TRANSFORMATION OF ARCHAIC GREEK SOCIETY IN THE 6TH C. BCE

Paul Salay

UNIVERSITY OF SOUTHERN CALIFORNIA

Until recently, it was believed that Homeric descriptions (*Il.* 2.134-135, *Od.* 5.243-261) of archaic Greek ship construction were deliberate archaisms, reflective of a much earlier technology (Casson 1963, 1964). However, continued research in underwater archaeology, especially the recently discovered Cala Sant Vicenç (Nieto & Santos 2008) and Pabuç Burnu (Greene, Lawall & Polzer 2008) shipwrecks have indicated a paradigm shift in Greek naval architecture during the 6th c. BCE (Kahanov & Pomey 2004). Nevertheless, the material evidence says little about the underlying motives for transformation.

Meanwhile, in the collection of poetry attributed to Theognis of Megara, which has been dated from roughly the mid-7th c. to the early 5th c. BCE (Nagy 1982, 1985), one of the most consistent themes is outrage over shifting distribution of wealth in Megarian society, leading to traditional elites (*agathoi*) being supplanted by low-born men (*kakoi*). Unfortunately, the corpus is silent as to both why this has taken place, and the means by which it has done so.

When the archaeological and literary evidence are juxtaposed, they work in tandem. In short, the social upheaval reflected in the *Theognidea* is a product of increasing long-distance commercial activity bringing wealth to previously marginalized groups. At the same time, the technological development of Greek shipbuilding at this time appears driven by the need to transport larger cargoes across greater distances. Thus, by combining historical and archaeological inquiry, we achieve a fuller understanding of the role of maritime commerce in the transformation of archaic Greek society.

CA14 SAGNLANDET LEJRE - THE LAND OF LEGENDS (DENMARK): 50 YEARS OF "PAST FAMILY BUSINESS" BETWEEN EXPERIMENTAL ARCHAEOLOGY AND LIVING HISTORY.

Laurent Mazet

SAGNLANDET LEJRE - THE LAND OF LEGENDS (DENMARK)

Short after the foundation of the Centre for Historical-Archaeological Research and Communication at Lejre in 1964, it became clear that the first reconstructed tools and Iron Age houses, ought to host some human actors of their own "confrontation with the past" (on record). Then the pioneering Past Family concept was born in Lejre.

Since then, the humanising of the initial experimental archaeological processes and goals has evolved into nowadays' attraction for visitors interested in almost meeting "survivors" of past living conditions. In other words, the museum's successive managers and presenter staffs have been facing many challenges (and compromises) along these five decades, from hosting communitarian scientific actors to servicing volunteer re-enactors ... of their self-realizing family projects for summer holidays.

Archaeologist Laurent Mazet, current manager for the Prehistoric areas, will summarize and give some illustrative examples of concept developments, communication issues and cognitive challenges, scientific benefits and tradeoffs. He will also conclude on good perspectives of involving ordinary families from present time, as rather reliable and definitely interactive companions in the visitor's time travel.

CA11 THE MEN AND WOMEN BEHIND THE MASC PROJECT (MONITORING THE ARCHAEOLOGY OF SLIGO'S COASTLINE): ENGAGING LOCAL STAKEHOLDER GROUPS TO MONITOR VULNERABLE COASTAL ARCHAEOLOGY IN IRELAND

James Bonsall, Sam Moore

INSTITUTE OF TECHNOLOGY SLIGO

Recent winter storms had a considerable impact on vulnerable archaeological sites in Ireland. Stone forts fell into the sea. Castles crumbled to the ground. Shipwrecks, middens, timber trackways and ancient drowned forests were revealed for the first time in centuries. Heritage venues were flooded and a large number of archaeological sites were lost entirely.

Ireland is coming to terms with the almost annual frequency of severe storm events. The National Monuments Service - responding to notifications from members of the public - sends teams of experts to further investigate storm-related discoveries. Irish legislation requires intrusive fieldwork to be carried out only by archaeologists working under a pre-approved licence, which limits the contribution of citizen scientists to discovery and non-destructive recording. Despite the need for a coherent coastal monitoring strategy, *funding* citizen science schemes - even for basic tuition in recording methods - is still a challenge. Archaeological and environmental staff and students at the Institute of Technology Sligo - acting as local coastal rangers - have discovered previously unrecorded burnt mounds of stone, middens, peat shelves and trackways on eroding beaches in Co. Sligo during the winter of 2014-15.

Our coastal rangers are engaging with local stakeholders that already have a significant presence at vulnerable erosion sites; Scouting, anti-litter and bird watching groups. Tuition in archaeological recording techniques, including high-resolution photography for later use in photogrammetry, will initiate 'Monitoring the Archaeology of Sligo's Coastline' (MASC), a pilot study for rangers to act as 'first responders' capable of making an informed decision to notify relevant government departments.

CA19 CONFLICTING CONCEPTIONS OF AUTHENTICITY: CONTEMPORARY VISIONS VS. ANCIENT MAYA PERSPECTIVES AND EXPERIENCES

Stephanie Miller

UNIVERSITY OF CALIFORNIA, RIVERSIDE

Three-dimensional digital rendering provides a unique opportunity to explore the multi-varied perspectives and experiences of people in ancient Maya society across space and time. However, at present, three-dimensional digital reconstructions of Maya archaeological sites favor a style of representation that is arguably more akin to a contemporary conception of authenticity rather than one that highlights a view of the past through an emic lens. Dominating the current visual repertoire are glorified versions of ancient Maya cities at the height of their activity. These pristine and finished visual products have become the preferred model of the "authentic". This contemporary conception of authenticity portrayed in digital reconstructions of Maya sites informs us that either archaeology continues to flirt with the Pompeii Premise of an idealized preserved past or popular culture's expectation for grandeur in visualization has trumped archaeology's cultural and historical sensitivities. Such visual conventions warrant attention, particularly in light of the knowledge that Maya cities went through numerous transformations over time. There seems to be an underlying bias in these digital reconstructions against the unspectacular, the ruined, and the fragmented, thereby not only obscuring moments of transition in the life history of place, but also, in doing so, rendering these interstitial spaces and ostensibly mundane architectural forms as deprived of "authenticity". This paper evaluates current three-dimensional digital reconstructions of Maya archaeological sites and suggests ways to better harness this technology to create more authentic models of representing the multi-varied perspectives and experiences of the ancient Maya that once inhabited these places.

CA14 MAKING THE COSTUMES

Ida Demant

SAGNLANDET LEJRE

There is no doubt that clothing and costumes, as copies of ancient textiles, are an important part in performing living history. Indirectly it participates in conveying a message of life in the past as part of a larger whole. When used this way it is important that the overall impression is as authentic as possible – and thus the question arise: how authentically do you have to work, when making the costume in order for the costume to be authentic?

This question is not only important in the context of reenactment, but also where costume is used in other presentation, such as museum exhibitions or even education of school children. Further in relation to textile research this question can be relevant. At Sagnlandet Lejre, this issue has been addressed and a key developed to set a standard for how to make reconstructions depending on the purpose of the costume. This key is not to be understood as a rigid set of rules or a quality stamp, but as a tool for deciding how costumes can be made for a particular context or purpose. With the recent years of renewed focus on textile research it has proved to be useful, when discussing possible attempts of reconstruction in order to explore ideas of textiles and textile-production. In the present paper, this key will be presented with special emphasis on the issue of reenactment and performing of living history and the experiences gained with this way of working at Sagnlandet Lejre.

CA3 A PERCENTAGE FOR ART? INTEGRATING ARTISTIC PRACTICE AND ARCHAEOLOGICAL SURVEY

James Moore¹, Rik Hammond²

¹ARCHAEOLOGY INSTITUTE, UNIVERSITY OF THE HIGHLANDS & ISLANDS, ²INDEPENDENT ARTIST

Both artists and archaeologists are fundamentally concerned with exploring what it means to be human, and as such it is unsurprising that there are a growing number of art and archaeology collaborations. Alongside this is wide-ranging discussion of how such collaboration can inform archaeological interpretation and what practitioners can learn from each other. These new directions of inter-disciplinary practice offer the potential for both artistic interpretation of archaeological material, and also more challenging and engaging ways for archaeologists to disseminate their data and interpretations. This paper documents the first phase of a project designed to explore the ways in which the later prehistoric landscape of Orkney can be interpreted and represented using a range of methods and media – from the traditional to the experimental. We intend to employ a variety of equipment and techniques - GPS, GIS, gradiometer survey, digital video, digital (and traditional) drawing and recording, audio, light projection and mapping. Through this we aim to develop new and interesting ways to interpret the area and its human history, in addition to providing members of the project team with new skills and tactics to think about the landscape. Rather than the artistic practice being an element tacked onto a traditional archaeological project, the two are both integral parts of a larger whole. This ethos will pervade all elements of the project, from planning and funding through to fieldwork and dissemination, and is offered up as an example of a pragmatic approach to linking artistic and archaeological practice and practitioners.

CA23 PROFITABILITY VS. SUSTAINABILITY: CHALLENGING ISSUES IN ARCHAEOLOGICAL TOURISM IN CHINA

Qian Gao

UNIVERSITY OF BARCELONA

Worldwide archaeological tourism, or tourism to sites with archaeological values, has been rapidly growing and has attracted increased academic attention in recent years. China has not been an exception in this field. In fact, its government has been actively promoting tourism and archaeological tourism for the last three decades. The understanding of the challenges that Chinese archaeological tourism is currently facing is the focus of this article. This paper intends to analyze the challenging issues that archaeological tourism is facing in China, using the Daming Palace National Heritage Park as a case study. During the last decade, Chinese central government has attached great significance to the promotion and development of "Great Sites." The so-called "Great Sites" refer to ancient cultural remains with large scales, rich contents, and prominent values. One dominant method employed for site conservation is to convert Great Sites into archaeological heritage parks. The Daming Palace National Heritage Park is emblematic in this case. Located in the suburb of Xi'an City, this large archaeological site used to be an area of chaos and poverty. The reconstruction project, which took place from 2008 to 2010, has transformed it into a multifunctional heritage park, with over 100,000 residents relocated. This paper aims to discuss issues related to sustainable development in the Daming Palace archaeological site after its transformation from neglected archaeological remains to a tourism destination, and its impact on local communities.

CA23 THE CURSE OF ARCHAEOLOGY: BOTTOMLESS PIT OF MONEY?

Edoardo Bedin

UNIVERSITÀ DI PADOVA

Archaeological projects have been for many years now seen as enterprises run by both private and public funding. In many European countries it is a commonly accepted notion that heritage automatically means the money loss, where the need for additional funding is a constant "curse" for many scholars and fieldwork archaeologist. In particular cases, i.e. Pompeii in Italy, not enough funding is available to run even basic maintenance work of the site. In other places, there are signs of both positive and negative managing of the national heritage (e.g. The Roman Bath manages to gain profits each year while Fenland Charitable Trust has announced bankruptcy).

The purpose of this paper, in its first part, is to present the “status quaestionis” on Heritage Tourism Management and its sustainability, outlining similarities and differences between archaeological sites in some regions of England (e.g. Silchester and Vindolanda) and analogous sites in Italy, proving the latter to have a highly ineffective management structures.

The aim of this paper, in its second part, is to propose means of “curing” the Italian Heritage Tourism, starting from the archaeological research, which saves and protects ancient remains, and ending with the creation of national tourism programme, triggering interest in new discoveries as well as already established archaeological sites/open-air museums.

CA4 A PICTURE IS WORTH A THOUSAND WORDS – COMMUNICATING ARCHAEOLOGICAL ARTIFACTS IN DRAWINGS AND LETTERS IN THE 19TH CENTURY

Marina Unger

GERMAN ARCHAEOLOGICAL INSTITUTE, ROME

In the first decades of the 19th century, one place to discuss archaeological matters in Rome were aristocratic and diplomatic salons. The Prussian Ambassadors in Rome e.g. – starting with Wilhelm von Humboldt and continued by his successors – had a distinctive interest in Roman Antiquity and it is in this scholarly circle that a group of young people initially met: Eduard Gerhard, Theodor Panofka, August Kestner and Otto Magnus von Stackelberg. They called themselves ‘*Roman Hyperboreans*’ to emphasize both their transalpine origin and their shared passion for Rome’s Antiquity. They visited newly discovered monuments, such as the Etruscan tombs in Tarquinia, which they drew and described, and planned quite pretentious publication projects.

We cannot know what they discussed during their excursions, but only a few years later, basically the same group founded the ‘*Instituto di Corrispondenza Archeologica*’, which had the primary aim to gather and publish archaeological reports, obtained – as the name reveals – via a growing network of international correspondents. Letters, some of them accompanied by drawings, showed newly uncovered monuments and/or interesting findings. The personal relationships between scholars on one side and collectors, excavators and dealers, who permitted access to their collections, excavations and magazines on the other remained equally important.

In my paper I’d like to discuss how archaeological knowledge was communicated in this establishing archaeological network by taking as examples letters, drawings and other documents that are preserved in the Archive of the Rome Department of the German Archaeological Institute today.

CA2 DANUBE LIMES BRAND TOURISM ACTION PLAN

Sonja Jilek

INSTITUTE FOR HISTORY VIENNA UNIVERSITY

In 2005 the Roman frontiers became a new serial transnational UNESCO World Heritage Site. It was envisaged that further sections of the Roman borderline would be added to the Site through the sequence of nominations. To date the German Limes and the Antonine Wall in Scotland has been added to the Site, although in the meantime all national frontier sections in EU have prepared their Tentative Lists for nomination as World Heritage Sites. The scope of the project, its scale and diversity across 22 modern-day countries in Europe, the Middle East and North Africa, represents a unique and unparalleled opportunity to exemplify the central objective of the UNESCO Convention. As historical landmarks of the past and tourist sites of the present, this case-study highlights a wide spectrum of protection practices and valorization methods for tourism use of common heritage sites. Without any doubt the Limes heritage has also become a highly attractive factor in the tourism sector. The paper intends to explore the debates between the disciplines related to heritage on one hand and the industry of tourism on the other, which are becoming more intense, if not conflicting, as how to interpret heritage and to integrate it socially, historically and economically in our contemporary societies. It will look into the ways in which planning and design practices can optimize meaning and uses, thereby satisfying stakeholder’s diverging interests.

CA2 BOYNE TO BRODGAR – CULTURAL ROUTES PAST, PRESENT AND FUTURE

Gavin MacGregor¹, Andy Heald²

¹NORTHLIGHT HERITAGE, ²AOC ARCHAEOLOGY GROUP

In this paper we will present the context for the development of a proposed programme of research, *Boyne to Brodgar* : *building monuments, creating communities*, which will engage with Neolithic monuments in Ireland, North Ireland and Scotland. This innovative programme of works will comprise transnational collaboration between researchers, communities, governmental, commercial and third sector bodies with stakes in the heritage sector to ultimately deliver broader impacts and legacies. A key outcome of the project, through a range of research outputs, is to deliver better understood and managed monuments on a sustainable basis. We will therefore explore in our presentation past, present and future cultural routes which will be of relevance to delivering Boyne to Brodgar.

CA29 COMMUNITY INITIATIVES FOR SITE PROTECTION: A CASE STUDY FROM NORTHWEST ARGENTINA

Annemiek Rhebergen

UNIVERSITY OF GLASGOW

While heritage tourism can provide a sustainable source of income to local communities, it is well known that it often has negative effects on the material conservation of popular sites. However, it is not only the sites selected for development and

promotion that suffer from poor conservation. Archaeological sites located near tourism centres may receive a higher number of visitors as well, due to the improved infrastructure in the region and an increased awareness among the wider public of the existence and nature of sites. As these sites lack security measures taken at 'major' sites, risk of looting and vandalism has increased. Local community initiatives relating to site protection might be needed to mitigate these effects and potentially turn it around into a positive outcome, profiting from the regional tourism.

This paper draws upon the findings of recently conducted fieldwork in Northwest Argentina, in and around a town popular with tourists. It explores the ways in which the local indigenous community works towards protecting archaeological sites, discussing the nature of the measures taken. Moreover, it examines how these community initiatives are shaped by the historical and contemporary context, including tourism activity, the development of indigenous rights, and the legal framework and governmental actions with respect to the protection of archaeological heritage.

CA19 THE 3D REPLICA OF THE KAZAFANI BOAT. A CASE STUDY OF A FRAGILE ARCHAEOLOGICAL ARTEFACT
Valentina Vassallo¹, Nicola Amico², Sorin Hermon³, Giancarlo Iannone³, Franco Niccolucci², Paola Ronzino²
¹LUND UNIVERSITY/THE CYPRUS INSTITUTE, ²PIN, ³THE CYPRUS INSTITUTE

3D printing is considered the new revolution in the field of cultural heritage and archaeology, contributing to the definition of new horizons in the conservation and communication sector.

3D physical replicas can replace original objects that are inaccessible or not available due to their conservation state, their fragility or that cannot be moved because too valuable. Furthermore, a 3D replica can be a valid substitute of lost museum artifacts.

This paper presents the case study of the physical replica of the so called Kazafani boat. The 13th century artefact is made of pottery and it is permanently exhibited at the Cyprus Museum. It was found within a tomb at the Kazafani village (Cyprus) in 1963. Recently it was chosen to be part of a travelling exhibition to the Smithsonian Museum (USA), but due to its fragility could not be moved. For this reason a campaign of 3D data acquisition was planned to create an accurate digital replica of the artwork with the aim of making a physical replica to substitute the real object. Size, shape, colours, surface markings, even evidence of past damage and previous episodes of restoration, were all recorded. An exact physical replica of the boat was created with a powder 3D printer. A further implication of this approach enabled conservators to interact and analyse the replicated boat in detail preventing any damage to the original.

CA7 EXPLORERS OF MY HOMETLAND'S LOST TREASURE, EDUCATIONAL ARCHAEOLOGICAL AND ART WORKSHOP

Joska Tea Katunarić Kirjakov

UNIVERSITY OF SPLIT, ARTS ACADEMY, MB: 01321358, OIB: 38960125358

Explorers of my homeland's lost treasure is educational archaeological and art workshop within program *A Backpack (full of) culture*, Art and Culture in kindergartens and schools. The programme is a joint initiative of the Ministry of Culture of the Republic of Croatia and the Ministry of Science, Education and Sports of the Republic of Croatia and a joint investment by the area of education and the area of culture at state level. *A Backpack (full of) culture* is a national complementary programme of support to the elementary and high school curriculum related to art and culture. Specific goal of workshop *Explorers of my homeland's lost treasure* is to make children and youth who are not able to visit museums in their region, sensitive to the field of archaeology and conservation of archaeological objects. Art Academy students take a part of realization of the workshop. That gives good opportunity to the future experts to develop a good rapport with children and youth. This way they can become motivators and the ones who will make children and youth sensitive to the field of archaeology and conservation of archaeological objects. The workshop gives possibility of familiarising children and youth with methods of archaeological excavation, conservation procedure and realization of concept of living museum where they will take a part as curators and living exhibits. Also the workshop develops imagination, artistic and scientific skills. The theme of workshop is based on local history or a legend.

CA23 WORLD HERITAGE MANAGEMENT AND LOCAL DEVELOPMENT. THE CASE OF THE MAYAN SITE OF PALENQUE, AN OPPORTUNITY FOR LIFE IMPROVEMENT OF LOCAL COMMUNITIES AND THE PROTECTION OF ARCHAEOLOGICAL HERITAGE.

Amilcar Vargas

UNIVERSITY OF BARCELONA

The archaeological site and natural park of Palenque, Mexico was inscribed on the World Heritage list on 1987, since then, tourism has increased constantly generating a pole of regional development around the economic values of the site. Consequently the government's investments increased on this sector. Unexpectedly in 1994 the Zapatista Army of National Liberation emerged in the state of Chiapas, where Palenque is, and showed the poor life conditions of local indigenous. This group empowered local communities to take charge of archaeological sites and their economic benefits. Site managers reacted applying certain restrictions to activities in the protected zone but due political reasons they had to accept a partially controlled invasion of vendors and sellers. Poverty and marginalization continue to present in one of the richest cultural regions.

This paper will try to present a chronological study of the evolution of this situation and presents the actual state of the relationship between local authorities and inhabitants and the threats that the permanent tension among the stakeholders has affected in the application of an effective long-term management. Our results are based on empirical work done in Palenque and proposes general guidelines that could contribute to improve the quality of life in local communities while helps for a better understanding and protection of the Outstanding Universal Value of the site via local engagement and social investments in order to reduce economic and political pressure.

CA7 THE DEATH OF THE NEWSPAPER?

Victoria Park

AMEC FOSTER WHEELER

As communication of archaeology moves into an ever expanding online world, this paper seeks to explore the changing world of the newspaper article within the context of the internet. It will explore the links between the traditional and the modern; between print and digital. Can the traditional news story survive? What benefits can the medium of the internet bring to news articles about archaeology, and can the internet address the challenges and fears that have traditionally been faced by archaeologists communicating archaeology through this medium? Equally, what benefits can newspapers, and their online editions, bring in engaging the public with the expanding world of social media?

CA8 THE PARARCHIVE PROJECT: COLLABORATIVE CO-DESIGN AND COMMUNITY DIGITAL HERITAGE

Paul Duffy

BRANDANII ARCHAEOLOGY AND HERITAGE

The Pararchive Project (www.pararchive.com) was an 18-month Arts and Humanities Research Council (AHRC) funded project led by the University of Leeds. The project brought together community, academic, institutional and private sector partners in order to build new interactive environments, to explore issues of ownership, and public and institutional relationships and to create new digital tools for collaborative community research and creative expression using digital heritage resources. Based on the experiences of one of the research partner collectives, on the Isle of Bute, this paper will explore how community research into medieval and post medieval rural archaeology and heritage on the island was integrated into the research process and online resource co-design. The paper will discuss how public demands were captured to help create a virtual suite of simple-to-use software tools allowing users to search and collect on-line resources and combine them with their own media in order to tell their own stories, to make new archives, be creative, start new projects and do their own research. Examples of digital stories will be presented and the role of interlinking inputs discussed in the wider context of collaboration with national archives such as the BBC and the Science Museum Group, academics from the Universities of Leeds and York, and other community groups from Manchester and Stoke.

CA3 MAP ART AS AN ALTERNATIVE TO CARTESIAN REALISM

Andrew Valdez-Tullett

SOUTHAMPTON CITY COUNCIL ARCHAEOLOGY UNIT

Maps are the embodiment of Cartesian relationships, acting as an analogy for the space that they represent. Consideration of maps as scientific and factual reproductions of the world provides them with their authority in Western society. In *The Production of Space*, Henri Lefebvre (1991) denoted a tripartite division to space consisting of spatial practice, representations of space and spaces of representation. Maps lie in the domain of Lefebvre's 'representations of space', the space of scientists and urban planners whose symbols and images are central to statements of 'fact' used to maintain socially dominating structures.

Perception of the world around us is an individualized process where a series of highly personalized visions offer successive snapshots of our surroundings and multiple interpretations compete. Maps however, replace the dynamic, multidimensional world with sterile, static, two dimensional representations. They are thus experienced as a highly abstracted if scientific version of reality.

Map Art is a playful and inventive way of subverting modern cartographic systems. It allows us to move from Lefebvre's scientific 'representation of space' to his artistic 'spaces of representation' which refer to the counter-spaces of resistance to the dominating social structure and that offer a freedom in the interpretation and display of reality.

I will explore a range of alternative mapping traditions including the application of alternative symbology and artistic representation, the use of archaeological materials in the production of alternative spatial devices, one dimensional maps that mobilize spatial data and game maps that immerse the percipient within archaeological debate.

CA23 SUSTAINING ARCHAEOLOGICAL HERITAGE

Douglas Comer

ICOMOS INTERNATIONAL COMMITTEE ON ARCHAEOLOGICAL HERITAGE MANAGEMENT

As one of the co-organizers of this session, I would like to discuss the content of the papers presented here. I will pay special attention to areas of converging or innovative approaches to sustaining archaeological heritage in the course of developing and conducting tourism programs and activities.

CA26 REPRESENTING ARCHAEOLOGY

Douglas Comer

ICOMOS INTERNATIONAL COMMITTEE ON ARCHAEOLOGICAL HERITAGE MANAGEMENT

Archaeology, since becoming an academic discipline perhaps a century ago, has been concerned with systematically collecting, documenting, and interpreting material evidence that if examined critically can increase our understanding of human history. Today, however, the great majority of archaeologists in the United States and other developed countries are employed by private sector organizations, not by academia. The study of heritage has emerged as a closely related field in recent decades, but one that is more strictly concerned with how and why the past is presented. This paper will examine emerging trends in heritage studies, especially those that deal with political and economic dimensions that drive public policy. I will argue that doing this can provide a course correction for archaeology itself, which, as it has moved out of academia is increasingly perceived by the public as a source of fantasy entertainment, the stuff of movies and reality television shows, not serious scholarship. Among the indications that the public sees archaeology as a field that provides little of practical use is that in the United States, which produces most of the fantasy entertainment consumed around the world, polls that rate the value university degrees regularly list a degree in archaeology as having very little worth. Heritage studies, which now frequently deal with how the past is presented in ways that advance particular economic and political agendas, provide the means by which to produce a useable past, and possibly to save archaeology from itself.

CA11 ARCHAEOLOGY, ART AND COASTAL CHANGE

Garry Momber, Lauren Tidbury

MARITIME ARCHAEOLOGY TRUST

The coastline is constantly evolving. Analysis of the past enables us to assess progressive changes and alterations to the coast. Data from archaeology, heritage features, art, photographs, maps and charts provides both qualitative and quantitative information on coastal evolution. The Maritime Archaeology Trust has been developing methods and techniques to apply heritage data to help monitor coastal erosion. Arch-Manche project was a major undertaking that addressed this issues in four European countries. It demonstrated how maritime coastal heritage and art can be used to show long-term patterns of coastal change and the impact on human settlement. Study of this data allowed understanding and modelling of past reactions to climate change. The project has involved investigation of the interplay between archaeological features and data from artistic representations to establish a methodology for demonstrating the value of archaeology, art and maritime coastal heritage to support understanding of long-term change. It is demonstrating how these tools can fulfil an important role in Integrated Coastal Zone Management (ICZM) and help share best practice between archaeologists, geologists and palaeogeographers. The project will both benefit from and contribute to developing practice in the study of submerged and intertidal archaeology, paleo-environmental evidence and intertidal coastal features. The results will now be used to inform sustainable policies for adapting to coastal climate change. This project is timely due to predicted increases in coastal erosion, flooding and coastal instability affecting Channel coastal areas It now provide data to help vulnerable communities adapt to recent and future changes.

CA26 PREVENTIVE ARCHAEOLOGY IN FRANCE: RESEARCH LED HERITAGE MANAGEMENT

Patrick Pion

INRAP

Some fifteen years after the creation of INRAP as a public-service establishment dedicated to preventive archaeological research over the French territory (in line with the Malta convention), it is time to review the various achievements secured and challenges met. Besides taking account of ongoing legal modifications and economic conditions (including profit-driven commercial archaeology) it is important to reassess the wider place and role of archaeological research activities within the framework of heritage management, as it will unfold in the coming years.

CA23 ARCHAEOLOGY TOURISM AND HERITAGE MANAGEMENT IN GLOBAL PERSPECTIVE

Richard Gilmore

COLLEGE OF CHARLESTON HISTORIC PRESERVATION & COMMUNITY PLANNING PROGRAM

Over the past twenty years archaeology tourism has grown extensively alongside the phenomenal expansion of heritage tourism globally. This paper will explore the economic, social and political challenges faced by archaeological tourism operators in a range of geographical locales as well as demographics associated with practitioners and participants. I will also specifically relate the circumstances surrounding the establishment of successful tourism oriented archaeology field-schools around the world. Finally, the paper will address the impacts these field-schools have on perceptions of heritage by indigenous/locale inhabitants as well as participants.

The author was the founding Director of the St Eustatius Center for Archaeological Research (SECAR) on the Dutch island of St. Eustatius. SECAR was a successful tourist-oriented archaeology field-school in the Caribbean with over 100 annual participants.

CA23 ARCHAEOLOGY AND TOURISM IN LATIN AMERICA: FRIENDS, FOES OR SOMETHING MORE

Lawrence Coben

SUSTAINABLE PRESERVATION INITIATIVE

For many years, tourism and other forms of economic development and archaeology have been mortal enemies. Proponents of tourism have frequently regarded archaeologists and preservationists as obstructionist and unconcerned with job creation and economic well-being, while archaeologists have associated tourism with the commoditization and destruction of heritage and swarms of visitors clambering on walls and helping themselves to "souvenirs". More recently, some organizations, such as the Sustainable Preservation Initiative ("SPI") have seen sustainable touristic development around heritage sites as a driver of preservation and a creator of a more powerful community identification with and relationship to the site. A paradigm focused upon empowering local entrepreneurs and creating businesses whose success is tied to the ongoing preservation of a site creates a powerful incentive and a source of funding for such preservation. Meanwhile, more and more government entities and communities are asking "what's in it [archeology] for us"? In this paper, I discuss these new economic development paradigms that incorporate communities and those who live around archaeological sites,, including case studies from SPI's projects in Peru, and reflect upon whether archaeology and tourism can collaborate to achieve the goals of both.

CA14 LIVING HISTORY AND NATIONAL IDENTITY: CREGNEASH VILLAGE, ISLE OF MAN

Catriona Mackie

ISLE OF MAN COLLEGE OF FURTHER AND HIGHER EDUCATION

Opened as one cottage in 1938, Cregneash was the first publically-owned open-air folk museum in the British Isles. Manx National Heritage now owns 24 of the 29 buildings in Cregneash, with eleven of these open to the public as part of the museum. The museum seeks to present a typical small Manx farming community as it existed in the late 19th and early 20th centuries. Since its inception, it was intended that the museum not only preserve the artefacts of traditional Manx culture, but also help to maintain traditional crafts and farming practices. To this end, weaving demonstrations were begun in 1939, and the museum now has a regular programme of events, including traditional craft and farming demonstrations, dancing displays, and Manx language classes. The buildings in the museum are populated by costumed interpreters and, during the summer months, the land is worked by costumed labourers using traditional equipment. Important festivals in the Manx calendar are marked with day-long events celebrating Manx traditions. This paper explores the role of living history at Cregneash, using historical documentation and data from interviews with staff and volunteers of Manx National Heritage as well as visitor surveys. In particular, it looks at the contribution of living history to the visitor experience, the types of knowledge that are being communicated through living history and their effectiveness, and the role of living history at Cregneash in developing and maintaining a distinct Manx identity.

CA4 PRAGUE AS CENTER AND MARGIN IN CLASSICAL STUDIES

Thea De Armond

STANFORD UNIVERSITY

By calling itself classical, the study of Graeco-Roman antiquity stakes a claim to the timeless and the universal. Little wonder, then, that – outside Greece and Rome – the classical, and thus the history of classics as a discipline, has been the provenance of the geopolitical "center." Prague, though it may lie near the center of Europe, is neither its geopolitical center, nor the center of classics. How, then, might a city like Prague gain access to the classical past or contribute to wider – particularly, European – conversations about Graeco-Roman antiquity?

In this presentation, drawing on archival research on the Czech classicist Antonín Salač (1885-1960), I consider some of the routes traced out by knowledge about the classical past in the Czechoslovakia of the first half of the twentieth century. Antonín Salač was a prominent epigrapher and archaeologist, who lived and worked in Prague for most of his life. But Prague – in fact, most of Czechoslovakia – lacked classical material; certainly, it lacked in situ archaeological remains. Thus, Salač's international bona fides were – and had to be – considerable.

How did Salač make his way outside his city? How did he create for himself a community of scholars who, though they lived outside Czechoslovakia, exchanged knowledge with Salač in many-spired Prague? More significantly, how did Prague – with scholars like Salač – become a center for the dissemination of classical knowledge within Czechoslovakia? In addressing this last question, I consider, specifically, the relationship of classical gymnasias' teachers, across Czechoslovakia, to Salač and to Prague.

CA2 ESCAPE – TO BE CONTINUED

Marianne Purup¹, Lene Høst-Madsen², Nina Dissing³

¹VISITSKANDERBORG, ²SKANDERBORG MUSEUM, ³ART COUNCIL - MUNICIPALITY OF SKANDERBORG

eScape is the name of a concept that seeks to combine landscape storytelling, art and world history. eScape is a project about unique places with strong archaeological evidence where art and storytelling are interacting with the archaeological record.

Our first project took place in Alken Wetlands, Denmark in 2014.

Since the end of the 19th Century human bones have regularly been unearthed at Alken Wetlands by Lake Mossø in Denmark. Then, as now, the numerous human remains have fascinated and puzzled the local inhabitants as well as specialists. When archaeologists excavated the area in 2005 to 2014, the astonishment increased. The results provided the specialists with new

and surprising information about a spectacular site dating from around the birth of Christ where the skeletal remains of hundreds of warriors were deposited in a lake.

Ten artists moved in to the local area and began headed by Jørgen Hansen to build a clay sculpture as an interpretation of the hidden treasures and the landscape. The work was done in cooperation with the Museum, the Art Council, the Tourist Council, the locals and the children from the nearby school. Turning people who stare into people who care – and people who share.

This event is only a small part of a long-term and visionary project where the potential exists in art and archeology stories. Through the use of the wordless language that attracts and surprise people, media and museum professionals from around the world.

CA15 WHO CREATES THE PUBLIC IMAGE OF THE MESOLITHIC? A DISCOURSE ANALYSIS INVESTIGATING REPRESENTATIONS OF THE MESOLITHIC IN SCANDINAVIA

Camilla Ekblom

UPPSALA UNIVERSITY, ARCHAEOLOGY AND ANCIENT HISTORY

Using a meta-perspective and discourse analysis, I will investigate how (and if) popular historical journals are utilizing the scientific archaeology of the Mesolithic. How much of the archaeology made by scholars reach the public, and could it be considered modified to reflect the contemporary society when it ends up in a popular science magazine?

I will analyze the discourse using texts and iconography within popular science from three specific themes: gender, climate and DNA-analysis. These themes could be considered to reflect some of the widely debated subjects in the last 30 years of archaeology, and is therefore also reflected in the more public forums.

This has to do with the fact that they reflect problems of the contemporary society, and creates a tool for (popular science authors in particular) to debate the Mesolithic using a contemporary approach. This creates a Western identity of today, expressed through pre-history, and is something that should be investigated. Who creates the public image of the Mesolithic?

CA6 ON A SURE FOOTING: THE NATIONAL TRUST FOR SCOTLAND SITES AND MONUMENTS RECORD

Stefan Sagrott, Daniel Rhodes

NATIONAL TRUST FOR SCOTLAND

The National Trust for Scotland Archaeology Department has just completed a project to place all of its data on archaeological sites and monuments, as well as other heritage assets such as historic buildings online. This means that for the first time data on all 11,663 heritage assets managed by the NTS are publicly available, and can be used by anyone for research purposes. Along with this, the extents of every site and monument has been polygonised in GIS and will also be placed online for public access. The next stages of our data management is to digitally inventory all our archaeological artefacts, as well as to work with other facets of our archaeological data such as laser scans, LiDAR and photogrammetry to make these available. This poster would highlight the workflow and data management used by the NTS in both setting up and implementing the system, and would draw attention to this rich resource now available online.

CA2 PRESENTING THE INVISIBLE AND UNFATHOMABLE: VIRTUAL MUSEUM AND AUGMENTED REALITY OF THE NEOLITHIC SITE IN BYLANY, CZECH REPUBLIC

Petr Kvetina¹, Radka Šumberová², Jiří Unger², Petr Vavrečka²

¹INSTITUTE OF ARCHAEOLOGY CAS, PRAGUE, ²INSTITUTE OF ARCHAEOLOGY CAS

The aim of the poster is to demonstrate the possibility of presentation of prehistoric sites in locations where there is neither any preserved construction, nor any relic of the original landscape. Such sites usually meet with indifference both from the public and from institutions involved in preservation of historical monuments. This problem, however, does not relate only to the limited capacity to imagine features of which there is no visual evidence in the landscape. The problem consists also in the vast structural difference between the world of prehistoric societies and today's reality Bylany near Kutná Hora (Czech Republic), where one of the most important excavations of a Neolithic settlement area in Europe was undertaken, represents a model example of such a situation, no doubt typical for most prehistoric and early historic sites. The possibility of creating virtual and augmented reality proved to be a potential tool to grasp the invisible and to describe the disappeared proved to be. This concept represents a potentially powerful tool for digital heritage management.

CA4 HOLLAND IN HELLAS: WRITING THE HISTORY OF DUTCH ARCHAEOLOGICAL RESEARCH IN GREECE

Laurien de Gelder

ALLARD PIERSON MUSEUM

The proposed paper is a study of the practice of Dutch archaeological research projects conducted in Greece. Dutch academic and museum archaeologists have been engaging with the material heritage in this area for over two centuries, but their work has never been examined in an overviewing, complete and reflexive study. Writing such an history is not just a chronological enumeration of Dutch archaeological research projects; but will entail an analysis of the processes of actors, affected by social, political and intellectual influences.

The aim of the paper is to discuss and understand better the processes that have shaped the ways in which Dutch archaeologists conducted research in Greece. In this paper, emphasis is placed on the theoretical embedding of writing such an history. In order to provide a socially contextualised history, the Dutch archaeological research projects in Greece will be conceived as knowledge entities that are produced by communities of this specific practice. By defining these communities of practice and by documenting dynamic interactions and changes in the way they are constituted and the ways in which they operate, I will be able to study the practice of Dutch archaeological research in Greece from the 19th century to the present day. Furthermore, current issues can be framed and future prospects of the practice can be made. Subsequently, the study of the practice of Dutch archaeological research Greece will be compared to similar activities by scholars from other countries.

CA8 THE ARCHAEOLOGICAL MAP OF THE CZECH REPUBLIC. A SYSTEM FOR DATA ACQUISITION, MANAGEMENT AND PRESENTATION

Michaela Langova, Jan Hasil, Martin Kuna, David Novák

INSTITUTE OF ARCHAEOLOGY ASCR, PRAGUE, V.V.I.

The general objective of the project (funded by the Ministry of Culture of the CR in 2012-2015) is to create the Archaeological Map of the CR (AMCR), an interactive data system on the archaeological heritage of the CR. The project concerns (1) the creation of an on-line database system for data acquisition (working on the crowd-sourcing principle within the community of Czech archaeologists, including editing and presentation options), (2) unification of data acquisition for various existing information systems in the CR, and (3) channelling of the information flow in Czech archaeology, mainly by the creation of relevant data models and links to the "register of archaeological interventions" (in terms of the prepared amendment to the Monument Act) and the digital archives of excavation reports. Moreover, (4) the review and completion of a substantial part of spatial data, and (5) the presentation of the archaeological heritage of the CR to the general public are further goals of the project. In this way, the AMCR has the potential to become an important factor of integration in Czech archaeology. At the same time, the project is aimed at the revision of a large volume of spatial data which could otherwise be lost relatively soon (due to the natural loss of information and/or landscape changes, etc.).

CA14 PROJECT OF LIVING HISTORY "PREISTORICA": EVERYDAY LIFE IN THE NEOLITHIC VILLAGE OF ST. ANDREW BY TRAVO (PIACENZA)

Susanna Gasparini

ARCHEOTRAVO, PARCO ARCHEOLOGICO VILLAGGIO NEOLITICO DI TRAVO

The Festival of Revival named "PREISTORICA" taking place in the Archaeological Park at Travo is now in its fifth edition. It is important both from the point of view of the techniques of knowledge dissemination (Living History event) and the impact on the surrounding territory.

After the first realization of the Festival, other revival events were staged in different Parks and Museums of northern Italy, or were organized directly by revival groups.

If the collaboration with these organizations proved of great importance for Preistorica, certainly the latter's link with the scientific research was the crucial element to implement a proper reconstruction of the life in a very distant past. The Living History event at Travo is meant to represent, through scenes acted by costumed personae, everyday activities within a reconstructed Neolithic hamlet.

The reconstruction project outlines a typical day of a village with its sequence of specific activities and roles. This was made possible by the experimental use of houses, barn and reconstructed spaces. The activities are spread out along the day and repeated so as to create a sense of community organization.

So, the evocative aspect and the didactic purpose of the enactment are combined, but the explanations are entrusted to the guides and the experts. The archaeological data used for the reconstructions (spaces, buildings, tools) are derived from the scientific research carried out by Italian and international scholars at the site of St. Andrew.

<http://www.archeotravo.it>

CA4 HOW ARCHAEOLOGICAL COMMUNITIES THINK? RE-THINKING CONCEPT OF "THOUGHT-COLLECTIVE"

Monika Milosavljević

FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

Ludwik Fleck coined the term "thought-collective" as a conceptual instrument that denotes the social unit of the community of scientists. As he said: "We look with our own eyes, we see with eyes of the collective body". The thought-style structures the foundation of the work practice of thought-collective; that is, both what can and must be considered as a proper archaeological problem, and how this problem is to be dealt with. This stylized seeing can be understood as constraint on thought. Consequently, communal and informal mode of producing archaeological knowledge is a limiting factor as well as a phenomenon that pushes the limits of interpretation.

The intersection of the theory of "thought-collective" and the history of ideas in archaeology produces specific research areas: the initiation of students into the thought-style of the collective; the importance of central figures and small groups of experts or the question of authority in the network; intellectual solidarity in the service of the same idea; the importance of archaeological language as an institution; stability of collective and tenacious refusal of everything that contradicts them. These are some questions that indicate where the epistemological limitations of archaeology in different historical contexts could be, on the basis of informal aspects of communication among archaeologists. In other words, by rethinking the concept of "thought-collective" one could develop constructivist approach of knowledge production, by understanding segments of networks which are bigger than "actant", and smaller than "actor-network".

CA13 JUST A VICTIM OF THE HEADLINES: COMMUNICATING ARCHAEOLOGY IN CROATIA THROUGH SOCIAL MEDIA

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In Croatia, outside of traditional institutions such as museums, planned and sustained public archaeology is scarce. The usual communication tools of choice are the exhibition, accompanied by a catalogue, and a press release. The former usually employs modern strategic marketing to a lesser extent, and often lacks interactive elements that would make public archaeology a two-way communication channel and convince the public to „own" its heritage; the latter banalizes archaeology and heritage, usually consigning them to trite and inaccurate sensationalistic short news articles that fail to provide a wider context of the reported issues and discoveries, as well as diminishing authority of archaeologists, conservators, and heritage experts. Therefore, the public archaeology narrative in Croatia remains parsed, with small impact, and does not serve the interests of either the public or the professionals as well as it should.

In this poster we illustrate the outlined issues and suggest how they can be tackled using currently underused media on the internet: social media, websites, blogs. By providing exemplary case studies of online marketing and communication of archaeology in Croatia, we make a convincing case for more and better utilization of this media on an individual and institutional level, so that construction of the public archaeology narrative can grow into a collaborative and dynamic endeavour, empowering all actors in the process.

CA19 FROM EARTH TO DIGITS: 3D DOCUMENTATION AND PUBLIC INTERPRETATION OF ARCHAEOLOGICAL ARTIFACTS AND ARCHITECTONIC ELEMENTS OF THE CIDADE ROMANA DE AMMAIA(PORTUGAL)

Nicola Schiavottello

UNIVERSIDADE DE EVORA

The Cidade Romana de Ammaia is a spectacular Roman town site in the north Alentejo region of Portugal. It was founded just after the arriving of the Romans in the Iberic peninsula.

The site is mainly yet to be uncovered. However, extensive geophysics work has been done during the last years in order to recover the full map of the intramural layout of the town.

Since the mid nineties there have been a number of excavation campaigns which brought to life numerous artifacts that today reside mainly in three locations: the National Museum of Archaeology in Lisbon, the Museum of Ammaia that is annexed to the site and many still remain in a deposit yet to be documented and studied.

This presentation aim to show the work of 3d documentation that has been done in different projects and fieldworks at the site. A larger objective is to put up a system where all the artifacts and architectonic elements retrieved will have their 3d digital representation counterpart. This is in order to achieve two main goals: one being the scientific documentation with the best possible resolution and the other to obtain the best visualisation output for the general public.

Lastly it will be shown the work of an online virtual museum application where the objects can be visited as a virtual and augmented reality representation for public exhibitions.

CA3 THE JOB OF ARCHAEOLOGIST AND THE ART OF CULTURAL MEDIATION

Valentina Amonti¹, Diego Voltolini², Claudia Mangani², Romana Scandolari³

¹INDEPENDENT RESEARCHER, ²MUSEO CIVICO ARCHEOLOGICO DI DESENZANO DEL GARDA, ³MUSEO DELLE PALAFITTE DEL LAGO DI LEDRO

The reconstruction of the hut presented here is part of the exhibition itinerary developed by the Giovanni Rambotti Archaeological Civic Museum in Desenzano, as integration to Hall of Lavagnone.

The hut was born with the intention to "enhance the invisible" so that the potential visitor could be able to see and directly experience the results of the studies on the archaeological excavations without actually being on the archaeological site. This initiative is the result of the collaboration among archaeologists, artists, construction companies, and museum's guides.

To recreate "the objects' environment" exposed in the rooms around the hut is a great way to contextualize them both in functional and educational terms allowing the visitor to immerse themselves in the domestic routine of the Bronze Age.

The interior of the hut is divided into three areas with different and complementary functions:

- *sleeping area* – made from mats and pallet under a loft;
- *heart area* – made from a plate of concotto and in which there is a basket with "cleaning heart". In the same area a loom with its weights is set up;
- *Warehouse area* – a space in which there are different types of containers for the storage of cereals.

The Pile-dwelling Museum of Lake Ledro has helped with the realization of the itinerary, thus highlighting the coordination among the UNESCO pile – dwelling sites on the Alps in the context of a project aimed at the promotion of the territory.

In particular within this project I have dealt rebuilding furnishings.

CA29 COMMUNICATING PUBLIC ARCHAEOLOGY AND CULTURAL TOURISM: THE REGION OF ELIS (GREECE) AS CASE STUDY

Asimakis Koutsios¹, Ekaterini Alexopoulou², Maria Vigli¹

¹TEI OF WESTERN GREECE, ²TEI OF WESTERN GREECE/HELLENIC OPEN UNIVERSITY

The emergence of archaeological sites and their dependent museums could find a creative and innovative way at the so-called "museum clusters". This tendency reflects the possible need for implementing cultural clustering programs, which reinforce the identity of archaeological sites as active cultural institutions and communicate the Heritage/Cultural Tourism with fertile way. At a local level, where the archaeological museums and sites ensure the cultural character of a region, such a phenomenon (museum clusters) would only have positive results. Moreover, this could help to strengthen the local community at the level of economy and to promote local cultural institutions. On the basis of the above-mentioned framework, it is possible to achieve fruitful dialogue and educational practices between the local, regional communities with national and international cultural institutions.

In this context, the museum of Elis is an integral part of a "museum cluster" that could recommend the fourth channel of cultural communication in the region of Iliia along with the other three, namely the Archaeological Museum of Olympia, the Olympic Games Museum, the Archaeological Museum of the city of Pyrgos. The proposal, based on archaeological research as well as ancillary to this science, includes archaeological routes / "walks" and actions in the perspective of being related the appointment and promotion of cultural heritage with an attractive tourist development in the area. Our position is that the habit of living in a more properly functioning administrative and management cultural area is in harmony with the principles and objectives of the "Public Archaeology".

CA26 FROM OPPROBRIUM TO OPPORTUNITY? CHALLENGES IN MANAGING THE PEATLAND ARCHAEOLOGICAL RESOURCE IN IRELAND

Benjamin Gearey

UCC

The exceptional archaeological and palaeoenvironmental potential of Irish peatlands, and specifically the lowland raised mires of the midlands, has long been recognised. A review commissioned by the National Monuments Service calculated that in the last 20 years more than 4000 archaeological monuments have been identified in the lowland raised mires subject to industrial peat extraction by the semi-state owned body, Bord na Móna (Gearey *et al.*, 2013); a resource that will ultimately be largely destroyed through on-going peat extraction. Following survey and excavation in the 1990s, Professor John Coles felt able to state that: "...Opportunity has been seized..." (Coles, 2001:9). This paper will present a critical analysis of developments in Irish peatland archaeology over the last decade and a half, presenting key data from the recent review (Gearey *et al.*, 2013) considering whether Coles' optimism concerning his change of mind from 'opprobrium to opportunity' might still be justified. It will discuss the particular problems of planning appropriate strategies for peatland environments, the importance of targeted research and the broader lessons for heritage management that may be drawn from this situation.

Coles, J. 2001. Irish wetland archaeology: from opprobrium to opportunity. In B. Raftery and J. Hickey (eds) *Recent Developments in Wetland Research*. Dublin: UCD Dept of Archaeology and WARP, 1-13.

Gearey, B.R., Bermingham, N., Moore, C. and Van de Noort, R. 2013. Review of Archaeological Survey and Mitigation Policy Relating to Bord na Móna Peatlands Since 1990. Report to the National Monuments Service, Department of Arts, Heritage and the Gaeltacht.

CA13 TAKING 3D VIRTUAL REALITY TO THE WEB

Adeola Fabola, Alan Miller

UNIVERSITY OF ST ANDREWS

Advancements in computer graphics processor technology have facilitated the production of 3D digital reconstructions of heritage sites and artefacts. Reconstructions of heritage sites have been produced with high end computer graphics software and consequently have high memory and processor speed requirements. While these reconstructions offer valuable potential in cultural heritage applications, the high computing requirements limits the use cases for these 3D models to demonstrations on powerful computers in fixed environments.

A desirable use case for these models would be to make them accessible on commodity hardware like end user computers, tablets and smartphones. One way this can be achieved is to use pervasive web technologies to showcase the 3D models in a lightweight, yet engaging manner, like stereoscopic panoramas that represent a 360° view of the virtual reconstructions. This ongoing work leverages the power of open source frameworks such as WEBGL to create apps that can run smoothly in web browsers and mobile devices. A significant feature of these apps is the implementation of stereopsis to provide the illusion of depth and the incorporation of stereoscopic Head Mounted Displays (HMDs) to provide a pronounced immersive experience.

A potential end result of the ongoing work is a relatively cheap, lightweight, accessible yet powerful setup that will imbue the general public with the ability to enjoy immersive virtual content using mobile devices and lightweight VR headsets such as the google cardboard, with the option of an improved VR experience using more powerful PCs and more sophisticated headsets like the Oculus Rift.

SA9 SIMPLIFYING INFORMATION DISSEMINATION IN THE CULTURAL HERITAGE SECTOR

Adeola Fabola, Alan Miller

UNIVERSITY OF ST ANDREWS

This work introduces an App creation framework that facilitates the collection, curation, management and dissemination of cultural heritage information using primarily web and mobile technologies. This is made possible by a content management system – a web-based interface that enables domain experts collect and curate content in various forms including text, images, audio and video. The interface is easy to use, and provides features to add, delete and modify heritage information, all of which are then stored in a repository.

The information is made available to end users (i.e. tourists, students, communities and the general public) through an accompanying mobile app. The app facilitates the presentation of the heritage information in interactive and engaging ways. It provides location-awareness through a live map interface that displays the locations of several (clickable) sites (with respect to the user's location) and provides directions to those points from the user's location. The inclusion of images, videos, 3D virtual models and panoramas contribute to an engaging and immersive experience when interacting with points of interest.

The significance of this App creation framework is threefold: it enables archaeologists, historians, museums and heritage organisations create informative quests and trails with minimal technical knowledge, it facilitates easy content management by providing features to modify and update contents which are then pushed to users seamlessly, and it endows the general public with the ability to create mobile apps for cultural heritage information dissemination without any knowledge of systems development.

CA13 VIRTUAL GLOBES AS A TOOL FOR ARCHAEOLOGY

Susanne Rutishauser¹, Ralph Rosenbauer¹, Tim Arni¹, Alexander Sollee², Fabienne Kilchör²

¹UNIVERSITY OF BERN, ²UNIVERSITÄT BERN

Surrounded by the Taurus and Amanus mountain ranges, the fertile alluvial plain of Cilicia Pedias in modern Turkey is a true treasury of important monuments from numerous ages. Hittite and Assyrian rock reliefs serve as representations of power at this connection between Anatolia and the Levant. Since it relies on Google Earth, the Virtual Cilicia Project is able to show these monuments as well as the ruins of Bronze and Iron Age settlements like e.g. Karatepe with its world-famous carved orthostats in their natural environments. To visualize the development of this region during different epochs and to provide a better understanding for laypersons, new approaches are necessary. Virtual globes give users the chance to interactively explore different sites and the interplay between environment and settlement patterns. Since Google Earth uses KML 2.2, an open standard XML notation, it is simple to add one's own content. In addition, KML became an increasingly common standard within geographic information systems and online tools, therefore becoming a well-documented future-proof solution. The integration of a timeline directly into Google Earth makes it a perfect instrument for the visualization of historical developments.

The Virtual Cilicia Project's goal is to document the vast diversity of Cilicia's history and to present this cultural heritage in the context of its ancient and modern landscape to the expert and the layman.

www.virtual-cilicia.org

www.facebook.com/virtualcilicia

twitter.com/VirtualCilicia

CA29 PRESENTING ARCHAEOLOGY IN BITBURG (RHINELAND-PALATINATE, GERMANY)

Ferdinand Heimerl

LUDWIG-MAXIMILIANS-UNIVERSITY MUNICH

Bitburg is situated approximately 30 km north of Trier (Rhineland-Palatinate, Germany). The city is generally very well known because of the beer brewery "Bitburger Braugruppe GmbH". But Bitburg also has a rich archaeological heritage that needs to be presented to the public. Archaeological excavations from 1889 until today have revealed valuable data on the city's past. In the early first century AD the Roman *vicus Beda*/Bitburg originated as a stopover on the road from Trier to Cologne. Inscriptions and stone architecture suggest that *Beda* became an important and wealthy settlement. After destructions in AD 275/6 Bitburg was rebuilt and fortified in the early 4th century. The circular fortification (two hectares) with 13 round towers and two gates was inhabited continuously into the 5th century AD. The late Roman fortification was incorporated into the medieval city wall and forms the centre of the present-day city. Bitburg is one of the best preserved Late Roman fortifications north of the Alps. Parts of the Roman and medieval walls and towers are still visible up to a height of 5-6 meters despite destructions in World War II. In 1995 information panels were installed for an archaeological path and a guidebook on Roman Bitburg was published. This archaeological path will be updated in 2015 and will also incorporate medieval features. The concept includes new panels, a city model and a 3D visualisation movie based on a digital terrain model and excavation reports. This concept aims to create a better understanding for Bitburg's cultural heritage.

CA25 FROM DWELLING TO GENESIS: THEORY AS REFLEXIVITY

Philip Tonner

UNIVERSITY OF OXFORD

Archaeological theory can be detached from the rest of archaeological study in the academy. It has been acknowledged that the result of this situation is that students are introduced to theory in generally cursory and summarized fashion. As a result of this detachment, many students are unable to engage with, fully appreciate and challenge the various burgeoning theoretical methods and positions in contemporary archaeological research. As redress, this paper proposes to foster an appreciation for theory as forming part of an essential reflexivity necessary to contemporary engagement with the material past. All inquiry, not just archaeological inquiry, arises out of pre-theoretical experience in the world and recognition of this starting point in the anthropological and archaeological literature has been dubbed the 'dwelling perspective'. Archaeological theory, as with all theory, emerges from pre-theoretical dwelling. To paraphrase Ingold, 'the practice of archaeology is a form of dwelling'. Starting from an appreciation of the dwelling perspective's claim that theory arises out of our engagement with the world, and so is being generated and fostered in un-reflexive ways, this paper will argue for the integration of theoretical education at the point of entry to undergraduate archaeology courses in order to generate the kind of theoretical reflexivity required to tackle our pre-reflective theoretical commitments. The result of this integration of theory into core teaching will enable students to engage with both the material past and theoretical approaches to that past in a satisfying way.

CA25 THE FUTURE OF ARCHAEOLOGICAL THEORY: IS PLURALITY THE ROAD IT MUST TAKE?

Artur Ribeiro

GRADUATE SCHOOL OF HUMAN DEVELOPMENT IN LANDSCAPE

Has the concept of 'paradigm' ever been significant to archaeological interpretation? If yes, what is(are) the paradigm(s) pertaining to archaeology as of now? If no, can it be argued that archaeology, and the human sciences in general, are going through a process of gradual progression? It is these questions that motivate this presentation. The legacy of archaeology demonstrates a history strife with debates on how to interpret the human past, where paradigms supplant paradigms, and which has led to the current status which is a multiplicity paradigms, none of which has managed to make itself the dominant discourse in archaeology. With this background, it is asked whether it is a paradigm change what is required of archaeology or whether it is the acceptance that there is no dominant theory and that archaeology is just progressing and diversifying at a very gradual rate.

This presentation assumes itself as an explicit critique of fads in archaeological theory, given that fads cannot and will never be able to assume dominance because they are merely reflections of historical and societal values. From this premise, it becomes clear that archaeology, like most human sciences, undergoes some sort of non-linear 'evolutionary' progress, a progress which has evolved into the multiplication of explanations. The current status of archaeological theory is one of plurality, not dissimilar to Helen Longino's scientific pluralism, or Ronald Giere's perspectivism, and it is up to us to discuss where we want to go with this status.

CA22 THE PERILS OF PUBLISHING WITH INTEGRITY

Alison Atkin

THE UNIVERSITY OF SHEFFIELD

This roundtable provides an opportunity to present my position on academic publishing, as an early career researcher who would like to publish with integrity, but also continue to have a career. I see this as a careful balance in a discipline that is open to change, but which exists within a system that is generally more resistant. The issues that inform my position range

from support for open access publishing to direct experiences of the impact that alternative methods of publication can achieve.

CA18 WHAT IS GOOD RESEARCH IN ARCHEOLOGY?

Eva Giesen

INSERM

Archeology, like other sciences, relies on good observation, solid methodology, good record keeping and efficient research management. Standards exist for the evaluation of research and teaching, ranking universities and the allocation of funding.

Other standards are designed to help researchers with their own work, manage research activities, design and carry out research, and interact with their team, collaborators or research network. These standards are global, e.g. designed for any type of research: fundamental or applied, private and public and in any scientific domain. The standard ISO 9001 "Quality management systems" is a general international standard. In France, since 2014, NFX50-553 "Management of research activities" is a standard that applies specifically to research and which is concerned with points such as "conducting research as a project, research in collaboration or for a third party, responsibility in research governance, conflict of interest, expertise, whistle blowing, record keeping, knowledge management, robustness of data, adequate methodology, etc."

Standards are documents which have been written on the basis of consensus by a large group of experts and which are then publically approved; this means that any person, and in particular players concerned by a given topic are invited by their national (and international) standardization organizations to contribute to the collective document. Could the EEA develop NFX50-553 with the help of its network, to work towards turning it into a European-level standard, in order to reinforce the place of archaeology in the European Union?

CA18 DEVELOPING POLITICAL STRATEGIES - THE EAA AND THE NEW BUSINESS MODEL

Sophie Hueglin

NEWCASTLE UNIVERSITY

As the EAA is developing a new Business Model this is the chance to implement future political strategies. The aim of the Round Table is to include the members into this process. Based on short statements of our invited speakers, we want to discuss with all members present what for or against, on what level and how the EAA could do effective political lobbying. As a member of the Executive Board, I support this initiative and will help to moderate the event. The proposals which find the strongest support will be presented to the Executive Board for consideration.

CA5 PROFESSIONAL NETWORKS AND PROFESSIONAL INSTITUTES

Gerry Wait

NEXUS HERITAGE

This very short contribution to the Round Table debate builds upon last year's discussion and argues that interested members want one or both of two things (they are not exclusive in any way).

The first is a mechanism for networking among existing European archaeological organisations (some of which are professional institutes, many more are membership organisations focussed on archaeology). The objective seems to be a desire to have some means of wielding more influence with policy-makers.

The second is membership in a professional institute for reasons of individual/corporate stature/prestige, sectoral regulation and influence, etc. This is by no means universal and many of the countries where this is benefit to archaeologists have existing organisations. However, effectiveness of such organisations is a linked to size of membership and hence ability (financial, and human resources) to actually undertake operations that directly provide benefits to members.

Several proposals for the future role and development of the EAA's Committee on Professional Associations in Archaeology will be presented for consideration.

CA22 BEYOND LINEAR: TOWARDS INTERACTIVITY, MULTIPLICITY AND REFLEXIVITY IN PUBLICATION

Tara Coplestone

UNIVERSITY OF YORK & AAHRUS UNIVERSITY

Traditional publication methods such as the monograph or article tend to manifest as non-interactive, non-reflexive and linear products - with limited scope as to the media which can be contained within the document itself. The move to digital and online publication methods has opened up significant opportunities for hyperlinked data and new media integration, however, the form has tended to still remain linear and non-reflexive with controlled opportunities for interactivity.

Over the past twenty years the interactive media (IM) and virtual reality (VR) industries have grown to prominence - developing novel, non-linear and even reflexive ways to interact, engage and present data. But in instances where IM or VR are part of a project they have tended to be reduced, reworked and extrapolated to fit into existing publication methods, or presented as an aside to the traditional publication. This lightning talk will leverage two brief case-studies to discuss emerging

technologies in VR and IM with a view to expounding how these advances offer significant merit (and possibly difficulties) for use as publication platforms or methods within their own right, or as supplements to existing platform.

CA1 WHAT KIND OF "EUROPEAN" ARCHAEOLOGY DO WE ACTUALLY WANT?

John Robb

UNIVERSITY OF CAMBRIDGE

Aside from a purely geographical definition, there are at least two principal ways of understanding "European archaeology": one based upon the idea of Europe as a place with a specific historic character, and one based upon shared professional working practices. The former sounds more intuitively appealing, both to the public who want archaeology to supply a history for a shared sense of identity and for national and trans-national politicians who might see shared history as a way of uniting people affectively. However, I argue that we should not foster a "European archaeology" founded upon a common idea of what Europe is, for three reasons. One is that Europe might not in fact have a homogeneous common past; generating archaeology to serve a prior narrative deprives archaeology of its independence and authority. Secondly, for many European, European citizenship is important more for rights and practices than for a sentiment of belonging. Thirdly, those elements within Europe for whom an appeal to a common European past is important are likely to co-opt it to support divisive and exclusionary narratives. Archaeology is much more likely to support the development of a coherent and robust Europe by following the other path, by developing a coherent and widely shared idea of archaeology as a set of practices, ideas, and forms of participation in economic life -- in other words, by being professional, even bureaucratic, rather than by waving flags.

CA18 REPRESENTING ARCHAEOLOGY & ARCHAEOLOGISTS - THE RESPECTIVE ROLES OF THE EAA AND THE EAC

Adrian Olivier

UNIVERSITY COLLEGE LONDON, INSTITUTE OF ARCHAEOLOGY

The EAA has made significant advances in implementing many of its original aims especially Publication, Communication, and the annual conference, but there has been less progress with its *monitoring* and *advisory* functions. This is partially fulfilled through EAA codes and committees and working parties; Nevertheless, despite mechanisms set out in the Statutes to discuss heritage management issues, this area has not been considered as a priority for action. With an organisation as broad and diverse as the EAA, there are difficulties in trying to be a '*professional*' body developing and implementing standards and ethics, developing coherent and consistent positions about policy issues, and identifying acceptable responses to issues (sometimes controversial) related to individual sites. Whilst the EAA can legitimately make 'political' statements, there are practical difficulties that need to be overcome if it is to adopt this role and somehow represent the Archaeologists of Europe. The Association therefore needs to consider whether it still wishes to act as an arbiter of standards and policy, and whether this is either practical or realistic. If this is considered an essential function then the EAA will need to develop appropriate mechanisms to discuss and develop its various positions, and articulate this clearly in appropriate 'political' contexts. If it is to do this, it will also need to accept the not insignificant costs (time and money) of following this course of action.

CA21 ARCHAEOLOGICAL REPORTS AND PUBLICATIONS – WHO ARE THE READERS, AND HOW DO WE REACH THEM?

Eva Skjellberg

SWEDISH NATIONAL HERITAGE BOARD

Development led archaeology produces a large amount of reports and other publications. Some of them get considerable attention, have numerous readers and are being cited by researchers. On the other hand, the large numbers of reports go straight into the archive storage. They are essentially only being used by the regional authorities and field archaeologists when exploitation is to be made in the neighborhood. It is evident that much more of the archaeological results is worthy of attention, both from researchers and the general public. Can we do something about it, and if so, what?

CA9 UFFINGTON HERITAGE WATCH: AN ARCHAEOLOGICAL COMMUNITY BENEFIT SOCIETY

Evelyne Godfrey

UFFINGTON HERITAGE WATCH

Uffington Heritage Watch, Ltd. (www.heritage-watch.com) is a not-for-profit trading enterprise registered in England in December 2014 under the Co-operatives and Community Benefit Societies Act (2014). The Objects of the Society are to carry on any business for the benefit of the community by advancing the education of the public through research into, and promotion of, heritage and the historic environment. UHW aim to identify, investigate, and conserve tangible and intangible heritage in the community, in line with the published implementation guidelines of the European Landscape Convention (ELC) and the Valetta Convention on the protection of archaeological heritage. UHW advocate for reform of the National Planning Policy Framework 2012 (NPPF, England), in order to mitigate damage to the natural and historic environment that is being caused by unsustainable development. UHW believe that this can be achieved by harmonising the ELC with the NPPF and Guidelines.

The author (UHW Director & Chair) is a professional archaeologist and elected local councillor. UHW was established as a result of her experience in leading a local Community Led Plan/Neighbourhood Plan initiative, and dealing with recent planning

applications in an area with a rich and complex historic environment. As a discussant in the "Community Led Heritage Action" roundtable session, she will briefly outline the process of setting up UHW, what the Society has achieved in its first year of operation, plans for the future, and the general role of co-operatives compared with charities in the providing "Third sector" archaeology and conservation services in the community.

CA8 3D VISUALIZATION, COMMUNITY COLLABORATION AND THE PRODUCTION OF SOCIAL VALUE: THE ACCORD PROJECT

Sian Jones¹, Stuart Jeffrey², Mhairi Maxwell², Alex Hale³

¹UNIVERSITY OF MANCHESTER, ²GLASGOW SCHOOL OF ART, ³RCAHMS

The ACCORD project explores the opportunities and implications of digital visualisation technologies for community engagement and research through the co-creation of three-dimensional models of heritage sites and objects. Techniques such as laser scanning, 3D modelling and 3D printing have largely remained in the domain of specialists. Consequently expert forms of knowledge and/or professional priorities often frame their use. Expressions of community-based social value are rarely addressed through their application. ACCORD seeks to address this through the co-design and co-production of a permanently archived and open-access research asset, which integrates co-produced digital models, user-generated contextual data, and statements of social value. In this paper we will focus on the results of the ACCORD project. We will discuss how community-based 3D visualisation facilitates the production and negotiation of value and attachment, both in respect to the digital models that are produced and the monuments they represent. 3D recording and modelling are often promoted as a means of enhancing historic and scientific values through recording, analysis, interpretation and preservation. Here we argue that, used in collaboration with contemporary communities, they can be a rich environment for exploring and generating social and communal values. Drawing on our work with specific communities across Scotland we will show how collaborative production of 3D models generates a rich and complex set of relationships between material and digital heritage through which place, identity, belonging, and memory can be negotiated.

CA15 ARCHAEOLOGY IN THE WORLD: ARCHAEOLOGY AS A CONTEMPORARY AND GLOBAL POLITICAL ACTIVITY

John Carman

UNIVERSITY OF BIRMINGHAM

Any study of archaeological resource management practice serves to confirm its inherently political nature. Even such essential and globally accepted procedures as inventory and recording of sites, their evaluation, preservation and presentation, it turns out, are deeply political in their implications and consequences. This paper will outline the specific manner in which these day-to-day archaeological practices *in and of themselves* conform to underlying ideologies and serve to support particular systems of governance and control. The aim is to go beyond the more general critiques of ARM to show how – whether we like it or not – archaeology is a political activity. If archaeologists wish to change the world – and there are those who do – then it is more than a matter of 'tinkering' with archaeological approaches or taking different decisions about what to record, value, preserve and present: it requires a wholesale rethinking of the project of archaeology and of accepted archaeological practices. It is not a case of making archaeology political: it is about recognising the politics inherent in our work and doing something else.

CA21 THE DIGITAL ARCHAEOLOGICAL REPORTING IN DENMARK AND THE EXPERIENCE OF REPORTING TO THE GENERAL PUBLIC

Susanne Bjerkaes Petersen

DANISH AGENCY FOR CULTURE

In Denmark the archaeological museums record their findings and surveys in a shared online database. The museums are responsible for updating of new information about sites and monuments in the database and they also upload their scientific investigation reports. The reports and the data recorded on the survey are available for museums, students, planners and other administrators, who can gain access to all the information in the database. Additionally the museums compose a popular report addressed to the developer in the case of development-led investigations. These reports convey the results of the archaeological investigation to a non-professional audience. The database also has a limited version available to the public. In fact all the reports can be published on the public site, so citizens with an interest in archaeology can read about the results of the investigations.

One option is to have access to the reports and data on archaeological investigations but it is equally interesting to get an overview of the investigations conducted and the scientific results. Therefore a functionality is being developed, that allows a user of the database to create a user-defined search in order to retrieve data.

The recording of reports in the database of sites and monuments and the experience of reporting to the public will be presented in the paper.

CA1 OTTOMAN ARCHAEOLOGY IN EUROPE – DISTURBING PAST OR DISTURBING PRESENT?

Monika Milosavljević

FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

In the Ottoman Empire, the practice of incorporating antiquities in architectural structures was not a rarity. Justinian built the Church of Hagia Sofia using *spolia* of ancient temples, incorporating a cultural memory into the building. A circular medallion decorated with a Medusa head was in the exterior wall of the mosque until 1871, when it was taken to the Ottoman Imperial Museum. The reason was the Ottoman fear that the Medusa head would be taken away to some of the European museums. This kind of enjoyment in classical heritage could be seen as a typically European obsession. That is the Ottoman past seen from the perspective of history, art history and museum studies.

But, from the point of view of the European archaeological narratives, it is hard to imagine that the Ottoman Empire existed at all. In the regions touched and ruled by the Empire, the Ottoman past is still perceived as a period of 'decline and decay'. In spite of the current critical orientation of the discipline, unpopularity of Ottoman archaeology still fits perfectly into the concepts of progress and Western triumph, which mark the mainstream of European archaeology. The key question is not just about finding a place for Ottoman archaeology in European archaeological education and research funding. Ottoman past in Europe is more than post-medieval period at the margins of the continent. It is the story about a coloniser whose colonisation is not perceived as "civilizing".

CA5 25 YEARS WORKING FOR THE PROFESSION. COLEGIO DE ARQUEÓLOGOS DE MADRID

Jaime Almansa-Sanchez

JAS ARQUEOLOGIA

This year we celebrate 25 years since the foundation of *Sección de Arqueología* at CDL Madrid. It was the first of its kind in Spain and it has been one of the most active professional associations in the country ever since. However, the situation of the sector has not seen any improvement, and the collective seems to be only nominal. These past years have been interesting to evaluate the profession in Madrid, to see its flaws and possibilities. The Colegio has provided training and support for those who needed it, but we want to go a step further and try to make a change. Since the process of the new heritage law in Madrid, the activity of our institution has increased notably and we aim to reconnect with our associates and start working together for a better situation.

This paper will show some of the initiatives we are conducting during the anniversary and our plan for the near future.

CA22 TRYING TO BECOME A DIFFERENT EDITOR IN SPANISH ARCHAEOLOGY

Jaime Almansa-Sanchez

JAS ARQUEOLOGIA

Having an editorial has been one of my childhood dreams. In 2010 the dream became true and, along with the creation of my archaeological company, I started an endeavour in the editorial sector. My goal, to publish different kinds of books focusing, not in the results of boring excavations, but on the big picture; how archaeology works and engages with people. As a public archaeologist, this meant a lot for my own beliefs. Since the publication of my first successful book, "El futuro de la arqueología en España" in 2011, the bet for a different content was won.

But my fight did not end there. Access to published materials in archaeology is prohibitive due to prices, and this is a burden for the dissemination of the work. The business model of part of the editorial sector is making it difficult to survive. Open Access has become an illusion of openness, since authors have to pay to be published, and public institutions are spending way more public money than they should/could on it. Maybe Spain is a model, and maybe that made me try different.

This paper will raise some issues concerning the configuration of the sector, comparing international corporations and the Spanish model, as well as stating some ideas about the future of archaeological editing from the perspective of a small Spanish publisher.

CA5 THE CHARTERED INSTITUTE FOR ARCHAEOLOGISTS

Peter Hinton

CHARTERED INSTITUTE FOR ARCHAEOLOGISTS

This short presentation will summarise for the Committee on Professional Associations in Archaeology the recent work of the Chartered Institute for Archaeologists (CIfA), formerly IfA.

Based in the UK but with a growing membership elsewhere in Europe and the rest of the world, the Institute has been awarded the premier international brand of quality for professional associations, and its members are now recognised as having equivalent status to all those other professionals that archaeologists work with. CIfA is now exploring the possibilities of awarding the title Chartered Archaeologist.

This is a round table and CIfA wants to do more listening than talking. What can we do for you?

CA18 SIGNING THE TRANSPARENCY REGISTER

Kenneth Aitchison

LANDWARD RESEARCH LTD

Lobbying is not a well understood phrase. It is often vaguely and loosely understood as an easy buzzword that will somehow magically allow you to make friends and influence people.

But in terms of lobbying the European Union – and that can mean the Council of the European Union, the European Commission or the European Parliament - it is a very precisely defined concept, with only very specific individuals, working for very specific organisations, using predefined methodologies to present influential cases to in defined ways to very specific recipients and only at very specific times in decision-making cycles. And if the right routes aren't followed, no matter how well-meaning intentions might be, they simply have no chance of influencing policy or legislation.

From the perspective of a registered Lobbyist to the European Union – a signatory of the "Transparency Register" – this paper will present some thoughts on how EAA could, if it was so minded, follow the right lines to make a difference at the heart of Europe.

CA15 THE MAP (MAKING ARCHAEOLOGY PUBLIC) PROJECT

Richard Ciolek-Torello¹, Lynne Sebastian², Donn Grenda¹

¹STATISTICAL RESEARCH, INC., ²SRI FOUNDATION

2016 will mark 50 years since the passage of the National Historic Preservation Act (NHPA) in the United States. This act, which mandates consideration of effects on historical and archaeological resources from all federal undertakings, is the foundation for Cultural Heritage Management in the United States and has resulted in incredible advances in U.S. archaeology. NHPA, however, has come under increasing attack from developers and their powerful political allies, who argue that NHPA has increased their costs without any public benefit and should be repealed or scaled back significantly. In celebration of NHPA's 50th anniversary, and in recognition of these political pressures, major archaeological organizations in the United States – the Society for American Archaeology, the Society for Historical Archaeology, the Register of Professional Archaeologists, the American Cultural Resources Association, and the Archaeological Legacy Institute – are supporting an initiative involving archaeologists in all 50 states in developing a series of short videos highlighting for the public some of the important things we have learned about life in the past as a result of NHPA-driven archaeology. Although many states have embraced this opportunity to give back to the public, others have been reluctant to participate. Many states have also struggled to identify significant archaeological discoveries that would be of interest to the public. Our difficulties in sharing archaeological insights with the public highlight the failure of many archaeologists to recognize that archaeology is not only an academic endeavor but both affects and is affected by political forces.

CA21 ARCHAEOLOGICAL INVESTIGATIONS AND GREY LITERATURE IN ENGLAND

Timothy Darvill

BOURNEMOUTH UNIVERSITY, UK

There is a long tradition of producing ephemeral limited circulation guides, tracts, and interim reports within British Archaeology. But in recent years there has been a massive increase in the volume of such outputs, often referred to as 'grey literature' which mainly comprise client reports produced as part of the planning process. This paper looks briefly at the situation in England between 1990 and 2010 as revealed by the Archaeological Investigations Project that logged more than 80,000 investigations. It is proposed that many grey literature reports are purpose-specific and often relate to the creation of non-traditional knowledge sets such as 'Strategic Knowledge' and the use of that knowledge in the planning process. Development projects that are approved and taken through the planning system to mitigation works are usually published in more conventional forms, including the results of pre-determination events.

CA22 DO WE NEED NEW, ADDITIONAL KINDS OF SCHOLARLY JOURNALS IN ARCHAEOLOGY?

Frank Siegmund

HEINRICH HEINE UNIVERSITÄT DÜSSELDORF

The transformation of scholarly publishing in archaeology into Open Access is going on and will spread out. Besides the change to Open Access, most of the journals actually keep the traditional way of publishing with editors, editorial boards and peer reviewing as gate keepers, which is a system with well-known advantages and disadvantages. But then again, publishing online would allow to distribute papers quicker and without these traditional gate keepers. The quality and the impact of a publication could also be ensured and judged afterwards, e.g. with 'likes' and 'dislikes' and a moderated system of comments or discussions added to the papers after their publication. Wouldn't such a post-publishing review guarantee more openness and fairness in our system of publishing? Wouldn't it result in a new transparency of scholarly debate and a new honesty to the public? The author wants to discuss, whether there really is need for an additional kind of scholarly journals in archaeology, and how the rules of a necessary (?) moderation could look like to balance the need for scholarly reliability and openness to different opinions.

CA27 WIKIPEDIA AND ARCHAEOLOGY, AN INTRODUCTION

Leigh Stork

UNIVERSITY OF EDINBURGH

Many people use Wikipedia to look up information or as a starting point for further research, and sometimes the articles they find there are great – but, just as often, they are wrong or outdated, or the page simply doesn't exist. In this session introduction I will discuss why we as archaeologists should care about archaeology-related entries on Wikipedia and how we can use our knowledge to identify articles that need specialist attention. I will explain the basics of editing articles on Wikipedia, from the creation of a Wikipedia account to creating new articles, and how to approach discussion pages and other resources available to Wikipedia editors. Included will be a brief discussion of what makes a good Wikipedia article and how to identify articles which need further work. At the end of this introduction, workshop participants will be encouraged to start creating and editing Wikipedia articles with the help of the session organisers. It is therefore suggested that participants bring their computers or tablets and join the effort to increase the visibility and accuracy of archaeology on Wikipedia.

CA1 EUROPEAN ARCHAEOLOGY - ANY LIMITS?

Carsten Paludan-Müller

NIKU, NORWEGIAN INSTITUTE FOR CULTURAL HERITAGE RESEARCH

There is nothing new in discussing the spatial extent of Europe. Nor is there anything new in the realization that working with the archaeology of European lands is meaningless without a perspective that includes the wider world. European lands are characterized by a spatial layout that has facilitated their connectedness with adjacent continental landmasses. This has translated into tides that from the earliest times have shaped the dynamics of European deep history.

To day one of those tides is a condition of instability, poverty and conflict that for many decades has affected the European Union's Southern and Eastern circumference.

Another of those tides, linked to the above-mentioned condition of poverty and conflict, is unfolding with accelerating pace in the form of a massive immigration that has affected the demographic and cultural fabric of Europe.

Cultural heritage is deeply affected by the conflicts raging across the circumference of the EU. The destruction of heritage in the adjacent conflict zones is also in painful ways affecting the many immigrants and refugees with whom we now cohabit.

If there are good scholarly reasons for discussing the relevance of a restricted geographical understanding of the concept of "European heritage", we could argue that besides the scholarly arguments we might want to consider the relevance of understanding heritage (and by implication archaeology) as something that has to be defined with reference to people. The heritage of European citizens may no longer be restricted to the countries of our citizenship.

CA1 EUROPEAN ARCHAEOLOGY FROM THE BALKANS

Staća Babić

FACULTY OF PHILOSOPHY, DEPT. OF ARCHAEOLOGY, BELGRADE UNIVERSITY

More often than not, archaeological knowledge is organized around geographical denominators, as presumably neutral technical terms. However, these terms reflect some pre-conceived idea, not only about topography, but also about the human actions taking place therein. The point may be illustrated by the history of the term "the Balkans", recently changed into South-eastern Europe. Is this change meant to acknowledge, or to induce and accelerate the incorporation of this part of the continent into the European past and present? In what terms have the archaeologists from the region sought to demonstrate their belonging to the European archaeology? Do the narratives they produce seek common denominators with the European past or the European archaeological community of the present? On the other hand, how often are these parts incorporated into the pan-European archaeological narratives created by the researchers working outside the Balkans? According to what criteria? Is, for example, the Classical Greek past perceived as a part of the Balkan past? Likewise, is the Byzantine past European? Discussing some of these questions may bring us closer to understanding the processes of inclusion/exclusion behind the notion of European archaeology. This, in turn, may elucidate its interpretive potentials and limitations.

CA5 WORLD ARCHAEOLOGICAL CONGRESS: PROMOTING AWARENESS AND EXPANDING NETWORKS THROUGHOUT EUROPE

Jayne-Leigh Thomas¹, Doug Rocks-Macqueen²

¹INDIANA UNIVERSITY, ²UNIVERSITY OF EDINBURGH

First established in 1986, the World Archaeological Congress (WAC) is the only world-wide organization of professional archaeologists which aims to promote awareness of archaeological research in all countries. WAC provides a forum for international collaboration and discussion on the exchange of research, professional education for disadvantaged groups, the conservation of archaeological sites, and the empowerment of indigenous communities (worldarchaeologicalcongress.org). A newly created Communications Committee within WAC is focusing on the dissemination of resources and training around the world while striving to increase visibility and broaden the existing network of archaeological contacts in regions of the world where involvement is minimal. Efforts are being made to expand this network throughout Europe and to identify how WAC can provide support to archaeologists while improving communication between researchers and local communities.

CA5 UPDATE ON THE DISCOVERING THE ARCHAEOLOGISTS OF THE AMERICAS PILOT PROJECT AND HIGHLIGHTS OF OTHER AMERICAN ASSOCIATION NEWS

Teresita Majewski

STATISTICAL RESEARCH, INC.

The Society for American Archaeology (SAA) currently is undertaking the Discovering the Archaeologists of the Americas (DAA) Pilot Project, which has been inspired to a great extent by the Discovering the Archaeologists of Europe initiatives. This contribution will update roundtable participants about the status of the DAA pilot project, which is now underway, and briefly share highlights of other American association activities (for example, SAA, the American Anthropological Association, and the American Cultural Resources Association) of potential interest to EAA members, particularly in regard to the roundtable theme focusing on providing services and support to professionals in countries where relevant associations do not exist.

CA1 MEDITERRANEAN ARCHAEOLOGY: IS THIS A FEELING?

Alessandro Vanzetti

UNIVERSITY OF ROME LA SAPIENZA

As seen from Rome, the center of the Roman empire, Mitteleuropean feelings in archaeology have alternated with Mediterraneanist positions. It can anyway be assumed that these changing perspectives have shown difficult to be set apart from a culturally colonialist attitude toward the mediterranean countries on one side, and that the Mitteleuropean call has indeed been very limited in facts, on the other.

In present day situation, it is useful to cope with the Mediterraneanist connections and concepts of archaeology, in order to see if they survive apart from façade project-building; furthermore, it is appropriate to consider if they succeed in creating a real counterpart to the national (e.g. Italian, Spanish etc.) perspective, or how far they are integrated in a wider European scientific and political attitude.

CA9 COMMUNITY LED HERITAGE ACTION – A SCOTTISH PERSPECTIVE

Phil Richardson, Cara Jones

ARCHAEOLOGY SCOTLAND

This paper will act as an introduction to the round table discussion on Community Led Heritage Action and present Scottish based case studies of community led heritage action.

CA22 GREY LITERATURE AND ARCHAEOLOGY IN ENGLAND

Victoria Donnelly

UNIVERSITY OF OXFORD

Grey literature is a highly significant repository for a vast amount of archaeological data and is increasingly recognized as an invaluable resource in the UK and across Europe. Grey literature, however, is also an extremely diverse product and archaeologists in many different roles have varied and sometimes conflicting views on what should comprise grey literature reporting.

Although several large-scale research projects in England and beyond have identified the tremendous value of grey literature and are now attempting to synthesise the evidence from this vast body of literature, there is still a lack of detailed studies of the character and interpretative worth of grey literature itself.

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. This paper will also consider ways in which grey literature may be improved as an archaeological resource in the future.

CA22 RETHINKING DATA PUBLICATION: THE MAPPA DATA NOTE.

Gabriele Gattiglia, Francesca Anichini

UNIVERSITY OF PISA

Archaeologists recognise the potential impact that the sharing and reuse of data can bring: the benefits of accessibility, both as open access and open data, are evident for archaeology, given the primary and unrepeatability status of most data sets. Nonetheless, archaeologists have sometimes been reluctant to share their primary research data. Also in consideration of the results of a survey promoted on «Open Data and Italian archaeology», which showed how the need to share data is strongly felt by the majority of the Italian archaeologists, the MOD (MAPPA Open Data), created by the MAPPA Lab of the University of Pisa, has become the open data repository of Italian archaeology, and in 2013 it entered in the list of recommended repositories of the Journal of Open Archaeological Data. On January 2015, the MAPPA Lab promote the first peer review Data-Volume dedicated to Italian archaeology. The idea is based on the assumptions that data need to be treated as a relevant part of the archaeological publication and that papers (not only data paper) should be connected to primary data. These volumes called *MAPPA Data Note* are conceived as a series of archaeological monographs (the first one dedicated to urban archaeology) designed with a dual level of publication: a paper, in which the archaeologists can analyse the data recorded, and the data set published as open data in the MOD repository. The volumes are published as open access and in a print on demand mode.

CA5 GREY LITERATURE AND DEVELOPMENT-LED ARCHAEOLOGY IN ENGLAND

Victoria Donnelly

UNIVERSITY OF OXFORD

Grey literature is a major output of professional archaeologists and is used to fulfil many of the stated aims and objectives of professional associations, such as public outreach. Grey literature is a highly significant repository for a vast amount of archaeological data produced by archaeologists fulfilling a broad spectrum of different roles and at varying levels of 'professionalism'. Although grey literature is increasingly recognized as a valuable research resource and is now the subject of several large-scale research projects in England and beyond, there is still a lack of detailed studies of the character of grey literature and the complex archaeological practices through which it is produced. A consideration of the current processes and practices that result in the production of archaeological grey literature alongside a characterization of grey literature in England will contribute to a greater understanding of how useful grey literature actually is and also to a consideration of ways in which grey literature may be improved as an archaeological resource in the future.

CA21 GREY LITERATURE AND ARCHAEOLOGY IN ENGLAND

Victoria Donnelly

UNIVERSITY OF OXFORD

Grey literature is a highly significant repository for a vast amount of archaeological data and is increasingly recognized as an invaluable resource in the UK and across Europe. Grey literature, however, is also an extremely diverse product and archaeologists in many different roles have varied and sometimes conflicting views on what should comprise grey literature reporting. Although several large-scale research projects in England and beyond have identified the tremendous value of grey literature and are now attempting to synthesise the evidence from this vast body of literature, there is still a lack of detailed studies of the character and interpretative worth of grey literature. 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. This paper will also consider ways in which grey literature may be re-visited, re-imagined and re-tooled to be an improved archaeological resource in the future.

CA9 PARISH GRAVEYARDS AS ARENAS FOR ACTIVE COMMUNITY INVOLVEMENT

Harold Mytum

UNIVERSITY OF LIVERPOOL

Graveyards are visible historic and archaeological resources redolent with memory and identity, often at the centre of local communities and easily accessible. This statement will highlight recent involvement with a number of community initiatives (in UK, Ireland and Isle of Man) which will illustrate both the potential of graveyards for public engagement and action, but also some of the challenges these can bring.

CA9 CULTURAL HERITAGE AND INVOLVING THE RESIDENTS

Lars Göran Spång

MURBERGET LÄNSMUSEET VÄSTERNORRLAND

Cultural landscapes are protected by various laws and regulations. In Sweden there are 1500 areas that are considered to be cultural landscapes of national importance. This means that limitations are placed on the municipalities who do not have the exclusive entitlement to develop these areas as they might wish. It is the responsibility of the central government to define the cultural values and thus the areas which are to be preserved. This has proven to be problematic. It is difficult to convey cultural values through laws and regulations. In Västernorrland in Sweden, we have tried an alternative method by involving the local residents in order to heighten their awareness, interest and commitment as concerns the cultural values of their own surroundings. This is a personalized approach where we as experts have a humble and inclusive role. Thus the residents have their say on both negative and positive attitudes towards decisions on the conservation of the cultural landscape they live in.

CA22 'PUBLISH OR PERISH' - A STATE FUNDER'S PERSPECTIVE

Lisa Brown

HISTORIC SCOTLAND

By its very nature, archaeology is destructive; therefore it is essential that we, as archaeologists, funders and publishers, ensure the effective communication of the knowledge gained from archaeological activity. By communication, we mean making the raw data, the evidence and the interpretation, available to whomever would want to consult with it. These individuals/groups are diverse, ranging from planners and local authority archaeologists to the general public, from academics to politicians.

Hitherto, the funder has had one main objective – 'get it out'.

In this time of ground-breaking changes to archaeological publication, we think the impacts on the funders must be considered. How do funders adapt to this change? In supporting new and novel approaches to publication the risks are higher, and so do we become more involved in the publication process? If yes, then how do we collaborate with, rather than constrain, innovative archaeological publications?

CA9 INSIGHTS FROM IRELAND

Ian Doyle

THE HERITAGE COUNCIL OF IRELAND

The economic crisis in Ireland has led to an increasing interest in community-led archaeological projects. This is due to the ongoing interest from communities in understanding and interpreting the places they live in. Furthermore, the practice associated with the years of economic prosperity circa 1995 – 2008 saw the creation of a large and highly skilled archaeological community which has found declining opportunities for pre-development archaeological projects since 2008. The demise of this era of full employment coincided with the continued development of community archaeology projects internationally and a shift in thinking on heritage issues, e.g. the role of communities and broader values as embodied in the Council of Europe Faro Convention or the ICOMOS Burra Charter. The World Archaeological Congress at Dublin in 2008 has also been cited as one reason for the shift in practice.

This short verbal presentation to the round table will highlight the need for grant assistance for the devising of community archaeological projects. This has come through a range of State agencies and local development Leader groups. This has allowed partnerships between local communities and professional archaeologists to facilitate surveys, excavations, and general guidance and training. Other key issues are the motivation and capacities of local community groups, such that from the point of view of a funding body, selection criteria probably accords equal weight to the monument/place and the motivation/capacity of the local community. Recent experience from Ireland will be presented that seeks to map the structure of successful projects.

CA9 IMPACT OF COMMUNITY ARCHAEOLOGY IN DORSET

Hayley Roberts

BOURNEMOUTH UNIVERSITY

I would like to make the organisers aware of my interest in, and willingness to contribute towards this round table discussion. My current research is on the Impact of Community Archaeology, therefore I would like to suggest that I contribute a 5 minute introduction to one element of my research, the impact of community archaeology on the Archaeological Record. For example how (or how not) community groups contribute towards the archaeological record and how this resource could and should be utilised? My case study area is Dorset and I can present examples of best and worst practice if required.

I am prepared to be flexible or to discuss this further, sorry I did not get a chance to discuss before the deadline.

CA21 INRAP: WHAT PUBLICATIONS FOR WHICH PUBLIC?

Séverine Hurard

INRAP

What publications for which public?

By Séverine Hurard, archaeologist at Inrap, research engineer and co-author of "Search and discovery in Ile de France" (Fouilles et découvertes en Ile de France), Ouest France editions.

Inrap (French national institute for preventive archaeological research) is tasked to exploit and disseminate information to the scientific community, and ensure the cultural dissemination and valorisation of archaeology.

How to reach all audiences without segmenting them? How does the researcher become an author?

This presentation will introduce the editorial policy of the institute, which seeks to embrace all fields throughout several broad aspects (scientific publications, general public and youth literature).

CA2 THE CURSE OF THE BETROTHED: EVALUATING THE RELATIONSHIP BETWEEN ARCHAEOLOGY AND TOURISM IN CROATIA AD 2015

Sanjin Mihelić

ARCHAEOLOGICAL MUSEUM IN ZAGREB

The paper focuses on the position archaeology has and the role it plays in the wider concept of heritage tourism, with a specific emphasis on strengths, weaknesses, opportunities and threats influencing, and being influenced by the relationship between professionals from the two fields. It has long been a self-evident fact that archaeology and tourism are natural allies, yet all too often the ostensive partnership fails when it comes to reaching the common aims, mostly due to shortcomings in the planning process and lack of any deeper understanding of the idiosyncrasies governing and motivating partners from the other field. In addition to deeply ingrained predilections for sectoral entrenchment, there is also the unfortunate perception by many that archaeological tourism is a two-way alley, when it is rather a wide and open square, with a number of other stakeholders whose opinions should matter and who ought to be entitled to have a say in matters of archaeological tourism. At practical level, the paper gives an account of the author's experience regarding archaeological heritage tourism projects that espoused the concept of participative approach to integrated destination management, juxtaposing these with some that did not, and highlighting the benefits of the former practice. In this, the paper specifically features a case study of the Stari Grad Plain World Heritage Site on the Hvar Island.

CA22 DROWNING IN PAPER: THE FUTURE OF THE ARCHAEOLOGICAL MONOGRAPH AND THE PROBLEM WITH PRINT

Erin Osborne-Martin

SOCIETY OF ANTIQUARIES OF SCOTLAND

'A discovery dates only from the time of the record of it, and not from the time of its being found in the soil.' Pitt-Rivers (in Wheeler 1954: 182)

A 2014 JISC survey found that 95% of humanities researchers saw writing a monograph as important or very important in terms of career development. The proliferation of archaeology books being published in recent years certainly points to this being true within archaeology as well. But what does an archaeological monograph look like? Most commonly, they are excavation reports, containing the work of years or even decades. When it comes to excavation, publication is preservation – but publication is also dissemination. Many authors feel that preservation is best achieved through print and paper, but printing excavation reports in tiny runs of 150 to 300 copies fails to achieve real dissemination. In addition, the format of excavation reports, which has been shaped in part by the limitations of print publishing, has created an artificial hierarchy of archaeological information. So why do we keep printing them, and what are the alternatives?

CA21 THE SITUATION IN SWITZERLAND COMPARED WITH NEIGHBORING REGIONS OF GERMANY AND FRANCE

Sophie Hueglin

NEWCASTLE UNIVERSITY

The 26 Swiss cantons differ not only immensely in size, but also in the way in which their archaeological standards are practiced. This has immediate consequences for the amount and quality of excavation reports and final publications. Comparatively high numbers of staff and finances have not necessarily led to a faster and better publication chain. Attitudes towards open access differ immensely amongst the cantons as do the respective efforts to make archives and collections accessible to both researchers and the public. Great differences can also be observed between practices in NW-Switzerland and the neighboring regions in Germany and France. Thus strong biases have to be addressed by archaeological researchers when for example trying to produce distribution maps across the different borders.

CA25 THE ISSUE OF “RELEVANCE” OF ARCHAEOLOGICAL PRACTICE: ARCHAEOLOGICAL THEORY OUT OF CONTEXT

Demetra Papaconstantinou

ARCADIA UNIVERSITY, THE COLLEGE OF GLOBAL STUDIES, ATHENS CENTER

Several decades after its appearance as a separate field of inquiry, archaeological theory seems to have found a comfortable place next to the history of archaeological thought in the core curriculum of archaeological training, primarily owing to the fact that History illustrates in the best possible way the “hidden” theoretical trajectories of past practices, and provides the ideal context for the identification of different theoretical perspectives.

Archaeological theory, being itself the outcome of specific social, historical and cultural conditions, is related to specific archaeological practices and research agendas, and as such it failed to address the overall assessment of archaeological practice and its connection and relevance to society.

In the present paper I will argue that it is very difficult for any individual to take up, apply and advance archaeological theory while still thinking “within the box”, and I will draw attention to the fact that in the teaching and training of archaeologists the relevance of archaeological practice to society is rarely theorized and is usually taken for granted.

Alternatively, I will emphasize the significance of the teaching of archaeological theory and practice in the context of other institutions such as Museums, The Open University, study abroad programs, even undergraduate education, and discuss the insights they offer towards a progressive understanding of the uses and abuses of theory in archaeology.

CA25 COMPARING METHODS FOR TEACHING ARCHAEOLOGICAL THEORY AND REASONING

Hüseyin Çınar Öztürk¹, George Bruseker²

¹UNIVERSITY OF CINCINNATI / ASCSA, ²FOUNDATION FOR RESEARCH AND TECHNOLOGY - HELLAS (FORTH)

In our presentation, in order to establish a basis for discussion in our round-table, we will present our examination and comparison of syllabi of archaeological theory courses, taught in both graduate and undergraduate level in several countries, including U.S., U.K., Greece, and Turkey. The results of a series of interviews with the instructors of said courses, will also be presented, which, we hope, will further inform us on different approaches and issues of teaching archaeological theory.

CA5 CIA-CONFEDERAZIONE ITALANA ARCHEOLOGI. HISTORY, GOALS AND STRATEGIES OF THE FIRST PROFESSIONAL ASSOCIATION OF ARCHAEOLOGISTS IN ITALY

Alessandro Pintucci¹, Elisa Cella²

¹UNIVERSITY OF ROME "SAPIENZA", ²MUSEO ARCHEOLOGICO DI TREVIGNANO ROMANO

The Confederazione Italiana Archeologi (CIA) is the first professional association of archaeologists established in Italy, since 2004. It promotes the professional figure of archaeologists by cultural, political and social initiatives to raise awareness of

Institutions, Unions, Enterprises, Associations and any other subject involved in the protection, preservation, promotion and enhancement of the Italian Cultural Heritage.

On June 2014 it reached, together with the support of other Organisations, the legal recognition of the professional archaeologists in Italy, a fundamental step in the AssociatiCIA-confederazione Italiana Archeologi. History, goals and strategies of the first professional association of archaeologists in Italy

ion's life. Next aims will be to define the professional profile of the archaeologist, in order to match rights and duties with the obtained titles and experiences; the implement of the Valletta agreement in Italy; the regulation and protection of the working conditions of professional archaeologists in terms of wages, rights and protections, for social security, welfare and insurance.

CIA organizes and manages activities (European and National projects, on-work training and courses, dedicated services, conferences and meetings, online communication via newsletter, forums and social network accounts) directly involving its members and different stakeholders to reach the goal of a clear and unambiguous definition of training and qualification standards for archaeologists, in order to arouse a wider debate and the interest of professionals, students and organisations for a better knowledge of the importance of Cultural Heritage protection.

CA18 ACTING POLITICALLY AS AN ARCHAEOLOGICAL NGO. RECENT STRATEGIES AND EXPERIENCES IN GERMANY

Diane Scherzler¹, Frank Siegmund²

¹GERMAN SOCIETY FOR PRE- AND PROTOHISTORY (DGUF), ²UNIVERSITY OF DÜSSELDORF, LEHRSTUHL FÜR ALTE GESCHICHTE
In 2013, archaeology and the preservation of buildings and monuments in the German federal state of North-Rhine Westphalia (NRW) found itself confronted with plans for drastic cuts in federal state funding. A petition directed against these plans and initiated by the German Society for Pre- and Protohistory (DGUF) met with broad public support and was able to noticeably reduce the planned cuts. 2013 also saw the amendment of the Heritage Protection Act (DSchG) in NRW. The DGUF acted as consultant and published concrete recommendations for action for the attention of the regional government of NRW.

CA18 OPPORTUNITIES FOR THE EAA IN A CHANGING POLITICAL CONTEXT

Marc Lodewijckx

LEUVEN UNIVERSITY

On 27 November 2014, a draft version of the new EU Agenda for Cultural Heritage Research and Innovation was presented by delegates of the European Commission in Brussels. Europe has a very abounding cultural heritage and the preservation of this tangible and intangible heritage has always been one of the major concerns of the different European countries, not only because of the economic benefits from tourism, on which many communities depend, but also because it enriches our quality of life and contributes to our identity, well-being, sense of history and confidence in the future. In the face of immigration, globalization and digital media cultural heritage improves inter-cultural dialogue, fosters cohesion and wellbeing of European citizens and is to be considered as a strategic resource for a sustainable Europe.

Archaeology is hardly mentioned in the paper of the European Commission but because of its capability to bring to light many previously unknown remains of our common past, archaeology should be considered as a major player in this policy. Nevertheless, we should alarm our policy makers that Europe's hidden past is also being lost at an appalling rate due to natural decay, human impacts and environmental changes and that we therefore need more resources to find, explore and preserve our common archaeological heritage. In this perspective, the EAA as an association of archaeologists at the European level, needs to motivate its members to support a collective approach of all the challenges involved in archaeological heritage management.

LEGACIES AND VISIONS PAPERS AND POSTERS

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LV2 NEO-PAGANISM AND (CULT-)PLACES

Jutta Leskovar

OBERÖSTERREICHISCHES LANDESMUSEUM

Neopagans use information about the past and create their own interpretations of prehistory, often in ways not much appreciated by archaeologists. A main issue is the alleged use of archaeological sites by Neopagans and other non-Archaeologists, which may lead to disturbances or destruction.

In order to ascertain the real opinions and manners towards the past and archaeological sites, an online survey has been conducted among Neopagans in Austria and, in a second stage, worldwide.

LV23 FRANCE, THE OTHER COUNTRIES OF THE ARCHAEOLOGICAL LOOTING

Jean David Desforges

ASSOCIATION HALTE AU PILLAGE DU PATRIMOINE ARCHÉOLOGIQUE ET HISTORIQUE

In France, the metal detector users are primarily responsible for the archaeological looting and vandalism. They use the argument "leisure". This community is engaged to light several illicit activities (excavation , artifact deterioration , theft, receiving stolen goods) parallel to public communications and lobbying strategies.

In front of this large group , we observed , in the context of the association Halte au Pillage du Patrimoine Archéologique et Historique, the behavior of metal detectors to the buried heritage . Our results illuminate a disaster for the conservation and integrity remains, knowledge of heritage and its transmission to future generations.

Especially, we have highlighted a looting economy led by French at the expense of their own heritage. This traffic is focused on the same sale of metal detection devices, the only official activity of the circuit. We also discovered that archaeological looting is not only motivated by the collection of artifacts. there is also a "black" research that attempts more or less skillfully to prevail in scientific protocols, integrating objects without context in the national corpus.

We propose in this paper to explain how this treasure hunt is the screen of trafficking within the French territory. We will use examples known by the media - such as the emblematic cases of Champagne producer Meaux or the Treasury of Celtic Atrébatés and other illustrations collected at the heart of the metal detectors community, a banality.

LV11 ARCHAEOLOGY IN THE TIME OF WAR: ARCHAEOLOGICAL RESEARCHES IN THE KINGDOM OF ROMANIA DURING WW I

Dragoş Măndescu

ARGEŞ COUNTY MUSEUM

At the onset of WW I, the archaeology in Romania was on an upward trend, under the coordination of the National Museum of Antiquities in Bucharest and its director, Vasile Pârvan. Dobrudja proved to be a goldmine for Romanian archaeology: excavations have been already done at Adamclisi and Ulmetum, and in the period of neutrality (summer 1914 - summer 1916) were initiated promising archaeological diggings (long term planned) at Histria, Tomis and Callatis. In the fall of 1916, after only three months after entering in the war against the Central Powers, the Romanian Kingdom lost more than half of the territory, occupied by the armies of Germany, Bulgaria and Austria-Hungary. Government, the royal family and most of the administration retire in Moldova, in Iasi. Vasile Pârvan was among these. In Dobrudja, Oltenia and Muntenia are conducted true archaeological missions, for this time German and Bulgarian, led by the world known scientific names: Carl Schuchhardt, Hubert Schmidt, Leo Frobenius, Karel Skorpil etc. A wide range of sites are excavated, from the prehistoric period to the Byzantine times. The presentations seeks to provide an overview and comparison of archaeology in Romania before (1914-1916) and under the occupation (1916-1918). Despite prejudices, it is a time when successes are evident in the field, some firsts in Romania: development of prehistoric archaeology, achieving the very first aerial photography in archaeology, the discovery of the single one paleo-Christian basilica with three naves and three apses etc.

LV14 'STANDING ON THE SHOULDERS OF GIANTS': RECENT ARCHAEOLOGICAL FIELDWORK IN THE STONEHENGE WORLD HERITAGE SITE

Mark Bowden

ENGLISH HERITAGE

The Stonehenge World Heritage Site is an area inscribed for its exceptional – and indeed unique – Neolithic and Early Bronze Age monuments. In recent years it has been the subject of a large number of archaeological fieldwork projects undertaken by

academic institutions and by government agency. This has involved innovative work with new scientific techniques of prospection and analysis as well as more traditional approaches to the landscape. These projects have resulted in major discoveries and new understandings of many aspects of this WHS, some of which have attracted considerable media interest; several television documentaries, of variable quality and at times contradictory, have been aired. This paper will consider the impact of this recent work and its implications for the management of the WHS, for public appreciation of its riches and for its long term preservation and presentation. It will, however, also reflect on the degree to which the new research is founded on the activities of previous generations of antiquaries and archaeologists, and how their legacy affects current visions.

LV2 RENEGOTIATING RITUAL 'LITTER': THE COIN AS MODERN-DAY DEPOSIT

Ceri Houlbrook

UNIVERSITY OF MANCHESTER

The contemporary act of depositing a coin, whether to make a wish, for luck, or "just because", can be interpreted as a modern spiritual practice. Within the British Isles – indeed, worldwide – coins are dropped into springs, wells, and fountains by the thousands. Many of these deposition sites are contemporary constructs: wishing-wells can be found in shopping centres, urban parks, and at tourist attractions. Coins are, however, also widely deposited at sites of archaeological or historical significance.

Coins are slipped into the clefts of the stones of the Neolithic long barrow of Wayland's Smithy, Oxfordshire. In Co. Donegal, they are placed on the flagstone on which St. Colmcille was believed to have been born in the 6th century. And they are dropped into the spring at the Roman Baths and Pump Room in Bath, Somerset. These are just some of the many examples whereby coins act as modern deposits at archaeological/historical sites across the British Isles.

This paper does not aim to locate itself within the complex debates of site custodianship and accessibility, nor does it propose to address the broader dilemmas of a site's ritual continuity or resurgence. Instead, its aim is to consider how the site custodians treat these contemporary deposits; are they removed or left in situ? Are such practices encouraged or discouraged? Are the coins viewed as 'ritual litter' or, as I intend to argue, as integral parts of the ritual narrative of a site?

LV2 TIR SANCTAIDD: NEO-PAGAN ENGAGEMENT WITH PREHISTORIC SITES ON THE PRESELI HILLS

Delun Gibby

BANGOR UNIVERSITY

The Preseli range in North Pembrokeshire, renowned as the source of the Stonehenge bluestones has long been recognised as being a sacred landscape in prehistory. In this paper I will demonstrate that the majority of archaeological sites across these hills are considered sacred to Neo-pagans. Many archaeological sites across the area such as Gors Fawr, Pentre Ifan and Castell Henllys have already been established as spaces where people can interact with the physical remains of the past, but in recent years, these sites have been renewed in their purpose as sacred spaces for engaging with the ancestors, the gods and the spirits of the land. For some, the use of archaeological sites as places of modern spiritual activity is cause for concern; however my findings show that small scale Neo-pagan rituals have not negatively impacted the archaeology of these sites but rather have added another dimension in which the public interact with the past.

LV18 ARCHEOLOGY, LANDSCAPE AND HYDRAULIC TECHNOLOGY IN THE EUGANEAN HILLS AND THE PLAINS OF THE SOUTH-EAST OF PADUA

Julia Sarabia Bautista

UNIVERSITÀ DEGLI STUDI DI PADOVA

The proposed paper focuses on the study of the environmental and cultural landscapes southwestern of Padua, with the central axis in the diachronic study of one of the essential natural resources to generate agrosystems: the water. The main goal of the study is to investigate the evolution of the natural and artificial hydrographic network that have affected this area between the Antiquity and the present times.

The radical modification of settlement patterns and land management associated with climate change has led important alluvial phenomena along the history. In this situation, our study proposes investigate the characteristics and causes of the alluvial phenomena produced in the past, the sustainability of the ecosystems involved and coping strategies adopted.

To achieve these objectives we are conducting a transdisciplinary survey through several lines of research centered on innovative methodologies:

1. Analysis of remote sensing by LiDAR and Radar to recognize traces of the riverbeds.
2. Sampling on the ground by drilling to identify which rivers are related to the various riverbeds identified.
3. Analysis the potential and historical land uses, with special focus on the interactions between water, agrosystems and sites within the cultural landscape.
4. Survey of data and geo-referencing them in the regional technical map to reconstruct the settlement pattern in relation to the rivers and the channeling and irrigation structures at different times.
5. Research in written and cartographic sources to identify the network of canals for irrigation or for spillways, the stages land reclamation and reduction in crop that have affected the region.

LV24 COGNITION AND FORM - MIND AND MATTER

Torill Christine Lindstrøm¹, Torill Christine Lindstrøm², Ezra Zubrow³

¹UNIVERSITY OF BERGEN, ²DEPT OF PSYCHOSOCIAL SCIENCE, UNIVERSITY OF BERGEN, ³DEPT OF ANTHROPOLOGY UNIV. AT BUFFALO, USA

The complex interactions of body, brain, mind, matter, individual and culture in shaping artefacts.

The repeated forms of archaeological artefacts show that their shapes are not random. There are several factors for this. Two factors are rather banal: One is the artefacts' usages which require functional designs; another is the physical qualities and characteristics of the materials the artefacts are made of. These two are related. Other factors are more subtle and intricate, and more directly connected to the human producer: One is that humans, both as a species and as individuals, have certain motoric, perceptual, and psycho-neurological characteristics and are biologically wired to experience the world in certain ways. A second is the collective cultural contexts which influence perception, experience, and behaviour. A third is the lived lives of individuals. All these factors impact the ways people think about and experience the world. These influences on human experience create meanings which impact on the creation of artefacts and their decoration. And they, in turn, feedback on peoples' minds. Artefacts may therefore tell us something about our ancestors' perception of their world. – These ideas will be elaborated, with examples and comparisons; including a short analysis of northern European Migration Period "Animal Art", and a comparison of this art with Native American Indian art.

LV9 WE WILL NEVER FORGET THE DAY WE LOST OUR MEMORY

Duncan Brown

ENGLISH HERITAGE

Most of the artefacts recovered by archaeologists cannot be reconciled with written history and remain unrecorded in any other way. It might therefore be misguided to regard the lost or discarded possessions of our ancestors with too much neutral detachment. These splinters stuck into the surface of time once meant something to somebody and may therefore be understood as indicators not only of past activities but also desires, needs and knowledge. This paper takes the example of medieval pottery production and use in England to examine the notion of memory expressed in objects. Pottery is one of the most common artefacts recovered in medieval excavations and has the potential to inform our understanding of many aspects of how people lived. Through the examination of some of the most ubiquitous forms, cooking pots, bowls and jugs, it is possible to observe patterns of style that refer, or even defer, to earlier traditions as a means of expressing ancestral affinity and custom. The question of when custom becomes tradition, in terms of the development of forms, materials and methods of use, will also be considered here. Archaeological interpretations are based mainly on change but it is often what remains the same that reveals patterns of legacy, cultural connection and lineage. To find the forgotten we must look closely, to remember we must look again.

LV16 LOST IN SPACE

Duncan Brown

ENGLISH HERITAGE

Museum stores across Europe may be feeling the pressure from unprecedented levels of archaeological activity but museum curators are suffering more. In England less than a third of museums that collect archives from archaeological projects have curators who are trained archaeologists. It is difficult for people who care for archaeology collections to facilitate access to those resources if they find it hard to understand the requirements of visitors who may come for or just enjoyment. More significantly, perhaps, the history of understanding and interpretation of the things that make up a collection can become more obscure, or fully dissolved, by the passing of time or the shifting arrangements of museum stores. This paper will look at the ways in which the records made about a group of objects, from excavation, to specialist record, to academic study, to public exhibition, should be linked in a continuous story that reflects the development of various people's thoughts and ideas. The record is the legacy of archaeologists, so the care of that record must be a paramount responsibility. By tracing how basic records may be preserved, while ideas can be mislaid, this paper will show how the loss of curatorial expertise, or the fracturing of lines of vision, can compromise our knowledge as we walk into museum spaces and revisit old archaeologies.

LV14 ST KILDA: MAPPING A FUTURE FOR THE PAST

Angela Gannon

RCAHMS

The small and spectacular archipelago of St Kilda lies isolated and windswept in the Atlantic some 100 miles (160km) west from the coast of mainland Scotland. With the last 36 inhabitants evacuated on 30 August 1930, the islands are one of only 31 global locations that have received Dual World Heritage Status in recognition of their natural and cultural heritage. But despite this accreditation, until recently the locations of the archaeological remains have never been mapped accurately, and their presence has been known only from local knowledge and sketches drawn onto copies of the Ordnance Survey maps from the 1970s. Over three years, between 2007 and 2009, field staff from The Royal Commission on the Ancient and Historical Monuments of Scotland (RCAHMS) have worked alongside colleagues from the National Trust for Scotland (NTS) to record these remains, and have now mapped traces of human occupation dating from early prehistory right through to the 20th

century. This reveals that St Kilda has a remarkably busy and varied archaeological landscape, and tells a story of resilience, sustainability and exploitation of natural resources. The archaeological remains demonstrate the St Kildans' unique response to their environment, yet at the same time show cultural contacts with the Hebrides and the Highlands of North West Scotland. By mapping these remains, the NTS will now be able to manage this valuable legacy and ensure its protection well beyond the centenary of the islands' evacuation.

LV24 THE ARCHITECTURE OF THE HALLSTATT PERIOD IN SILESIA REGION

Tomasz Gralak

INSTITUTE OF ARCHAEOLOGY OF WROCLAW UNIVERSITY

While analyzing settlements from the HaC period from the Silesia region in Poland, a repetition of form of building remain was observed. Metrological analysis showed the use of repetitive units, which were of about 0.785 m. It was also found that the layout of the buildings and the settlements was planned using a modular system utilizing two geometrical figures. First a square with sides 4x4 units, and a second rectangle with sides 3 x4 units. Similar rules of spatial organization have also been used in the construction of ornaments on pottery and objects of everyday use, the different being that a triangle was the dominant figure. In both cases modularity was the basic paradigm of the style. It is also possible to observe the same rules in other regions habituated by people of the Hallstatt culture. The genesis of this style is uniquely associated with the culture of antique Greece of the geometric period. It was found that style paradigms used in construction and ornamentation are exact parallels of the world perception and construction of Homer's works. This concerns the composition with a hexameter and multiplication of repetitive elements and subjects. Such features are generally characteristic for oral traditions. This resulted from the need to memorize which is necessary for the functioning of preliterate societies. In the case of Greece oral tradition was crucial for the formation of all culture. Perception of the world and man was shaped this way, which is reflected in contemporary philosophy.

LV5 IN IT FOR OURSELVES? ARCHAEOLOGICAL PRACTICES AND THE IDENTITY OF ARCHAEOLOGISTS

Raimund Karl

PRIFYSGOL BANGOR UNIVERSITY

Archaeology is all about the production of scholarly knowledge, or so we would like to believe. Our practices of protecting, collecting, storing, analysing and interpreting archaeological evidence serve, first and foremost, the purpose of increasing humanity's knowledge about its past. We do all this not for ourselves, but for the public benefit, in as objective a way that is possible. Our own interests have little, if any, influence on what we do and how we do it, selfless servants of the public interest that we are. At the most, our personal interests shape what themes and periods we pick to concentrate on if we are lucky enough to end up in a position that gives us the freedom to do so. And for all that public service, we're paid at best a pittance. You can't be more public-spirited than that.

In this paper, I will argue that our pleasant image of ourselves and of what we do, and for whose benefit we do it, is a convenient self-deception. Rather than being primarily concerned with what is actually in the public interest, or even only is best for the archaeology, our disciplinary practices are geared primarily towards satisfying our own interests; particularly our interest of creating and maintaining our particular social identity as objective, public-spirited guardians of the interests of archaeology and of the public in its preservation and study. We are in it for ourselves, and I would argue must be honest about this.

LV17 IS DAMMED ARCHAEOLOGY REALLY DAMNED? RESERVOIRS, RESCUE, RELOCATION, RECONSIDERATION

Emily Stammitti

UNIVERSITY OF EDINBURGH

There is an imperative need to locate and investigate archaeological features in planned reservoir zones, as the rate of dam construction increases based on expanding needs for access to fresh water and alternative, renewable sources of power. When the construction of large dams is announced, time and budgetary constraints emerge, leading to hasty and expensive conservation works. In these time-critical cases, cultural resource managers work to find fast solutions to save sites that will be at the mercy of the filling reservoir's erosive currents and research-hindering body of water. However, destruction and lack of access are not the only possible culminations of submergence, a fact often overlooked on the heels of dam construction announcements. This premise forms the basis for ongoing research in reservoirs in Scotland that is proving that many archaeological features hold up in the face of reservoir submergence. Cross sections of the features' conditions, assessed *in situ* (i.e. underwater) are used to determine how reservoirs affect archaeological sites. From this data, typologies of features within reservoirs are created based on the data collected. Typological categorization allows better monitoring of sites and the potential for a predictive model to measure the extent of damage terrestrial sites are likely to sustain throughout the life expectancy of newly planned reservoirs. This data provides the means through which conservation and mitigation strategies can be better implemented, and redefines the future of rescue archaeology prioritisation in dam construction projects.

LV11 THE ARCHAEOLOGIST, THE NURSE, HER HUSBAND AND THE OFFICER: THE IMPACT OF THE GREAT WAR ON THE ARCHAEOLOGICAL RESEARCH IN VINČA, SERBIA

Miroslav Vujovic, Jasna Vukovic

DEPARTMENT OF ARCHAEOLOGY, FACULTY OF PHILOSOPHY, UNIVERSITY OF BELGRADE

The Great War, as a turn point in modern world history, have influenced not only political changes in Europe, but also the archaeological research. Excavations in Vinča, started in 1908 by Miloje Vasić, the first educated archaeologist in Serbia, revealed that archaeology in post-war Serbia suddenly took a completely new direction. Unlike the period prior the WWI, when the Serbian archaeology was heavily influenced by the German Archaeological school and Vinča excavations were supported by the Russian Academy in Constantinople, a newly established war alliances grew into a fruitful scientific cooperation with British archaeologists. Several well-known names were brought together during the post-war archaeological diggings in Vinča. The financial support was provided by the newspaper magnate Sir Charles Hyde, and the scientific cooperation by J. L. Myres, the archaeologist and the RNVR officer. However, an seemingly ordinary British couple also participated – Mr. and Mrs. Brown. Their contribution was not scientific one but based on their philanthropy, personal contacts and, possibly, special involvement in the War. Authors point out to the mysterious Catherine Brown, WW1 nurse, whose fate has been interwoven with the Serbian soldiers on the Salonika Front. Her anonymity, as will be discussed, does not correspond with the role she played in the renewed excavations in Vinča by making crucial contacts with the British.

LV30 THE STYLISTIC UNITY BETWEEN ORNAMENTATION OF ADORNMENTS FROM HOARDS AND ARCHITECTURAL WHITE STONE CARVING OF OLD RUS

Natalia Zhilina

INSTITUTE OF ARCHAEOLOGY RAS

Between stone carving and the archaeological material from the hoards similar stylistic tendencies in the development of zoomorphic and floral ornament are observed.

Vladimir-Suzdal churches with white stone carvings have exact dates of their building. Adornments from russian hoards (XIth – the first third of the XIIIth century) in cloisonné enamel, niello and stamping do not have an exact data, if we use only the methods of archaeological dating.

Since jewelry items are works of applied art, it is perspective to use the method of stylistic analysis. Jewelry treasures are divided into groups according to the stages of stylistic development of their ornament. A comparison with the material of stone carving brings the following conclusions.

The earliest layer of ornaments associated with geometrize image, passing to the native proportions. The parallels are in stone carving of the Nativity Cathedral in Bogoljubovo, Church of the Intercession on the Nerl, Assumption Cathedral in Vladimir (1150–1160).

Middle layer is characterized by exaggerated ornaments made by curving line. This stage finds parallels in the carving of Demetrius and Assumption Cathedrals, the Cathedral of Christmas monastery in Vladimir (1180–1190).

The most recent layer of jewelry is characterized by naturalism and complexity of composition. The exact parallels are in carving of the first third of the XIIIth century: Nativity Cathedral in Suzdal (1222–1225), St. George's Cathedral in Yuriev Polsky (1230–1234).

Interdisciplinary study allows to see jewelry in line with the development of ancient Russian art, as well as – to date jewelry.

LV7 FROM GEOMYTHOLOGY TO ENVIRONMENTAL HUMANISM

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Environmental humanism recognises that nature is an integral part of human society and as such is also part of the human condition. This also applies to science with the critical difference that science is time-dependant and a product of human culture. In the absence of 'modern' scientific understanding the environment was still understood but through entirely different frames of reference. This is particularly the case with water when it is in short supply or when it is in over-supply. The Classical city of Stymphalos, which is associated with Artemis and famed for Herakles sixth labour (killing of the Stymphalean birds), has a rich mythology. Whilst this narrative has been associated solely with the lake it can be argued that this geomythology was part of the cities relationship to environmental unpredictability and the relationship between water supply and water loss. In northern Europe there are two sources of evidence of nature narratives, one generally poetic the other prosaic and though place names. Scandinavian flood mythology frames hydrology as the body whilst at first view place names record site conditions they can also be anthropomorphic or related to action – swift, fast, strong etc. The geomythology and narratives of such societies created their environmental and social resilience and therefore are essential components in understanding the archaeology of the past and evolutionary human-environment interactions.

LV9 OUT-OF-TIME BUT NOT OUT-OF-PLACE: COMMEMORATING AND FORGETTING TRADITIONS THROUGH METALWORK IN THE BRONZE AGE OF SOUTHERN BRITAIN

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Metalwork depositions of both single and hoarded bronze pieces are perhaps the defining characteristic of the Bronze Age period. A phenomenon often noted, but rarely discussed, however, is the presence of earlier bronze objects in later Bronze Age contexts. These 'out-of-time' objects have much to inform us about the ways in which past societies conceived their own past, especially when contextualised in a broader integrated landscape. Such deposits were often made in significant locations in the landscape or within settlements. They could be used to reinforce community boundaries and links with ancestors by including heirloom objects or objects involved in significant practices in the past. The way these objects were treated pre-deposition (e.g. curation or destruction), as well as their type, composition, and use-wear, can be considered indicators of prehistoric processes of commemoration and/or forgetting. Approximately twenty contexts have currently been identified in which 'out of time' pieces of metalwork occur, the majority of which, it can be argued, formed events of commemoration, legitimisation and/or forgetting. This paper ultimately builds on previous studies on the mnemonics of objects to enhance our understanding of Bronze Age communities.

LV8 GEOPEDOLOGY MEETS LANDSCAPE ARCHAEOLOGY - INTERDISCIPLINARY RESEARCH ON MAN-ENVIRONMENT-INTERACTIONS IN OPEN CAST MINES

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In active opencast lignite mines studies on extensive outcrops that address geomorphology, pedology and archaeology provide unique insights into human-induced environmental changes. We use a variety of traditional and cutting-edge techniques to characterize small-scale landforms (high-resolution DEMs by micro-drone and LiDAR), to analyze soils and substrate properties in the field (GPR, ERT, geomagnetics, Field Portable XRF and XRD) and to provide chronological information (OSL, 14C, tree-ring dating). This approach is combined with a GIS for data integration.

Our results from South Brandenburg (Germany) regarding human-induced geomorphodynamics and landscape archaeology are similar to those in other regions in Central Europe, but we also observe regional differences caused by the local setting, e.g., intensification of soil erosion coinciding with the expansion of farming of cultivated lands in the Slavic Middle Ages. By analyzing LiDAR data the largest area of historical charcoal production in the Northern European Lowland (NEL) has been revealed.

We are clearly only beginning to understand the massive dimensions of charcoal production in the region and the impact on late Holocene geomorphodynamics. The usage of new high-resolution imagery is essential to identify small-scale anthropogenic landforms hidden in the landscape. Future work will consist of developing and improving our integrative approach. However, comprehensive ground truth data provided by the archaeological prospections in the open-cast mines are an excellent basis for GIS-based analyses of high-resolution ALS data and geomorphological research.

LV11 THE BATTLES OF ARSUF: THE GREAT OFFENSIVES OF THE 3RD AND LAST CRUSADES

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"They smote to the left and smote to right:

Then were the Turks in sorry plight" (Ambrose 6501-6502).

The Battle of Arsuf was the chief violent engagement of the 3rd Crusade which took place in an open field, but it is less acknowledged that the fields of Arsuf (medieval Arsur, also known as Apollonia) played a significant role in the Great War. Arsuf served as the frontline from December 1917 to 19 September 1918. It was also the key position from which the Battle of Sharon/Samaria/the Great Offensive started, a battle which ended with the great Ottoman Turkish defeat in the Jezreel valley.

In the fall of 2013 and summer 2014 an archaeological study was conducted in the fields north-east of Arsuf. The work was carried out in the frame of the Apollonia-Arsuf Excavation Project (on behalf of Tel Aviv University, Institute of Archaeology). Due to the dynamic and ever-changing landscape of the Arsuf hinterland, the archaeological study required methods and thoughts beyond the boundaries of the conventional archaeological site reconnaissance and basic field-survey and site-detection works. Consequently, the field-study led to locating the 12th century battlefield and to the unearthing of material signature of both conflicts. But more significantly, the study led to the understanding of why those fields continued to play such a significant role in different periods in the *longue durée*.

LV22 UTILISATION OF WOODLANDS IN THE PAST: CAN WE PROVE MANAGEMENT IN ARCHAEOLOGICAL WOOD ASSEMBLAGES?

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There is no doubt that people have used woodlands in the past, for example for hunting, foraging and gathering of wood resources. It is often presumed that people not only exploited woodland but also actively managed woodland to improve the availability and quality of resources including wood. By investigating large wood assemblages information can be obtained about possible management.

Managed trees tend to produce long, straight branches in a short time. In an attempt to prove utilization of managed trees, a method was developed using the age/diameter ratio. The fast growth of branches from managed trees result in fewer annual rings for a given diameter, when compared to branches from unmanaged (natural) trees. Research on modern managed and unmanaged trees of willow, alder and ash, the species most used for wicker work in the Netherlands, seems to confirm this hypothesis (Out *et al.* 2013 in Journal of Archaeological Science).

The methodological research method described above has been extended with the analysis of managed and unmanaged trees of hazel, a species that occurs frequently in archaeological assemblages in Denmark and Germany. Further research on all these species focuses on other factors influencing growth to investigate the validity of the hypothesis. Also the alternative possibility of diameter selection -where people have gathered wood not randomly, but selected a certain diameter from natural woodland- has been examined. Finally, the method has been applied to data of archaeological sites dating from the Mesolithic to the Merovingian Period.

LV30 SCIENCE DEDICATED TO THE STUDY OF ARCHAEOLOGICAL TEXTILES : THE EXAMPLE OF A WORKSHOP IN BRANDES-EN-OISANS (12TH-14TH C., FRANCE) AND YAKUTS GRAVES (18TH-19TH C., SIBERIA)

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The study of archaeological textiles is a discipline generally still unknown. Through the development of scientific methods the study of textiles became advanced. This paper offers to explain several of these methods used for the archaeological textiles found into two sites : a workshop for the washing of the silver ore in Brandes-en-Oisans (12th-14th c., France) and several Yakuts graves (18th-19th c., Siberia).

LV19 AT ANY GIVEN MOMENT - ARCHAEOLOGY AND PHOTOGRAPHY

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This paper is about how archaeology and photography share similar properties especially when it comes to exploring ideas concerning extent (space) and duration (time).

Archaeology deals with what's left of movement, of being alive. It excavates 'the incline that matter descends' (Bergson 1911). Bizarrely, archaeology is often perceived of as a discipline that produces flat and quiescent representations of past events - a series of spatial snapshots as opposed to lived histories.

Early photography was the same in that its long-drawn-out exposure times could only register what survived of movement, but not movement itself. Yet its very inability to capture movement made it all the more precise in its ability to reveal the inert. Its focus, its depth of field, was highly sensitive to inanimate things (buildings and artefacts) which it reproduced at extraordinary resolution. Even as photographic technology advanced, and its capability to arrest movement improved, time was still involved in the production of an image - the photograph was still a composite of extent and duration.

Theorising photography, the photographic process, is our way of thinking differently about archaeology. It is our opinion that neither discipline produces flat quiescent representations of past events.

LV8 FOUCAULTIAN LANDSCAPES: SPATIAL MATERIALISATIONS OF DISCOURSE

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It is a frequent misreading of Foucault's theory of discourse that it only deals with the world of words. Such a narrow reading of Foucault not only omits his important writings on architecture, but it blinds out that power is not only exerted by verbal means, but has a material side as well.

I will draw on a classical Foucaultian approach with the question of power center stage and asking for spatial materialisations of discourses. Obviously architecture can be such a materialisation of power: Walls of cities and buildings, orders of rooms and architectural arrangements limit, allow and guide movements, they impose control and deny access, they decide on what can be done and what cannot be done and by their materiality naturalise and sublimate ways and restrictions of spatial movements. As the tracks of movements precondition specific ways of perceiving the world their architectural guidances and restrictions are much more than a control of pathways, but they enforce the corporeal internalisation of a specific world view and its power relations.

Likewise, "natural" features can be regarded as materialised discourses on the reality of the world and the place of humans, they create convictions about physical properties of things and their spatial order. These discursive convictions constitute the perception of natural features. Depending on their specific cultural contexts such features can be regarded as determinants or possibilities. As with architectural settings the powers of current discourses materialise in "natural" settings which reproduce and enforce discursive power structures on the subjects.

LV25 ERNST SPROCKHOFF AND THE DEVELOPMENT OF GERMAN MEGALITHIC TERMINOLOGY

Reena Perschke

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Since the 19th century, the German terminology for megalithic graves was part of the pan European system of Déchelette and Montelius. The monuments were defined as dolmen, passage grave or cist with predetermined criteria in their architecture (e.g. differences in the shape of entrance, chamber or tumulus).

During the 1920s, the young archaeologist Ernst Sprockhoff (1892-1967) kept these terms to define North German monuments. But after the seizure of power of the National Socialism, he changed his definitions and introduced new German terms for the megalith graves to "prove" a Northern Proto-Indo-German origin of the monuments. His terminology was one of the foundations of the Reichsbund für Deutsche Vorgeschichte and the Ahnenerbe of the SS to declare megalithic regions in Europe as old Germanic settlement space which had to be "reconquered".

New terms like "Urdolmen" ("primal dolmen") or architectural changes in the definition of a German "Ganggrab" (literally a "passage grave") precluded henceforth the comparison of German and other European monuments. Sprockhoff, who had become in the meantime first director of the Romano-Germanic Commission, even compared Neolithic societies with actual politic conflicts.

Finally, the Sprockhoff terminology was fixed in 1938 with his standard work about "The Nordic megalith culture" and his recording of about 900 German megalith graves in a multivolume catalogue. His terminology was taken over by archaeologists of both German states (GDR and FRG). Till today, it is exercised uncritically in contemporary academic teaching, while German and other European terms for megalithic structures still do not fit.

LV17 DAMS AND ARCHAEOLOGY: A METHODOLOGICAL APPROACH

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From a geomorphological point of view, the particularity of the dams is to be at the crossroads of several landscapes. So, construction work damaging various places including the main valley and side valleys, but also the hillsides and sometimes significant portion of the plateaus that can be affected by secondary facilities (roads, access roads, building site, electrical site, etc.).

This diversity of landscapes on large surfaces offer archaeology the opportunity to work on a complete landscape, and to study not only the human settlements individually but also their relationships with each other and their environments. This paper presents some methodological ways for preventive archaeology operations prior to the construction of these dams.

LV6 WE FOLLOW LINES

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Smithson's geometric installations, such as his landscape earthwork Spiral Jetty or his Enantiomorphic Chambers, were *windows* that invoked a different kind of ontological perspective. The metaphor of *window* is not concerned with the connections between an installation site's inside and outside - a dialectical position - but between the interior (the actual site) and the outskirt (the gallery), a space that is constantly in flux.

Like artists at work, archaeologists are always on the move and at the interface, whether scrapping the edge of a trowel, drawing a plan on site, or 'reading' an aerial photograph. This mode of interpretive reflexivity is an interstitial position to be in, where archaeology is simultaneously the actual site or subject engaged in, as well as the object watched or viewed from the gallery.

This interface, or the point of contact for archaeology, like art, is constantly shifting. To explore this shifting position, our paper is built on the 'slow' emergence -some might say an excavation of a kind - through the ex-change of mappings and landscape representations over a six month period.

Following Frédéric Gros's idea that 'whatever liberates you from time and space alleviates you from speed' we've taken our time and done away with 'conventional' spatial representations. Like the salt crystals accumulating over Smithson's Spiral Jetty our own representations form a perspectival envelope under which we undermine the rhetoric of archaeology and art by following each other's lines.

LV28 ORAL HISTORY AND THE RECEPTION OF NEW ARCHAEOLOGY IN SPAIN

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How do scholars living far apart communicate in practice and how they create the preconditions for the transmission of knowledge between separate geographical regions and countries? What media were used to allow communication? Did the ideas moved through publications or rather through personal encounters made conferences or at the dinner table? How did

they spread in the new community? The aim of this paper will be to answer these questions in a specific case study: the unequal reception of the ideas, methods and practices of New Archaeology in Spain. The information for this paper will be based on interviews undertaken under the umbrella of the Without Frontiers project and contrasted with results obtained by other sources. The relevance of oral history to study recent periods in the history of archaeology is manifold but one of the key ones is the unavailability of accessible archives – because of restrictions related to data protection legislation or because of the personal character of the documentation. Oral history has the power of bringing the subjective into the historical account, which is a perspective rarely available by other methods. However, oral accounts have also problems related to strategies by interviewees, its dependence on memory and on the individual recollection of events which may result in a plurality of stories. Rather than seeing this as a problem it will be argued that this may be more related to the actual way in which individuals may have experienced the events that marked our own disciplinary history.

LV19 ARCHAEOLOGICAL PHOTOGRAPHS AND TEMPORALITY: FROM TIME TRAVEL TO TIMELESSNESS

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Archaeological photographs are often seen as neutral pieces of evidence whose purpose is to preserve or salvage that which was being excavated. This evidence obtains part of its authority by looking a certain way: for instance, there are accepted visual conventions for framing, lighting, and scale, all of which evolved from pre-photographic documentary conventions.

The supposedly scientific, evidentiary qualities of such documentation are at odds with what might be called an archaeological aesthetic. Among the components of this aesthetic is a particular representation of time. This paper will explore the ways in which time operates in archaeological photographs and the implications of this for archaeological knowledge. With particular reference to Classical archaeology, it asks what temporalities are seen, or not seen, in archaeological photographs. How do archaeological photographs relate to the understanding of and representation of archaeological chronology? Is the tension between indexicality and beauty in archaeology's photographs also the tension between time and timelessness? Finally, what might a more careful consideration to the visual constructions of temporality add to our understandings of archaeological photographs, and archaeological tempos and temporalities, more broadly?

LV6 ESCAPE - COLLABORATIONS AND EXPERIMENTATION

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When we discuss the interaction between art and archaeology it is generally agreed that it is important that there is equality in the interaction between the two. This might very well also be the case when it comes to tourism. We think that it is crucial to start cooperating with the specialists in tourism so that this side is also in cooperated in the project making. Actually we choose to take the challenge one step further and make a project that combines archaeology, art and tourism on equal terms!

The project is called *eScape* and can be seen as a concept that is all about combining art, archeology, past and present - creating and telling art on sites with strong archaeological evidence in combination with the scientific archaeological excavations.

The location and the landscape is the *raison d'être* of the project - and locals as well as tourists are given the opportunity to experience landscape storytelling combined with world history interpreted by modern art. *eScape* brings out art and cultural heritage "on location", away from the walls of the museum, creating a phenomenological space where nature, art and cultural heritage meet and communicate with one another, giving visitors unique and unexpected experiences.

Furthermore the project is about daring and sharing. Daring - by experimenting and getting involved in different new collaborations. Sharing knowledge and experiences.

The first *eScape* project took place in September 2014 and new exciting projects are under developing for 2015 and 2016.

LV21 UNDERGROUND SACREDNESS: HYPOGEAN CULT ENDURANCE FROM PREHISTORY TO CHRISTIAN ERA. A 'FOCUS' ON THE FIGURE OF MICHAEL THE ARCHANGEL AND ON SOME CASE STUDIES FROM SOUTHERN ITALY

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Within the study of the use of natural caves in the past, it gradually emerged how many cavities dedicated to the worship of Michael the Archangel present an ancient cult legacy that, differing in features and religions, has deep roots in prehistory and protohistory. The peculiar characteristics of the Archangel and of his first apparitions strictly link him to mountain peaks, caves and water springs supposed to have healing and thaumaturgic properties. Therefore, the choice of the place of cult appears to be affected by the search of places with features similar to those of the first sanctuaries devoted to this mythological figure; it is often the cave morphology itself to retain an active function in the choice of the place as for a kind of sacredness *transfert*. Furthermore, the recurring overlapping with historical pagan cult, and formerly with prehistoric and protohistoric ones, might have contributed to the consolidation of the ritual function of specific caves that, strongly connoted in this way, preserve their

value as sacred spaces through times and religions, from prehistory to history, from paganism to Christianity. This paper analyses some case studies from four different regions of southern Italy (Calabria, Basilicata, Puglia and Campania). Specifically, we will take into account natural caves whose recurrent characteristic is the presence of underground waters: in these spaces the worship of the "prince of angels" is frequently the final point of a cult continuity whose first evidence date back to several millennia ago.

LV5 'EUROPEAN' LEGACIES IN THE MAKING

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Archaeology has never been about matters of fact as much as it has been about matters of concern. A key place where the concerns of archaeologists and political spheres meet and interact is in the policies guiding the distribution of funds for research. Taking EU funding as my point of departure, this paper will engage with the socio-politics of archaeological legacies in the making, arguing that there is still a difference between what we say and what we write in archaeology, or *between what we know and what we do*. This disconnect can be traced to the daily labour of 'translating wills'. In the etymology of the word 'legacy' we find the Latin 'legatus' meaning ambassador or messenger, a connotation more apt than "something inherited or left behind". It points us to the messenger's task of knowledge transfers and the ambassador's job to represent, both involving the necessary act of translation. They also bestow onto legacy a sense of momentum: a sender and a recipient. Among the senders we find not only collectives of scholars but also the political wills and hierarchies of power enabling them. Since the late 1990s, the EU culture programmes have been one such sender and in this paper it will serve as a window into the translations that occur when applicants engage with the wills of a funding source and the outcomes of this interaction.

LV28 ORAL HISTORY AT TELL BALATA (PALESTINE): AN INSTRUMENT TO EXPLORE ARCHAEOLOGY'S SOCIAL VALUES FOR THE PRESENT DAY COMMUNITY

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The Tell Balata Archaeological Park-project in Palestine (2010-2014) aimed to turn the unearthed architectural remains of this ancient fortified city into a visitor-friendly site park. While doing so, the joint Palestinian and Dutch project team of archaeologists and heritage professionals aimed to involve the local public in its plans and activities, as an important stakeholder in a holistic heritage management approach. This approach sought to combine stakeholder analysis and significance assessment with public outreach, and included for instance gathering oral histories about the site from local community members, such as neighbours of the site, land owners, shopkeepers, religious leaders, etc. (Van den Dries and Van der Linde 2012). These collaboration activities turned out to be a perfect opportunity to identify the opinions and values of local community members on the safeguarding and management of the site. They were also useful to raise awareness and gain support for site preservation and even to mobilize practical assistance to clear the archaeological architectural remains from vegetation. But foremost we gained insight into the social values the site has for the local community. The aim of this paper is to share this insight and the lessons we have learned about the social significance of such an archaeological project.

Van den Dries, M.H. and S.J. van der Linde 2012. Collecting oral histories for the purpose of stimulating community involvement at Tell Balata, Palestine. In: N. Schücker (ed), *Integrating Archaeology, Science-Wish-Reality. Social role, Possibilities and Perspectives of Classical Studies*, Frankfurt am Main: Römisch-Germanische Kommission, 49-56.

LV10 BUFFING AND BUFFERING: STREET ART'S ACCELERATING ARCHAEOLOGIES

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In previous decades the heritage value of street art was rarely acknowledged (MacDowall 2006), today its recognition is nearly as commonplace as its acceptance as a legitimate and popular form of art. The consequences of street art's transition into the worlds of art and heritage are complex, but include its effects on the authenticity of subcultural graffiti traditions (Merrill 2014) and its rapid spread through digital platforms to create a 'wild' archive (MacDowall 2005). These trends have implications for the role that heritage practitioners (including archaeologists) and public arts organisations should play in safeguarding and curating such subcultural expressions and particularly those that use anti-establishment tactics and engage directly with audiences in everyday spaces.

In Berlin in December 2014, Italian street artist Blu took the unprecedented decision to permit the buffing of his own iconic mural as a symbolic gesture against the eviction of nearby squats and the general gentrification of the city. The sequential photographs of the mural's obliteration quickly went viral and spread through various social media platforms. Meanwhile, other street artists, including those in Melbourne, have started to erase their creations as soon as they digitally distribute them through similar social media platforms, like Instagram, in order to cater for audiences who want to see walls refreshed without buffering delays. This paper considers street art's accelerating temporalities and archaeologies and by implication the type of graffiti archaeology and the kinds of graffiti archaeologist that may be needed in the near future.

LV16 HERITAGE, CLIMATE AND THE FOREST ECONOMY: UNDERSTANDING FORESTS OF THE PAST AND FORESTS OF THE PRESENT AND FUTURE

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Knowledge of past societies' food and fuel economies are an integral part of our heritage, as much as those monuments we so value. Much of the archaeological information about our diet and fuel economies of the past consists of organic materials lying underground in, as yet, unexcavated sites, and these will be compromised by climate change. Current knowledge of our ancient agricultural economies is helping us understand the spread of agriculture, the wide variety of cereals of the ancient world (and a return in some cases, to more protein rich varieties in the modern). Less studied, but equally important is the ancient forest economy: provision of wood for building and fuel. In modern fuel management, a return to wood will be one part of managing climate change. So the question arises, how can we understand ancient timber and fuel economies, and apply that knowledge to the future? This paper will review emerging methodologies for examining ancient fuel economies, such as microclimate assessment and quantitative modeling, using data from Republican and Imperial Rome and Pompeii, and how these may link to future planning. It will suggest a path forward for co-operative interdisciplinary study of forests by researchers in ancient and modern disciplines.

LV20 MAPPING THE HISTORIC LANDSCAPE AFTER HISTORIC LAND-USE ASSESSMENT IN SCOTLAND

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RCAHMS

The HLA map covers the whole of Scotland and is the only nationwide archaeological survey of Scotland carried out to a uniform scale and methodology. It is a comprehensive statement of the current knowledge of human influence on the landscape. It is a record of both the current landscape and the surviving fossils of past landscapes in the early 21st century. While providing a standard source for assessing environmental and developmental changes, like all surveys it is a snapshot in time. Inevitably, the landuse will change- urban expansion, new forests and changing farming priorities. Similarly new archaeological surveys will take place. New techniques in remote sensing, aerial survey and lidar hint that we are on the verge of a new age of discovery for sites previously not visible to ground based survey. The challenge we face is to keep abreast of both these areas of change to maintain HLA's currency. What we have done so far is draw the line in the sand, creating a benchmark. The HLA is ultimately a conservation tool. It allows us to quantify the resource. Now we need to be clever in finding ways to keep the data current so we can monitor change, by developing relationships with government agencies to share data and to focus on recording in previously un-surveyed areas using remote sensing data. This new data should be fed into the next generation of mapping - Canmore Mapping - so that the results complement and refine the broad brush picture painted by HLA.

LV19 BETWEEN THE MEDIUM AND THE METAPHOR: MULTIPLE TEMPORALITIES IN PHOTOGRAPHY AND ARCHAEOLOGY

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In this paper I use the Brodgar Stone, a decorated Neolithic slab which was found in Orkney in 1924, as a case study for thinking through the multiple temporalities of both archaeology and photography.

Beginning with one photograph, I will explore the way in which the representation of this stone has shaped its ongoing biography as an artefact, and what this can tell us about the way in which archaeology has dealt with the relationship between visual culture and time.

The discussion will lead on to the contemporary experience of recording and photographing the wider assemblage of decorated stones from the Ness of Brodgar to examine the role that photography plays in constructing archaeological narratives.

Returning to the image of the Brodgar Stone, I will argue that a more considered discussion of photography allows an exploration of the multiple temporalities that archaeologists encounter through their own practice.

LV9 STILL WATERS RUN DEEP

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At Stainton West, near to Carlisle, Cumbria (UK), just to the north of Hadrian's Wall, a relict palaeochannel of the River Eden, was excavated, by Oxford Archaeology, during the course of road construction. An extraordinarily complex and temporally deep sequence of archaeological remains was discovered. The activity spans the transition from hunter-gathering to agriculture and includes: waterlogged evidence for late Mesolithic woodworking; a very late fifth millennium cal BC encampment or settlement, associated with an *in situ* scatter of c 300,000 struck lithics; very early fourth millennium cal BC waterlogged wooden structures that acted as the focus for the deposition of objects such as polished-stone axeheads and wooden 'tridents'; and a sequence of burnt mounds spanning c 1400 years, from the early third millennium to the mid second millennium cal BC.

This paper presents an overview of the site and considers, in the absence of any monuments and in light of the insubstantial nature of the remains, the mechanisms that could explain its repeated or continuous inhabitation over such a protracted period of time.

LV4 WHEN AN ASSET BECOMES A CURSE.ISOSTATIC UPLIFT AND 17TH CENTURY MILITARY PLANNING – OLD CAUSES AND PRESENT RISKS FOR THE IMPENDING INUNDATION OF A SWEDISH TOWN?

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In 1613 a Royal Decree declared that the Swedish town of Jönköping had to be moved to a new location. It had been destroyed in the Kalmar War the previous year. Now the authorities wanted to replace the medieval settlement with a modern fortress town, protected by walls and water. The site chosen was a low peninsula, exposed to storms and recurring floods. A wise decision from a strategic military point of view, but hardly for the good citizens of Jönköping. And the fight against the Forces of Nature has continued ever since.

However, there were other far worse complications, unknown to the architects and town planners of the 17th century. In a longer perspective the fate of this town is sealed. Isostatic uplift, making the large Lake Vättern spill over to the south, will eventually drown the city center even without a changing climate. This realization has led to a unique co-operation between archaeologists and the emergency services. With a combination of excavated and written evidence from past catastrophes, together with simulations and experiences gathered today, possible solutions are sought after.

Temporary as the results may be, these risk assessments and precautions might be helpful in prolonging the life of a Jönköping as we know it. And in doing so, protective measurements taken in this historic, early modern environment could prove to be useful as examples for other sites threatened by climatic and environmental change!

LV9 MEMORIES NURTURED BY THE HANDS, RELINQUISHED IN THE EARTH: THE SIGNIFICANCE OF LANDSCAPE, MOVEMENT AND MATERIALITY TO EVERYDAY PRACTICES OF REMEMBERING AND FORGETTING IN IRON AGE AND ROMANO-BRITISH RURAL SETTLEMENTS

Adrian Chadwick

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The use of material culture during the Iron Age and Romano-British periods, with the notable exception of 'prestige metalwork', has often been portrayed in normative terms. Although some authors have explored the meaningful materialities of ceramics, beads, bracelets and brooches, most research remains dominated by considerations of production, distribution, and depositional practices; and is especially true of developer-funded archaeology. These are important fields for analysis, but there remains a disjuncture between such studies and more nuanced investigations of landscape and materiality that consider the affordances, agencies, and memories of humans, animals and other actants.

The production and use of artefacts such as ceramic vessels and quernstones should be considered in terms of the tangled taskscapes of everyday life, and the relationships between people, things and the lived-in world, with seasonal rhythms and longer-term practices of enclosure, inhabitation and abandonment. The everyday use of such items reproduced personal and collective memories, and reinforced household or communal identities. Pottery and querns also appear to have been an important part of practices of deliberate forgetting. This paper investigates these assemblages or meshworks of materiality and memory, within the fabric of everyday life of Iron Age and Romano-British communities.

LV19 DISRUPTING ARCHAEOLOGICAL PHOTOGRAPHY; THE TEMPORALITY OF RECORDING A 1970S ABANDONED VILLAGE.

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In 1970s oil boom Scotland, a village was built to house 500 workers on the west coast of the Cowal peninsula. Economic change and out-dated production methods led to no oil platforms being built here. The village was abandoned before it was ever occupied.

Polphail presents a dichotomy of workaday, non-designated architecture (*'sadder than a deserted holiday camp'* Walker 2002) and a dramatic location for graffiti artists, photographers and urban explorers to play out their ambitions, within an environment free from constraint. This peaked in 2009 when the then owner sanctioned a group of graffiti artists, Agents of Change, to use the village as their blank canvas - repopulating the village with figures, images and haunting reflections of its ghost inhabitants.

This paper proposes to examine photography's role in the understanding of a place where 'traditional' historic environment approaches and mechanisms are challenged and reduced to arguably secondary significance by unanticipated 'afterlives' that prolong and change the narrative of that place. Photography of the village fabric and the graffiti art has disrupted and altered our ideas about abandonment, temporality, destruction and ruination whilst also providing the principal media for recording the targeted destruction of both village and graffiti.

The village and its incarnations provides a fascinating focus for a national body of investigation and recording such as RCAHMS, whilst prompting thematic discussion of significance and imagery within a 'traditional' archive.

LV20 DISCUSSANT FOR SESSION ON UNDERSTANDING AND MANAGING HISTORIC LANDSCAPES

Lesley Macinnes

HISTORIC SCOTLAND

Discussant for session on investigating, managing and understanding the historic dimension of landscapes

LV9 THE BUDEČ STRONGHOLD, A PLACE OF COLLECTIVE MEMORY AND AMNESIA

Pavla Tomanova

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The Budeč Stronghold (central Bohemia) was a distinguish centre in the emergent Czech state. The site is mentioned in early mediaeval St Wenceslas' hagiographies as the place where the Czech patron obtained his education and as the foundation place of St Peter Rotunda. Furthermore, archaeological surveys discovered another early mediaeval Church of Virgin Mary built in the neighbourhood of the rotunda. Beyond churches numerous mundane objects, such as log-structures, common goods, and also a mass-burial situated in a pit-house, indicate everyday life at the stronghold, as well as singular historical events.

In the late 11th century the stronghold declined, however both the churches held their functions. Whereas the Church of Virgin Mary was finally ruined in the late 18th century, the St Peter Rotunda remains preserved. Proud of being the oldest stone building in the Czech Republic, it remains the place of church services and annual pilgrimages at the feast of St Wenceslas.

Obviously, the Budeč histories presented in early mediaeval hagiographies ensure continuity of particular monuments (e.g. St Wenceslas' tradition and the St Peter Rotunda), but other features are not held in public awareness. In the presented paper, I am going to analyse objects and narratives that make Budeč a place of a collective memory, and study their relationship to the forgotten features. Finally, I am going to reflect how the continuity of particular objects and the amnesia of the others reflect the actual state of knowledge and the contemporary socio-political background.

LV6 SITE/SEAL/GESTURE

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¹RHUL, ²SOAS, UNIVERSITY OF LONDON

Within "Public Archaeology 2015", our collaboration, Site/Seal/Gesture, is built upon dialogue and a shared language of making. Our project deals with defensive architectures such as sound mirrors and bunkers on the southeast coast of England. As monumental structures facing immateriality, we correlate these with ancient rock-cut tombs in southwest China.

Eschewing an art/archaeology dichotomy, the project draws from cultural geographies of creative practice and the Chinese antiquarianist toolbox. Recent work in Cultural Geography looks closely at the relation between landscape and subject, using performative and autoethnographic accounts to address within an academic context that which escapes and exceeds discourse. Equally, the antiquarianist discipline of Metal and Stone Studies produces an alternative to generic "fieldwork reports": other ways of turning matter into sign, and of capturing on to paper the shapes of nature and the traces of human activity. Preceding the introduction of scientific archaeology in East Asia, it developed a specific array of traditional practices, ranging from calligraphy to sigillography (seal carving), rubbing and stone collecting.

Fieldwork, process and site have historically been shared concerns between geography and archaeology. In Site/Seal/Gesture, what is for archaeology a necessity, for us becomes a choice - the materials we encounter are animated by unexpected potentialities. We borrow a range of techniques - casting, miniaturising, rubbing, mapping, printing, digging, carving, polishing, sound recording, sailing, droning - that give us a heightened sensitivity to interrelations between body, landscape and artefact.

In this presentation we describe our collaborative process, from surveying sites to creating artefacts.

LV19 PHOTOGRAPHY AND INTANGIBLE HERITAGE: THE ARCHAEOLOGY OF IMAGES IN TURKANA, NORTHERN KENYA

Samuel Derbyshire

UNIVERSITY OF OXFORD

The histories of remote, non-industrialised communities in the contemporary world are rarely the focus of archaeologists. One of the most significant reasons behind this absence is the intangibility of these communities' heritage. Hunter-gatherer and pastoralist peoples tend to have an extremely ephemeral impact on the landscapes in which they dwell, and rarely collect or curate everyday objects. This situation stands in contrast to urban and semi-urban areas, where contemporary and historical archaeologists have successfully engaged with changing material culture to unveil aspects of social history that have eluded the written record.

This paper introduces on-going archaeological research with the pastoralist nomadic Turkana people of northern Kenya. This research utilizes historical photographs in the retrieval and construction of social history. Collections of historical photographs at museums in the UK have facilitated the formation of a series of material culture typologies that span the last century in

Turkana. Over the past year a selection of these images has been the focus of a series of repatriation and elicitation sessions. The process of tracing objects in photographs through the events of the last century is brought to life by the voices of those who experienced them, or were taught about them first hand. Photographs facilitate an understanding of the various shifting and converging social, economic, political and environmental landscapes to which Turkana communities have belonged, and the various ways in which these communities have negotiated, embodied and enacted fundamental changes in their worlds through time.

LV5 THE RUSSIAN HOMO ARCHAEOLOGICUS: APPLIED SCIENCE, SCIENTIFIC GOVERNMENT AND POSITIVIST ORTHODOXIES IN A POST-SOVIET SETTING

Gertjan Plets

STANFORD ARCHAEOLOGY CENTER

Inspired by Bourdieu's classic *Homo Academicus*, this paper assesses the subjectivities, economical realities and power structures driving Russian archaeology. Through conceptualizing the Russian archaeological community as a social group on which anthropological methods, data and theory can be applied, this sociocultural appraisal of the Russian *homo archaeologicus* attempts to contribute to salient discussions about the development of archeological thought and ethics. Discussion in this paper will be fed by ethnographic evidence collected at various heritage institutes and research centers across Russia.

Different traits defining the *homo archaeologicus* will be explored. First the historically engrained theoretical framework of Russian archaeology will be assessed. This theoretical contextualization will explore the ethos and ethics driving Russian archaeology, and connect them to wider Soviet and post-Soviet political developments and ideological trajectories. Second, the power structures driving individual archaeologists will also be included. As such, this paper will explore the normalizing effects of applied research and scientific government on the power relations constituting Russia's heritage sector. A third broad theme, are the financial networks that influence archaeological practice and thinking. This section will study the important implications of the shift from extensive bloc funding during the Soviet Union to a system of competitive grant funding where significantly smaller funds are distributed based on bibliometrics. Additionally, and closely connected to these difficult financial realities, the impact of state-sponsored contract archaeology in the context of resource extraction and transport by academic institutions will be spotlighted.

LV11 AERIAL RECONNAISSANCE AND PHOTOGRAPHY IN THE MIDDLE EAST 1916-1918. THE AUSTRALIAN, BRITISH AND GERMAN WARTIME CONTRIBUTIONS TO THE BEGINNINGS OF AERIAL ARCHAEOLOGY

David Kennedy

UNIVERSITY OF WESTERN AUSTRALIA/ UNIVERSITY OF OXFORD

Despite significant advances in mapping during the century before 1914 in Syria-Palestine and to a lesser extent in Mesopotamia, all the protagonists in the campaigns of 1914-18 were seriously hamstrung by detailed ignorance of the landscape and its settlements in which they fought. Even more serious was the immense difficulties of locating one's opponents on the ground at any given moment. Both sides therefore undertook immense mapping operations and swiftly discovered the importance of aerial reconnaissance. Large numbers of flights were undertaken in the latter half of the war in both theatres of operation to photograph specific locations and also increasingly in systematic fashion to enable maps to be compiled of wide areas of landscape. Many thousands of these photographs have survived. They present detailed images of landscapes largely swept away by the subsequent century of development but in many cases they are photographs of specific places which often include or are archaeological remains, many now damaged or lost. The Aerial Photographic Archive for Archaeology in the Middle East (APAAME) – now housed in the University of Oxford – is actively engaged in location, digitizing and making freely available, all such images the value of which has been illustrated in a preliminary fashion in some recent publications.

LV6 STUDYING ARTIST STUDIOS IN BERLIN: ART AND ARCHAEOLOGY, COLLABORATIVELY

Carolyn White

UNIVERSITY OF NEVADA RENO

The city of Berlin is known for its art and for its community of practicing artists. In 2013, I participated in an artist residency in the former East Berlin, studying the physical spaces of artists and the artists that occupy those spaces. The project combines analysis of the physical elements of studios and buildings, the placement of artist communities within the city, and an exploration of the experience of these spaces as a participant in an artist community. This paper explores the physicality, ephemerality, and durability of the art community within the built environment of Berlin, Germany.

This paper presents some of the results of this residency particularly in relation to place, space, temporality, and ephemerality and community: What do project spaces in Berlin look like? How do individual artists create their spaces? How do those spaces reflect and emulate domestic space in various forms? In what ways do these spaces coningle to form communities, and how do social connections transcend place? This paper focuses on the materiality and physicality of urban artist spaces including the use and reuse of historically significant buildings.

Another component of this paper is the collaborative experience of an archaeologist with a philosopher and artist. This collaborative experience raises questions about what each perspective brings to the pursuit of the collaborating partner and problematizes many components of the archaeological enterprise.

LV10 REVOLUTIONARY GRAFFITI? LOCATING, RECORDING AND INTERPRETING AT KILMAINHAM GAOL, DUBLIN

Laura McAtackney

UNIVERSITY COLLEGE DUBLIN

Graffiti studies in social science have traditionally interpreted 'street art' as manifestations of young men and their struggles with authority (including Ferrell 1993). Whilst in archaeology there has been more nuanced interpretation of who created graffiti, why and where (see Oliver & Neal 2010), there has been little consideration, to date, of the issues in how we determine what is graffiti, the challenges of recording it and how we can mitigate those challenges. As archaeologists we have a long history of working with partial and marginal survivals of the past but consideration of these qualities in the study of graffiti are infrequently articulated. This is despite the possible issues that arise in interpreting graffiti remnants in various contexts that are graffitied over long periods of time.

Using the case-study of Kilmainham Gaol in Dublin graffiti assemblages that date from the final years of the functional site – from the revolutionary period of c1919-1924 – have been the subject of graffiti recording and analysis since 2012. Prior to recording there was knowledge that graffiti existed in the area but the issues of divergent survival, impact of time, dereliction, deliberate (and often repeated) whitewashing, selective defacement and later, often indiscriminate additions have had a number of impacts on the graffiti assemblages making their recording difficult and interpretation even more so. This paper will focus on one particular recording exercise in the prison in order to question our ideas about what graffiti is, how we identify it, interpret it and indeed record it.

LV21 WATER AS MEDIATOR BETWEEN THE QUICK AND THE DEAD: BURYING IN WATER IN LITHUANIA AT THE AGE OF CONVERSION TO CHRISTIANITY

Gediminas Petrauskas

VILNIUS UNIVERSITY

The definition of Medieval Ages defines the completeness of complex processes, the biggest of which was the expansion of Christianity and the formation of states. The formation of State of Lithuania in the 13th century was an exception to the general rule. The Grand Duke of Lithuania Mindaugas adopted Christianity in 1251 and was crowned king in 1253, however, Christianity was abandoned and Grand Duchy of Lithuania existed as a pagan state, the only pagan state in all Christian Europe, until it finally converted to Christianity in 1387.

After the State of Lithuania was formed, it influenced religion. Cremation became a uniform burial practice in the 13th and 14th centuries. In this paper, special attention is paid to collective burying in water. This hypothesis, raised in the early 1980s, did not have followers due to the lack of documented evidence. The latest archaeological discoveries, investigations of folklore, Baltic religion, and mythology, also analogies from India, Nepal, and Tibet suggest that the cremated dead were buried in water at the age of conversion of religions, therefore, the hypothesis should be reconsidered.

This paper examines the custom of burying in water, reveals its features, and analyses the surrounding landscapes. The interpretation of burying in water is based on searching links between fire and water as an element of the afterlife in folklore, Baltic religion, and mythology. A conclusion is made that water as mediator between the quick and the dead played an important role in cremation practices among Early Medieval Lithuanians.

LV18 HUTS, DAIRIES AND SKI-LIFTS: THE HISTORY OF AN UPLAND LANDSCAPE IN THE ITALIAN MARITIMES ALPS (16TH – 20TH CENTURY AD)

Francesco Carrer

UNIVERSITY OF YORK

This paper presents the first results of ethnoarchaeological research in the uplands (~2000 m asl) of Val Maudagna (Maritimes Alps, Italy). In this area several dry-stone structures (*casòt* and *selle*) were traditionally exploited by herders as seasonal refuges, dairies and cheese stores.

Historical documents and maps indicate that these types of structures were already in use during the early 19th century, suggesting the intensive exploitation of local summer pastures.

A number of structures were abandoned during the second half of the 20th century, due to the collapse of the traditional rural economy. Most of them were abandoned at the end of the century, and replaced by modern refuges and dairies, as required by EU regulations.

Meanwhile, from the 1960s, the Val Maudagna uplands became one of the most important skiing areas of the Italian Maritimes Alps. This led to the construction of apartments, ski-lifts, snow cannons, etc.

Archaeological excavation in one of the few traditional huts (*casòt*) still exploited by local herders, indicated that this structure was in use from the 16th–17th century AD.

The data sheds new light on the historical relationship between human communities and mountain environments. Pastoral activities experienced boom and bust during the 19th–20th centuries, and the landscapes mirror this process. The recent transformation of the uplands into “winter holiday” landscapes was triggered by, and accelerated, the collapse of seasonal rural activities. Current pastoral landscapes in this area witness the resilience of local herders.

LV22 IDENTIFYING DRIFTWOOD IN THE MEDIEVAL NORTH ATLANTIC

Dawn Elise Mooney

UNIVERSITY OF ICELAND

In the islands of the North Atlantic, harsh climatic conditions and geographical isolation, along with human activity, have led to limited woodland cover and a low taxonomic diversity in woodland areas. However, the Norse settlers who colonised these islands in the late 1st millennium AD continued to rely on wood for fuel, artefact production, and construction throughout the Medieval Period. Driftwood, which arrives in varying quantities on the shores of these islands, became an extremely important resource, particularly for construction.

To a certain degree, wood anatomical analysis can be used to identify archaeological wood remains as deriving from native, drift or imported wood. This technique has been used successfully in studies of wood charcoal and wooden artefacts in Iceland to identify patterns of wood usage. The rich body of Icelandic historical literary and documentary sources is also used to examine the utilisation and control of wood resources. However, many of the species found as driftwood have wide geographical ranges, or are anatomically indistinguishable from taxa which may have been imported to Iceland. Furthermore, modern studies of driftwood composition which are commonly used as comparisons may not reflect past forest composition in their areas of origin or changing patterns of ocean circulation, and are likely to be influenced by logging practices. This presentation addresses how archaeologists might conclusively identify archaeological wood remains as driftwood, including using trace-element analysis techniques such as XRF.

LV18 LEGACY AND REFLECTIONS IN THE HISTORICAL LANDSCAPE OF THE UPPER RIVER VJOSA VALLEY (SE ALBANIA)

Eglantina Serjani, Ardit Miti

UNIVERSITY OF GRANADA

The territories of the Upper Vjosa Valley cover the south-eastern part of Albania, adjacent to the modern boarder with northern Greece. Historically they are part of the geographical region of Epirus, bearing traces of occupation dating from early prehistory. The complexity of the historical and archaeological landscape of this area is due to the historical fate of the region to which it belongs, being influenced in many ways by the presence of the Hellenic, Roman, Byzantine and Ottoman cultures. Natural and anthropogenic processes have also had a relatively strong impact, modulated by both inner and outer “pressures”. The paper analyzes the results of recent multidisciplinary archaeological research undertaken in the territory and tries to follow the historical developmental trajectory of the area, highlighting the existence of geographical relationships reflected in many aspects of the structural and spatial organization of newly identified sites, presumed to be rural settlements dating from between the Roman and Medieval periods, with modern rural habitations being occupied at least since late medieval times. In addition, productive activities related to agriculture and pastoralism, which form one of the main pillars of the economy in the area, seem to inherit many characteristics of the past. This is observable in some aspects of the management and utilization of natural resources and landscape organization. In this way our observations cast a new perception regarding the existence of a “timeless landscape”, shaped by geographical conditions, economic production, settlements legacies and the collective mentalities of the local population.

LV16 BIG GAME HUNTERS ALONG THE VINSTRA WATER COURSE

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This more than 100 km long water course consists of six water reservoirs, with dam heights of 1 to 11 meters. The long and narrow lakes lie on different elevations, from 1050–650 meters above sea level in the mountains of Norway. The lakes, together with the topography, create bottlenecks in the migration patterns for both reindeer and moose. This project explores the time depth and intensity of the big game hunting, through surveying and excavating settlements at these bottlenecks.

The project has been running for two seasons, and will go on for two more. The presentation will focus on settlements located at two main points in the landscape, at 650 masl, locally known as “the moose highway”, and at 1000 masl, where large herds of reindeer used to cross a lake.

The presentation will also address issues concerning erosion and preservation conditions in dams that were constructed more than sixty years ago.

LV4 MANAGING WORLD HERITAGE SITES BY GEOARCHAEOLOGICAL LANDSCAPE ASSESSMENT AND MODELLING: A CASE STUDY FROM THE DERWENT VALLEY MILLS WORLD HERITAGE SITE, DERBYSHIRE, UK

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The availability of natural resources together with water for power was critical to the development of the heavy industries that kindled the Industrial Revolution. Paradoxically, however, many of these advantageous physiographic and geological characteristics, which were essential for industrial development, also create environments where geomorphological processes are most sensitive to future climatic change. Coupled with the legacy of pollution associated with many of these industrial landscapes, these inherited characteristics now pose significant threats to the historic environment when impacted by climate change.

Whilst dealing with individual historic sites is challenging, management is made more complex where the historic environment comprises multiple assets and where site integrity is based upon the entire resource. The Derwent Valley Mills World Heritage Site (DVMWHS) is one such example, comprising a series of major mill complexes, houses, schools and churches stretching over a distance of 24km.

This paper describes a methodological 'landscape' approach to managing the built and other historic assets of the DVMWHS. This seeks to understand how the valley has responded to natural geomorphological change over the past millennium, a period that includes major climatic anomalies. Within this context, Historic Environment Records have been mapped to elucidate past human activity and responses to environmental change. Alongside this investigation of past activity, fluvial modelling has been undertaken to demonstrate how the river might respond to future climate change. This methodological approach is helping to inform the development of risk management and mitigation strategies for the WHS and has wider generic applicability.

LV9 SHADOWS OF THE PAST ILLUMINATED THEN DARKENING ONCE MORE: REMEMBERING AND FORGETTING IN THE BRITISH BRONZE AGE

Catriona Gibson

UNIVERSITY OF WALES

Through collating the wealth of archaeological evidence from recent excavations of multi-period landscapes in southern England, two forms of seemingly contrasting practices can be identified. Sometimes diverse connections were drawn between places and activities separated in time, even relatively inconspicuous features and ephemeral practices. But often the very same features or traces of inhabitation that had witnessed such re-inscription were then ignored, deliberately 'closed off', or overwritten. Why were places that had previously been apparently so propitious and re-used or revisited subsequently forgotten, and their memories seemingly erased? I will highlight several case studies from the British Bronze Age, where practices of both remembering and forgetting collided and were played out at the same features and/or places in landscapes. These will be situated within wider regional developments during this time, and associated social and ideological transformations.

LV10 52 WEEKS IN A (GRAFFITI) YEAR: DISRUPTING TEMPORALITIES IN ARCHAEOLOGY BY RECORDING A GRAFFITI WALL ONCE A WEEK FOR A YEAR

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By considering a graffiti wall as archaeology we are bringing the contemporary into the discipline. But by adopting a practice-based approach to recording modern-day graffiti over a temporally discrete period (52 weeks), we are disrupting archaeology's considerations of deep temporalities, but also seasonality and spatial/temporal belonging.

The aim of the project is to document the changing, or static surface, of this urban message board, through sequential visits and observations. The project is on-going throughout 2015 and aims to record the wall once a week. This approach will enable the researchers time to quietly observe and repeatedly return to an urban cul-de-sac, which is providing evidence of contemporary archaeology and temporal rhythms that contrast with much of mainstream archaeology.

This paper discusses the idea, approach, results and dissemination of the data from a year-long project. It will discuss the methodology adopted: the recording will take place from the same spot (s) once per week. It will use an iPhone to record the wall and it will post an image or images on a dedicated Instagram account each week. Additionally, it will apply an archaeologist's eye and brain to interpret any changes, but these will be reviewed through interactions with Followers on the Instagram page. But it will also consider the effects of social media dissemination of non-traditional heritage, such as using Instagram to demonstrate the changing nature of places. There will also be mention of the range of graffiti applied; the mediums used and messages inferred.

@alexgchale #graffitiarchaeology

LV20 UNDERSTANDING ARCHAEOLOGICAL LANDSCAPES THROUGH NON-INVASIVE APPROACHES

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The term "landscape" has a meaning both as physical as well as a cognitive space, with the later referring to the concept of its dwellers. Landscape archaeology has to cope with both of these aspects of landscape. Based on the description of its physical remains in form of archaeological and palaeo-environmental structures, an interpretation of its meaning has to be sought. There seems however still to exist a divide between technical and interpretative approaches when investigating archaeological landscapes.

The mission of the LBI ArchPro is to bridge this divide by developing systematic, high-resolution, large-scale, integrated archaeological prospection approaches while at the same time focusing on novel methodological concepts for the archaeological interpretation of the in great quantity and quality collected data. By integrating traditional methods (systematic field-walking) with near-surface geophysical (magnetics, ground penetrating radar) as well as remote sensing techniques (aerial photography, airborne laser scanning, imaging spectroscopy), entire landscapes are thoroughly documented at multiple scales. The generated data forms the basis for a four dimensional GIS-based interpretation approach.

The presentation will focus on state-of-the-art of archaeological prospection in a landscape context and on GIS-based interpretation using several selected case study from Austria. It will demonstrate that it has become possible and affordable today to acquire data at unprecedented scale and resolution across wide areas, measuring square kilometres. In combination with modern interpretation techniques this novel approach has the potential to herald a new era in archaeology, where archaeological excavation is no longer the primary source of information for archaeological research.

LV16 THE ŠUMAVA MOUNTAIN WOODLANDS: TRANSFORMATION DUE TO THE HUMAN INTERACTION (NOT ONLY IN 19TH CENTURY)

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The highland areas of the Šumava Mountains in southwest Bohemia underwent fundamental changes as a result of industrialisation in 19th century. It affected the local woodlands (previously only seldom touched) and the consequences of this are still being faced to this present day. These dramatic changes were a result of the spread of lumberman settlements in the region, triggered by an increased demand in firewood for industrial use within the Czech basin, particularly in Prague (and also Vienna). The opportunity to profit from the firewood trade in the Šumava region grabbed the attention of the noble Schwarzenberg family who purchased extensive areas of woodland in the Šumava region. The family built two large canal systems which enabled the transport of timber – using water power – from these remote mountain locations to the urban timber markets. These two canal systems (built in c. 1800) are known as the Schwarzenberský Canal and the Vchynicko-Tetovský Canal, on which is this project focused on, using methods of landscape archaeology and interdisciplinary approach. The canal was in use for over 120 years and from its very beginnings had a heavy impact upon the surrounding landscape and woodlands.

Even though today's Šumava Mountain landscape – a protected natural area and national park – is not a typical industrial landscape, its present form is undeniably influenced by activities from the 19th century industrial period. The timber trade caused irreversible and far-reaching changes which have lasted throughout the 19th and 20th centuries in the Šumava mountain region.

LV9 FORGETTING AND REMEMBERING IN THE LATE BRONZE AGE AND EARLY IRON AGE OF SOUTHERN BRITAIN: PERSONHOOD, IDENTITY AND ANCESTORS

Alex Davies

CARDIFF UNIVERSITY

The archaeology of the Late Bronze Age and Early Iron Age in southern Britain is remarkably different in a number of aspects. The Late Bronze Age is characterised by huge quantities of metalwork, short-lived settlements and a lack of monumentality. In the Early Iron Age, however, we have very few items of metalwork, settlements that last for centuries and a proliferation highly visible monuments: hillforts. Understanding these different but contiguous societies within similar interpretative frameworks has often proved difficult. Using the Thames Valley as a case study, this paper will explore the differing roles that remembering and forgetting played in the Late Bronze Age and Early Iron Age. I will argue that in both periods personhood and identity were formed through the tactical use of memory, and this was mediated with the material world. In particular, there was a heavy emphasis on forgetting the past in the Late Bronze Age. This was aided, for example, by the frequent destruction of objects and houses. Ancestors only played a small role in the communities of the living. In the Early Iron Age this transformed with much more importance being placed on remembering the recent past. This was facilitated by constructing and maintaining monuments, and passing down objects through numerous generations. People increasingly came to define themselves by their ancestors. Although the resulting personhoods and identities were quite different in the Late Bronze Age and Early Iron Age, these were both formulated through the interaction of memory with the material world.

LV21 EMBEDDED SACRED SPACES: THE VALLEY OF THE MUSES IN THE LONGUE DURÉE

John Bintliff

EDINBURGH UNIVERSITY

The Valley of the Muses in Central Greece played a significant role in ancient Greek beliefs in the divine inspiration of the Arts, for it was on Mount Helicon that the demigods the Muses, patrons of literature, music, dance and art were supposed to have dwelt. And it was their voices that the first European to write about his own life claimed that he heard, the poet Hesiod, when around 700 BC he was acting as a shepherd on Helicon's slopes. Subsequently a sanctuary and festival developed in the Valley, which finally joined an elite group of religious games and competitions headed by Olympia and Delphi. With the end of paganism, the Valley saw new, Christian foci of cult exploiting its rural beauty and tranquillity, until the rediscovery of the ancient Sanctuary by archaeologists allowed the current inhabitants to resurrect the festival in a new form but on the original sanctuary site. This paper will explore the insights this case-study can offer into the long-term history of embedded sacred places. Embedded, because from Hesiod onwards, this is also a working landscape where the sacred is inseparable from social life and economic life in their widest senses.

LV27 THE WARTIME UNDERWATER HERITAGE OF SCAPA FLOW, ORKNEY: RESPONDING TO CHANGING PERCEPTIONS OF SIGNIFICANCE AND VALUE.

Philip Robertson

HISTORIC SCOTLAND

Scapa Flow, Orkney served as a key wartime base for the Royal Navy bearing witness to important events in both world wars, including the explosion at anchor of *HMS Vanguard*, the internment and subsequent scuttling of the entire German High Seas Fleet, and the sinking by German submarine of *HMS Royal Oak* in 1939. The physical legacy of this past survives today but its meaning and value to society have been utterly transformed over the course of the last century. Once viewed as weapons of mass destruction, the wartime wrecks of Scapa Flow became an important salvage resource between the wars and in the immediate post-war period. The dawn of underwater tourism in the 1970s and 1980s has seen a further change, together with recognition that underwater heritage and the war graves of lost sailors and airmen, should be treated with the same respect as our heritage on land. As the centenary of the Battle of Jutland and the scuttling of the High Seas Fleet draw near, this paper charts our changing perceptions, and describes current work to investigate, conserve, protect and promote awareness of Scapa Flow's underwater heritage.

LV14 THE SCOTTISH TEN PROJECT: DIGITAL DOCUMENTATION OF SCOTLAND'S WORLD HERITAGE SITES, A DATASET FOR CULTURAL HERITAGE MANAGEMENT AND CONSERVATION

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Fieldwork for The Scottish Ten Project, The Centre for Digital Documentation and Visualisation's (CDDV's) ambitious 3D survey project, was completed in October 2014. From inception, a primary aim of the project was to accurately document in detail the heritage of Scotland's five World Heritage Sites (WHS) (St Kilda, The Heart of Neolithic Orkney, Edinburgh Old and New Towns, The Antonine Wall and New Lanark) and five international World Heritage Sites (Mount Rushmore, USA; Rani Ki Vav, India; The Eastern Qing Tombs, China; The Sydney Opera House, Australia and the Nagasaki Giant Cantilever Crane, Japan) from landscape scale to microscopic detail. The intention was to create benchmark 3D site records to assist in the management and conservation of these unique World Heritage Sites.

This paper will examine benefits that continue to arise from exploration of The Scottish Ten data, and how these can be utilised for WHS management. This will be done using examples from the project, primarily The Heart of Neolithic Orkney, where the 3D data has been used to monitor human and natural impact on components of the Orkney WHS; the coastline surrounding Skara Brae; and the detailed inscriptions at Maeshowe.

Use of the 3D data to assist in quantifying impact on a WHS is a tangible benefit of having benchmark data to monitor change – a real asset to WHS management..

LV16 WITH OR WITHOUT WOODS IN THE LANDSCAPE. A CASE STUDY OF MOSTIȘTEA VALLEY, SOUTHEAST ROMANIA

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The purpose of this paper is to investigate the landscape's changes that occurred in the eastern part of the Romanian Plain, the micro-region named Mostiștea Valley. Here the numerous archaeological sites attest an intensive habitation since the Neolithic period. It has been proven that the landscape has been altered by humans for thousands of years. The research focuses on discovering pertinent information regarding the nature of the connections developed between humans and environment, from the past throughout modern times.

First archaeological excavations were conducted at the beginning of the 20th century and since then up to present the woods in the landscape are almost invisible. The main question is if this situation was always the same or in the past the landscape was completely different due to a dominant presence of woods?

To identify the evolution of woodlands during 1791 to 2012 various datasets will be used, such as old maps (Specht Map from 1791, Szathmári's Map of Southern Romania from 1864 etc), aerial photographs, ortophotos, Corine Land Cover (CLC) processed with GIS techniques. The analysis will include topoclimatic models, archaeological and zooarchaeological data, toponimic and tree species studies in order to better understand the impact of woods on the landscape from the Neolithic up to the modern period.

Acknowledgements

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LV25 RACE ALONG THE DNIEPER – THE RIVALRY OF “EINSATZSTAB REICHSLEITER ROSENBERG” AND “AHNENERBE” IN UKRAINE 1942/43 AND THE IMPACT ON CURRENT ARCHAEOLOGICAL RESEARCH

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During the German occupation of Ukraine in World War II major parts of the country were as "Reichskommissariat Ukraine" under German civil administration. As a result, numerous Ukrainian museums and the archaeological sites on the Crimea and the lower river course of the Dnieper were "playing fields" of German archaeologists. These were employees from two competing scientific organizations, the "Einsatzstab Reichsleiter Rosenberg" (EER) and the "Ahnenerbe" of the SS, which competed for the best museum collections, archaeological sites and local prehistorians in Ukraine. However, the goal of both organizations was the same: the discovery of early settlement traces of Germanic tribes in order to legitimize the German occupation of the Ukraine.

The talk focusses mainly on the archaeologists of the ERR under the guidance of Hans Reinert (1900-1990). These archaeologists were in charge for the saving, reorganizing and re-opening of numerous Ukrainian collections and museums between 1942 and 1943, and also for extensive prospecting and excavations together with local researchers in the Dnieper Bend. The search concentrated mainly on tracks of the Migration Period (Völkerwanderungszeit), especially the Goths, who were counted among the Germans. The majority of the findings and the attendant field documentation have been deported by the end of 1943 to Nazi-Germany and are still missing today. This talk wants to show how the communist era has been dealing with the German research results and how the present Ukrainian archaeology is interpreting the sites which have been explored by the Nazis.

LV6 CUTTING FREE AND LETTING LOOSE: THE CHALLENGE OF CREATIVE ARCHAEOLOGIES

Antonia Thomas

ARCHAEOLOGY INSTITUTE, UHI

This paper will examine the impact of recent art/archaeology interactions and question the future dynamic between art and archaeology.

The past two decades have seen a wealth of art/archaeology interactions in their broadest sense: artists inspired by archaeology, archaeologists inspired by artists, artists 'doing' archaeology and even archaeologists 'doing' art. These diverse approaches are to be applauded for allowing a fresh perspective to be drawn on the past but I would like to take the conversation further, to discuss the potential – and challenges - for work which pushes beyond what is traditionally accepted as art or archaeology.

These 'creative archaeologies' are not afraid to take risks, nor are they tied to representing or interpreting the past; as Doug Bailey puts it, they are prepared to 'cut free and let loose' of their disciplinary restraints. Creative archaeologies in this sense allow us to move into an exciting new intellectual territory and challenge our practice as archaeologists.

LV6 LONG EXPOSURES: TIME, PLACE AND PLAY IN ART/ARCHAEOLOGY PRACTICES

Ursula Frederick

UNIVERSITY OF SYDNEY

Some years ago, when I was in the darkroom developing a black and white photograph I watched, with enchantment, as the image gradually came into focus. While the silver halide crystals merged into shapes and lines that I could recognise, I was struck by how much it seemed like scraping back the soil with a trowel. As one layer is removed and then another, the material within an archaeological deposit, and the information it carries, is progressively brought to the surface. Digging and developing, in other words, share an affective register; one that involves a direct corporeal engagement with time and substance and imparts a sense of witnessing and unveiling in the subject. In this paper I want to consider some of the visual and conceptual parallels between archaeology and art as revelatory practice-based research. Discussion is grounded in a

number of recent art-archaeology collaborations in which I have taken part. In addition to outlining the intentions, motivations and outcomes of these projects, I explore the role of time, play and place in practices of archaeology/art.

LV5 REDESCRIBING ARCHAEOLOGICAL HERITAGE IN TRANSNATIONAL SOCIOPOLITICAL CONTEXTS

Kathryn Lafrenz Samuels

UNIVERSITY OF MARYLAND

Archaeological heritage practices have increasingly 'gone global' as strategies for management and social engagement look beyond national institutions and audiences. At the same time that emerging issues and policy problems involving heritage and its management extend beyond state jurisdictions, they are furthermore poorly addressed or captured by the traditional international system of state-to-state treaties and treaty-based intergovernmental organizations (e.g. UNESCO World Heritage). Given the hamstrung abilities of the international system, thinking about the transnational sociopolitical contexts of archaeological heritage enables two things: (1) it addresses issues and problems that fall outside the territorial jurisdiction of the state, e.g. global climate change, human rights activism, and corporate social responsibility; (2) it opens up the possibility of institutional innovations to more closely configure heritage practices to contemporary social issues and policy problems which, increasingly, are transnational in scope. Such innovations will be aided by ethnographic and deliberative approaches that respectively bring grassroots and rhetorical understandings of archaeological heritage to the fore.

LV10 AERIAL ARCHAEOLOGY AND THE FIRST WORLD WAR; TEACHING THE HEADMASTER TO PLAY MARBLES

Robert Bewley

OXFORD UNIVERSITY

Until the rapid development of aircraft in the First World War the concept of becoming airborne to record archaeological sites was very limited, essentially in balloons. The father of aerial archaeology, OGS Crawford, understood the potential of 'seeing the landscape from above' before the First World War. Did the War interrupt his researches? To what extent did his experiences in the War shape his future career and the future development of aerial reconnaissance, photography, mapping and interpretation? There were clearly rapid developments in the design and manufacture of aircraft but also in cameras, photography, photogrammetry and interpretation, but were these significant? This paper will explore some of the milestone events which were shaped by and developed because of the First World War for archaeology but especially aerial archaeology. If the War hadn't happened how different might that development have been? Would Crawford have been able to set up the Archaeology Division at the Ordnance Survey? Would the work and the seminal publication of *Wessex from the Air* (published with Keiller in 1928) been possible? Without these foundations would it have taken even longer for aerial reconnaissance and mapping to become a fundamental part of archaeological survey?

LV17 MARITIME ARCHAEOLOGY IN THE MOUNTAINS - RESULTS, METHODS AND CHALLENGES FACED DURING THE RENEWAL OF HYDROPOWER CONCESSIONS IN NORWAY.

Elling Utvik Wammer, Charlotte Melsom

NORWEGIAN MARITIME MUSEUM

Many of the Norwegian inland lakes and rivers were regulated for power production before archaeological surveys were made obligatory through the Cultural Heritage Act. Currently many of the concessions given for power production are expiring and must be renewed. The national authorities have set up a sectorial fee to enable the cultural heritage management to conduct archaeological surveys and excavations in watercourses and lakes that were not previously examined.

The maritime perspectives have received little attention in previous archaeological projects in Norwegian alpine watercourses. Maritime archaeologists have been perceived as an alien element in the mountain areas. One of the reasons for this could be that maritime archaeology has been heavily biased towards shipwrecks. Though, Christer Westerdahl has propagated the view that maritime archaeology should study the utilization of space in a maritime environment. In other words it should be the study of human use of water in subsistence, transport and social activities in a broad perspective. Large inland watercourses and lakes have had the same importance and influence on the lives of humans as the sea in coastal areas.

The presentation will discuss the results and methods of two field seasons in the Vinstra watercourse and the high altitude lake Tesse. Mapping of the distribution of boathouses and landing sites give insight in ancient travel patterns, both on land and water. Netsinkers and stationary fish traps found on the lake bed bring new perspectives to the understanding of human exploitation of the mountain areas during the Viking and Medieval age.

LV19 PHOTOGRAPHY, WRITING AND "FICTIONALITY"

Sérgio Gomes

CENTRO DE ESTUDOS DE ARQUEOLOGIA, ARTES E CIÊNCIAS DO PATRIMÓNIO

Images and words enhance the web of relationships within which they acquire their meaning. In this web, images and words play with each other and in so doing challenge their ability to mean. In this game, the web acquires and transforms its shape. I call these different shapes "fictionality" – a territory in which images and words dwell, and which we share in order to understand each other.

In this paper, I will discuss “fictionalities” focusing on the relationship between photography and writing. I will look at this relationship in two ways - as an “archaeological intervention” (Lucas 2012) and as a “historiographical operation” (De Certeau 1988) – in order to grasp how archaeologists play with “fictionalities” in the production of knowledge.

de Certeau, M. 1988. *The writing of history*. New York: Columbia University Press.

Lucas G. 2012. *Understanding the Archaeological Record*. Cambridge: Cambridge University Press.

LV20 VIEWS AND PERSPECTIVES: LEGACIES OF THE PAST TO SHAPE THE FUTURE

Niels Dabaut

NEWCASTLE UNIVERSITY

As an ever-present concept in our daily lives, landscape frames people’s activities, thoughts and movements, even if they do not use the word. Past perceptions of landscape are a key to shape future landscapes. This paper outlines how historic aerial photographs, historic maps, digital terrain models and LiDAR scans can be integrated in a GIS-based landscape characterisation as the basic information layers, which focus to a greater or lesser degree on materiality and morphology. This approach then goes one step further, by adding a layer of methodology that deals with perception. Visual envelopes of people in the past and present are created, to understand differences in what could be seen in the landscape then and now. This historic and visual characterisation, which adds a dimension to the conventional Historic Landscape Characterisation approach of English Heritage, will identify historical sights within the different time layers of landscape and use them to inform our future landscape management decisions. The approach is applied to case studies in Flanders (Belgium). The results show that a loss in unobstructed views towards important sites in villages often goes hand in hand with a loss in significance of the site itself. In a lot of cases, landmarks that were once valued highly lost their importance when they became ‘invisible’ and vice versa. The paper will give examples of how creating a visual reference to archaeological and historical features can bring human-environment relationships from the past and the present to life in the future.

LV30 ARCHAEOLOGY AND HISTORY OF ART: DIFFERENT METHODOLOGIES FOR THE COMMON PURPOSE: STUDY OF RUSSIAN ARMS AND ARMOR

Alexander Zhilin

STATE HISTORICAL MUSEUM

As scientific disciplines, archaeology and history of art often share the same interests. Many material sources are archaeological monuments and works of art at the same time. Ancient Russian arms and armor are being studied in interdisciplinary space.

Methods of archaeology are mostly stratigraphy and typology. History of art has its “three whales” of methodology: depiction, analysis and comparative analysis.

Sometimes both of the disciplines appeal to the term “style” which can be much undetermined.

So called “big styles” are determined on the materials deriving from Western European territories and so are not very reliable in researches connected with, for example, Ancient Rus. In addition, there are many cases when a big number of new styles are being presented by scientists – not “big” but local styles, brought to life by studying of different material sources.

It seems that sometimes the only way to learn all the information about material sources is to unite these methodologies. In my studies, I applied methods of art history to the material that traditionally is considered as purely archaeological: Russian arms and armor of the 9th – 15th centuries. Items of different categories (swords, battle-axes, helmets and so on) were placed in several stylistic groups according to their decoration (geometric, abstract, floral, animal, anthropological, and mixed groups).

Comparison of typological and stylistic divisions of arms and armor helps to clarify ideas about the time of existence of things and the development of their decoration.

LV20 SPACE-TIME CONTINUUM IN MEDITERRANEAN LANDSCAPE ARCHAEOLOGY: WHY DO WE NEED IT?

Stefano Campana

UNIVERSITY OF CAMBRIDGE

Mediterranean archaeology has been based for very long time on texts, excavations and field walking surveys. In the last decade, recognizing the extraordinary complexity of stratified landscapes, new approaches have been developed and are now available. Most import novelty should be probably considered the wide acceptance of the necessity to process and integrate very wide and diverse kind of datasets. Archaeometry, earth sciences, remote sensing and computer science played a central role in what we can see of past landscapes.

This contribution, however, will discuss the results of a programme of large-scale multi-sensor magnetometry (combined with field-walking survey and aerial prospection, along with lidar imaging and test excavation wherever possible) 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.

The questions, based on these case studies, the author would like to discuss are: it is that approach worth also for the Mediterranean contexts? If it is what is the real contribution to the archaeological understanding of past landscapes? Considered that new approaches are much more expensive to implement than past methods are we sure that we can afford it or better that it is really worth?

LV5 MEDIATIONS OF HISTORIES OF ARCHAEOLOGY - NEUTRALIZING PRACTICES AND CREATING TRADITIONS

Ingrid Berg

STOCKHOLM UNIVERSITY

What role does the mediation of historiography play in the identity making of an academic discipline? This paper explores how mediation of past archaeological practice shapes perceptions of the nature of archaeological work. Here, mediation is described as the act of transmitting selected information through various media with the explicit or implicit intention of creating meaning. The archival material of the excavators (letters, photographs, plan drawings etc.), the publications as well as other prints, and the artifacts relating to excavations are in themselves various forms of media. They store created bits of information and serve as the primary source material for historians of archaeology. Through the process of mediation, they are remediated, i.e. they are transformed into other types of media through the acts of producing historiography. The paper will present a case study on how the first Swedish excavation in Greece, on Kalaureia (Poros) in 1894, has been mediated throughout the 20th century. Through publications, museum exhibitions, web sites, newspaper articles, lectures and radio interviews, the paper discusses how histories of archaeology can be described as transmedial spaces, where historiographical narratives are used to neutralize professional self-images and practices as tradition.

LV15 HISTORICAL MAPS OF ISRAEL/PALESTINE – THE EXAMPLE OF THE CRUSADER LORDSHIP OF ARSUF/ARSUR.

Hauke Kenzler

UNIVERSITY OF TÜBINGEN, INSTITUTE OF PREHISTORY, EARLY HISTORY AND MEDIEVAL ARCHAEOLOGY, DEPARTMENT OF MEDIEVAL ARCHAEOLOGY

Israel/Palestine has changed a lot more since 1948 than most other countries. Many Arab villages have disappeared from the map. Large areas of formerly uncultivated land or farmland are built today.

A German-Israeli collaborative project focuses on the development of the comparatively small Crusader lordship of Arsuf/Arsur (1101-1265) north of Tel Aviv/Jaffa. An important part within this project is the analysis of old maps, depicting the conditions before 1948.

The first rough maps already go back to medieval times, since many Europeans traveled the land on pilgrimages. However, most of the seemingly more detailed maps of later times are in fact often imaginative reconstructions of biblical eras. Only in the course of Napoleons Egypt campaign more reliable maps were created. From this time on Palestine became more and more interesting for the military. Consequently the cartographic material improved. Groundbreaking was the Survey of Western Palestine (1874-1877), which maps depict many archaeological sites and record the traditional Arabic place names as well. In the course of the First World War the use of aircrafts brought the biggest advantage. In the area of the former lordship of Arsuf German military maps, which combined information from different sources, are particularly important. Besides others, Arabic, Turkish and newer German and English place names are recorded on a single sheet.

The contribution will show how the different cartographic sources can help to reconstruct the historic landscape, which is almost completely destroyed today.

LV5 CONDITIONS OF WORLD HERITAGE MAKING

Herdis Hølleland

THE NORWEGIAN ACADEMY OF SCIENCE AND LETTERS

Using the World Heritage nomination of 'Viking Age Sites in Northern Europe' as case study, this paper explores the 'double binds' of legacies one often sees in newer nominations: On the one hand, in order to succeed, newer World Heritage nominations have to adapt to and comply with the history of World Heritage practice and policies, of which the Global Strategy and the desire to achieve a balanced World Heritage List are among the most influential of the international policies. On the other hand, national heritage policies, themselves influenced by the development of the discipline of archaeology, also contribute to the framing of World Heritage nominations. In this paper, I discuss how the international and national heritage policies and practice create double binds which have contributed to the recent construction of the transnational serial nomination known as 'Viking Age Sites in Northern Europe'. Furthermore, I examine how the Viking Age's close bonds with nationalism have impacted framing of the nomination.

LV6 EXPERIMENTS IN TIME, SPACE AND PERFORMANCE: CREATIVE ARCHAEOLOGIES IN PRACTICE.

Daniel Lee

UNIVERSITY OF THE HIGHLANDS AND ISLANDS

This paper explores creative archaeologies as central modes of practice for the study of the present archaeologically, and discusses recent projects in which I have taken basic archaeological techniques and subverted them, pushing things in new,

explorative and unexpected directions. This responds to suggestions made by Rodney Harrison and James Dixon that Contemporary Archaeology is more than simply the study of the present and recent past, but about finding new ways of practising archaeology.

For this to work we must be open to challenging our own practice, trying new things and working in different ways. One of the strengths of Contemporary Archaeology is that it frees us from the past and allows us to study things archaeologically in the present as they happen. This sets the 'event' – the archaeological performance - centre stage and provides a vehicle through which to follow other trajectories of enquiry.

Using case studies from recent mapping, walking and collaborative projects in Orkney this paper seeks to move away from the art-archaeology dichotomy, and explore new modes of creative archaeological practice by experimenting with time, space and performance.

LV2 BELIEVERS OF THE EARTH AND NATURAL SACRED SITES IN ESTONIA – HOW TO COMBINE ARCHAEOLOGY AND BELIEF?

Tõnno Jonuks

ESTONIAN LITERARY MUSEUM

Despite the fact that Estonia has recently gained the status as the "least religious country in the world" it can witness an increasing popularity of a local neopagan movement during the past couple of decades. Estonian neopagans, Believers of the Earth, represent a classical East-European neopagan movement as distinguished by Graham Harvey (2010). Focusing strongly on local Estonian context the unbreakable link between contemporary practices and (pre)historic periods is stressed, although dating and chronological approach has never been important in this discussion. In course of that, contemporary holy places have been considered as derived from the immemorial past, most commonly thought to have a pre-Christian origin. As Estonian archaeology has not had any interest towards sacred places until very recently, the alternative, an archaeological approach is largely missing.

This paper will focus on how the ahistorical concept of holy places transformed from the early professional academic fields to neopagan movements. In course of that we can see how academic studies have been (sometimes selectively) used for religious and ideological purposes. With all this a new kind of "prehistoric site" has been invented, where the academic data are not that important as ideological statements.

LV10 APPRAISING MODERN CAVE GRAFFITI IN GREECE

Niels Andreasen

MUSEUM OF COPENHAGEN

Modern engravings in caves in Greece represents an archive of names, initials and dates amassed over the last century. While such "simple" graffiti has largely been ignored by formal academic study, it may provide insights about the different ways that people engaged with the rural landscape, something not easily recognisable in other ways. Graffiti point to transformations that the local community underwent and may hint at different intensities of use and value of cave sites over time.

During fieldwork on a Greek mountain, dates, initials and images were recorded at 42 caves. Some caves were situated along major regional transport routes, and depictions of pack animals, boats and sailing ships are likely connected to flourishing trade during the 18th and 19th centuries. Date clusters may suggest increased pastoral activity in and around the caves during specific periods. Extensive land reforms in the inter-war period led to a growing number of dates in an increasing number of caves. Consequently, dates left in caves during the 1930s more than triple in comparison to previous decades.

The 1990's saw both an increase in tourism and an influx in Albanian immigration. Both groups had an impact on the number of dates being engraved, especially since the latter often found employment as shepherds upon their arrival in Greece. A drop in graffiti dates in the most recent decades can perhaps be related to the introduction of digital cameras influencing how people document their visit to places in the landscape.

LV10 WRITTEN IN STONE: REFRAMING GRAFFITI AT THE NORTH HEAD QUARANTINE STATION, SYDNEY, AUSTRALIA

Ursula Frederick

UNIVERSITY OF SYDNEY

In the contemporary world graffiti is often defined in terms of authority. It is the question of who does and doesn't have the right to write in place that makes graffiti a contested and intriguing subject. Yet as archaeological work attests, graffiti practices of the past and present unfold a diverse suite of gestures and motivations. In this wider context, graffiti appears in the bush and in the streets, it is made in the domestic sphere and for public viewing, it is vernacular as well as being commissioned. Graffiti can involve considerable skill and be made with great love and respect, while at the same time it can appear ugly and destructive. How a particular society or community responds to graffiti is an equally engaging topic. In this paper I discuss the landscape of North Head Quarantine Station (Sydney, Australia) and the many phases and techniques of inscription activity that have taken place there. From the 'prehistoric' engravings of local Aboriginal people across a 150 year

history of non-Indigenous mark-making this geography reveals how graffiti accumulates. Charting a variety of techniques, including stone and tree carving, Chinese calligraphy, and drawings in biro and pencil, I consider how an archaeological approach can work to appreciate a breadth of inscription activities while also acknowledging different contexts of production and reception. In doing so I argue that archaeological method and theory play an important role in reframing graffiti research to address its meaning and place-making potential.

LV14 A CONVENTIONAL APPROACH: SURVEY AND RECORDING IN THE CONTEXT OF THE WORLD HERITAGE CONVENTION

Lesley Macinnes

HISTORIC SCOTLAND

This paper will consider the role that survey and recording can play in World Heritage Sites, in the context of the World Heritage Convention's Operational Guidelines. It will argue that survey and recording should seek to make an active contribution that can be applied to the various stages of a World Heritage Site, including the identification, management and monitoring of the inscribed property and its wider setting. It will emphasise that the need to protect Outstanding Universal Value should be at the core of all activities, and explore the role of research in supporting this aim. It will also consider the relevance of the educational aims of the Convention and explore what this might mean in terms of training, sharing expertise and dissemination of information.

LV21 LANDSCAPES OF POWER: RELIGIOUS LORDSHIP AND LAND-USE AND THEIR INFLUENCE OF THE LANDSCAPE OF CUMBRIA

Caron Newman

NEWCASTLE UNIVERSITY

By the time of the Dissolution, a significant proportion of land in Cumbria was under the control of the Church. Like any other important landholder, the church had an influence on the development of the medieval landscape. Land under the control of the Church, and particularly the monasteries, could take various forms: directly farmed land including granges, lordships of manors, common rights or grants of individual parcels of land. Some of the monasteries held significant temporal lordships. As such they played a major role in the expansion of farmed land, by clearing and enclosing new land from the extensive areas of moorland and waste which characterised much of the medieval landscape of Cumbria. By using documentary records, place-name and historic map evidence, it is possible to map, using a GIS, the location and extent of these new settlements which helps to demonstrate the significant influence the monasteries had on the development of the present-day settlement and agricultural landscape.

The colonisation of previously agriculturally marginal lands, as well as allowing monasteries an opportunity to acquire property unencumbered with existing tenants and rights, extended cultivation and enclosure whilst driving the edge of the open waste further away from the settlement cores. Monastic granges, in particular, promoted the enclosure and improvement of new land and the establishment of new settlements. The monasteries were an engine for change in the medieval landscape. Understanding the structure and character of their landholdings contextualises the physical remains of the monastic past.

LV20 MAXIMISING BENEFIT IN LANDSCAPE RESEARCH

Peter Herring

ENGLISH HERITAGE / HISTORIC ENGLAND

Academic and charitable institutions, and states and their agencies, lack the capacity (resource and body of expertise) to undertake the survey and analysis required to identify, investigate, protect, manage and present all of our richest and most contestable heritage, the landscape, to the level they most desire.

This paper explores means of evaluating landscape, of prioritising work, and of integrating approaches to multiply and maximise good outcomes. English Heritage has been experimenting with large-area landscape survey using sequenced approaches in which remote sensing (from largely aerial platforms) is followed up by geophysical survey, analytical earthwork survey and excavation, largely to identify and confirm significance. The West Penwith Survey, thirty-odd years in the creation used a similar range of techniques to support land management and presentation of an already highly valued landscape in the far west of Cornwall.

Remote sensing can cover enormous areas (as the National Mapping Programme demonstrates), but hands-on techniques, crucial for establishing what the material that has been sensed comprises and means, and what its significance might be, can cover only tiny areas.

All archaeologists characterise their material in order to get a grip. Characterising historic landscape by identification of key attributes, those identified by both remote sensing and groundwork, enables the spreading, however thinly, of current understanding and current evaluation at least as widely as remote sensing, creating the ability for all three to work constructively with each other. And, most importantly, to provide material that local communities can work with, engage with, and argue about.

LV4 ASSESSING PALAEOCHANNEL RESOURCES IN THE LIGHT OF FUTURE ENVIRONMENTAL CHANGE: A CASE STUDY FROM THE TRENT VALLEY, UK

David Knight, Samantha Stein, Steve Malone

YORK ARCHAEOLOGICAL TRUST

Palaeochannels are one of the most common features of valley floors in temperate alluvial landscapes, and their value as natural sediment traps containing proxy records of climate, vegetation history and land-use is well known within the archaeological and geomorphological communities.

In the recent past, the most significant threats to these landforms have been associated with quarrying, but future climate change may bring new challenges, associated both with changing natural threshold conditions and with flood risk management. Mitigating and managing future threats to these important historic environment assets requires detailed knowledge of their extent and character. This paper outlines a multi-staged approach to evaluating the palaeochannel resource in the Nottinghamshire sector of the middle and lower Trent Valley, UK. The first stage of the project involved the mapping of features from a variety of remote-sensed imagery, including standard aerial photography, lidar and multispectral data, and assessing the efficacy of each methodology. However, producing a landform resource map is simply the first stage of this project, and this presentation will also explore future stages, including fieldwork strategies for assessing the chronology and preservation potential of these landforms at the macroscale and likely future threats associated with climate change.

Whilst such research is important for heritage management, this approach can benefit the wider community. In particular, palaeochannels are key assets for nature conservation, and can play a key role in flood management strategies as a part of Sustainable Urban Drainage Systems.

LV6 BUILDINGS ARCHAEOLOGY WITHOUT THE RECORDING

James Dixon

MUSEUM OF LONDON ARCHAEOLOGY

If you wanted to define archaeology as the methods we use, not the stuff we find or the interpretations we make, nobody would be *too* bothered. Practical methods are central to archaeology and always have been. The origins of the experimental work presented here however are in a long meeting some years ago about community archaeology in which every idea mooted was based around teaching people-who-are-not-us how to record buildings the way we do, as per English Heritage (among other) best practice guidelines. This practical approach and the idea that it must be imparted from us to others seemed to be held as sacrosanct; the 'variables' we ended up discussing were the groups we might work with, the focus sites and the teaching methods. Of course, these discussions took place with the best of intentions, but I saw in them a missed opportunity to be a bit more reflexive and question our own methods by 'encountering' buildings and built landscapes with non-archaeologists on a more equal level while still using our own expertise to try to create and sustain people's interest in built heritage. Accordingly, this paper will present some art-inspired practical experiments with mixed-audience workshops – in Leeds, London and Oxford – in buildings archaeology, each of which was partly aimed at 'archaeology without the recording'. I hope to show the potential for this kind of work with non-archaeologists to feed back into, change and expand how we approach the built environment.

LV28 REMEMBERING THE TEMPLE OF MITHRAS: USING ORAL HISTORY METHODOLOGY AND DATA TO ENHANCE COMMERCIAL EXCAVATION

Stephanie Ostrich

MOLA (MUSEUM OF LONDON ARCHAEOLOGY)

The Temple of Mithras oral history project, carried out by MOLA from September 2014 until February 2015 and funded by Bloomberg, supplements MOLA's recent excavations at the former Bucklersbury House in the City of London. Sixty years before on this same site, there was a media frenzy about the discovery and subsequent planned destruction of the Temple of Mithras in the autumn of 1954. It was reported that tens of thousands of people queued for hours for a chance to visit this site after it was opened to the public. For many, their visit in 1954 marked an evocative and memorable day during those post-war years of bomb sites and rationing and sparked a lifelong interest in archaeology and history and shows how a seemingly insignificant archaeological structure really captured the imagination of a generation. This paper will address the methodologies implemented in the project and will illustrate how oral history can be used as a tool to supplement commercial archaeology through the addition of valuable data not present in the archaeological record in addition to creating a stand-alone digital educational resource. Oral history of archaeology allows analysis of the wider implications and impact of public engagement in archaeology in the long term. Additionally the added social value of this type of outreach project is clearly demonstrated.

LV28 ORAL HISTORY AND A FORENSIC ARCHAEOLOGY CASE STUDY IN EASTERN ROMANIA

Neculai Bolohan

ALEXANDRU IOAN CUZA UNIVERSITY OF IAȘI

By the nature of the earlier developments the oral history is still a living component of the daily Romanian society. Personally, in many of the archaeological investigations developed in eastern Romania I have used two magical keywords when,

intentionally or accidentally, I interviewed locals: *pot crocks* and *bones*. Their use has led to the identification of settlements and cemeteries. In one forensic archeology case, recently concluded, we have benefited from the interweaving of several categories of sources that helped locating a special site (a mass grave with victims from the WW2). Thus, at first instance we used documents from military archives, the archives of the lawsuit. In the second stage we benefited from interviewing survivors, eyewitnesses and successors of the eyewitnesses. We found that memory preservation was performed in two stages: 1. sharing experiences to a close-knit, 2. public sharing of experiences. For a long time, the hidden memory constituted the nucleus of the subsequent oral history.

For the location of the mass grave we have interviewed some local peasants who directly witnessed the events or have seen some stages from far away. But only a witness and a successor of a witness showed us accurately the place of the mass grave. This place is called *The Grave Jew*, a toponym known to only a few locals. In what follows will be talking about history, oral history, archeology, challenges in identifying an archaeological site.

LV19 UNREPEATABLE EXPERIMENTS: ARCHAEOLOGICAL PHOTOGRAPHS, ARCHIVES, AND LIVES

Dan Hicks

UNIVERSITY OF OXFORD

This paper reports on archival research undertaken in 2014 into the author's own archaeological fieldwork, carried out for English archaeological units between 1989-1999. In doing so, the paper thinks through some of the limits of life-writing in archaeological thought and practice.

LV5 GENDER AND COMMODIFICATION OF THE PAST: THE (MIS-)REPRESENTATIONS OF VIKING WOMEN IN CULTURAL PRODUCTION.

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¹SOUTH WEST ARCHAEOLOGY, ²DEPARTMENT OF ARCHAEOLOGY, ³INSTITUTE OF ARABIC AND ISLAMIC STUDIES

Gender issues have steadily influenced archaeological interpretation from the 1970s onwards, and the investigation of gender and social roles in past societies is no longer a fringe topic in the archaeological discourse. Research from the last few decades and experiences from our own societies, have established that contemporary Western values and norms should not be generally applied to social roles in both past and present societies. Given this proposition, we will explore how stereotypical representation of Viking women and gender-biased images are reiterated through the ever-popular cinematic medium.

Our talk will analyse the relationship between disciplinary discourse in archaeology and the public presentation of cultural heritage. Through the evaluation of the portrayal of Viking women in current fiction films, we will analyse how cultural productions reaffirm the ethnocentric assumptions about universal gender dichotomies through the representations of women and men. Considering the fact that the public to a large extent experiences the past through cinematic means, the discussion will explore how the ethical responsibility of archaeologists, the influence of professional pride, and commercial demand are intertwined in challenging these representations. The talk will consider which strategies archaeologists can adopt in order to address the inconsistencies between the current research and the existing representations of feminine Viking roles. By using insights from archaeology, sociology, social and physical anthropology, we will debate the chasm between internal and external discourse, and suggest how we can move forward while still representing the past as an exciting, action-packed place, if need be.

LV24 EARLY MATHEMATICAL CONCEPTS IN PREHISTORIC EUROPE AT THE INTERFACE BETWEEN MATERIAL CULTURE, TECHNOLOGY AND METAPHORS

Aleksander Dzbyński

UNIVERSITY OF ZURICH

The famous deposit from the site of Seeberg Burgäschisee-Süd remained isolated for a long time, and hence the hypothesis of its metrological structure seemed unbelievable to some archaeologists. This article begins with a reminder of this find and presents a new analysis based on Kendall's statistics. In addition, we present a breakthrough discovery of another deposit of beads. During excavations of the site of Colmar in Alsace, an Eneolithic grave was discovered; it produced copper beads of a type that is characteristic of the Cortaillod culture. The distribution of these objects in a grave finally removes doubts as to how beads were valued. The comparison of the deposits of Seeberg and Colmar, using both statistical and conventional methods, is at the core of this article; it allows us to gain a deeper insight into the problematic area of early mathematical and metrological concepts in prehistoric Europe. The beads lie at the interface between traditional, more archaic and less abstract methods of perceiving mathematical relations based on the concept of linear measure and the new approach brought about by the arrival of metal technology.

LV19 PHOTOGRAPHING BUILDINGS

James Dixon

MUSEUM OF LONDON ARCHAEOLOGY

This paper takes as its subject the photography of standing buildings as part of the wider archaeological recording process. When we photograph buildings, there are certain shots we must take: elevations, general room shots, close-ups of architectural details and so on. These are all important and useful photographs, providing visual cues linking the appearance of

the building at the time of recording to its structural description and the archaeological analysis of how it came to be the way it was on the day it was visited. Occasionally, as with rectified photography, the photographs themselves are the recording. I argue here that this approach may give too much weight to art-historical approaches to standing buildings that over-emphasise the design of buildings and their 'completion' as intended by their architects, in effect producing a series of images intentionally comparable to the architect's drawings. While we gain a useful visual record by recording in the manner we do, such traditional processes also obscure what may be more interesting to archaeology than the appearance of the whole structure, namely the ongoing process of 'building' – the whole life of a structure from conception to demolition and beyond – and buildings as experienced, lived space. Here, I will make use of over a century of non-archaeological photography of buildings, from Louis Lumière to Marie-Jeanne Hoffner, to ask firstly whether we could use different kinds of photography of buildings to answer more distinctly archaeological questions and secondly how we might go about integrating these approaches into current practice.

LV8 TERRITORY OF ARCHAEOLOGY, ARCHAEOLOGY OF TERRITORY: MEMORY AND RESILIENCE SERVING TERRITORIAL STRATEGIES FOR THE FUTURE

Isabelle Catteddu

INRAP

Archaeology is today shown to be a first-rate indicator of the historical anchorage of territories. Archaeologists have become new actors, consulted in reference to new town and country planning projects in order to reconstitute the history and memory of the territories. They hold a privileged position for observing the different solutions adopted by former societies for improving their resilience over the short or long term. They identify indicators of often true and profound transformations or bifurcations, and study the dynamics between human or social behavior and the ecological systems via different timescales. The study in Brittany brought to light more transformations than ruptures. Archaeology contributes to the ideas surrounding the whole notion of territories and shows that these are constantly and directly influenced by societies which are based on their past heritage but are looking towards the future. It is also instrumental in bringing to light the construction of new territories (cultural, touristic and social) and the evolution of existing territories with regards to their political definition and their development. Archaeological involvement plays a direct role in reconnecting populations with territories which are constantly amended and reinvented. In recent and novel projects, with naturalist science, archaeogeography, sociology and artistic practices, archaeology has tried to help better understand the transformation of heritage, in order to improve future planning. With the help of transdisciplinary studies, it makes original and meaningful contributions to the elaboration of new territorial strategies and to the emergence of territorial intelligence

LV25 ETHNIC ORIGIN OF PAST SOCIETIES AND CONTEMPORARY LAND AFFILIATION. STRUGGLES BETWEEN POLISH AND GERMAN PREHISTORIANS BEFORE, WHILE AND AFTER WORLD WAR II

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From the very beginning of Polish Archaeology as a modern academic field, researchers from Poland had to compete with German scholars. This struggle occurred on many fields of archaeological research and was also heavily influenced by political rivalry of Poland and Germany. Those difficult relations between academic representatives from two neighbouring countries were stoked by common and very complicated history of 20th century, especially during the inter war period.

With the end of World War I Poland, as a recently restored country had to develop a strong legitimization for ownership of lands that previously were a part of The German Reich. Archaeology had to offer a significant help on this field. On the other hand German archaeologists conducted numerous efforts in the opposite direction. This situation became critical when the Nazi came to power. According to ideas developed by The Third Reich researchers, archaeology became rather a pseudo academic field, than a serious knowledge domain, with an unfortunately strong governmental support. The outbreak of The Second World War did not constrain the activity of German prehistorians; conversely it led them to conducting excavations in the occupied Poland, looting Polish museums or creating new and "archaeologically correct" names of Polish cities.

To sum up, the main aim of this paper will be to show the "contribution" of Nazi archaeologist into research done on the subject of Polish prehistory and its contemporary aftermath, with special attention to discussions of ethnic origin of prehistorical societies in the discussed area.

LV6 BUT HOW TO DESCRIBE IT? EXAMPLES FROM A CREATIVE ARCHAEOLOGIST

Christine Finn

INDEPENDENT SCHOLAR/FSA

This paper will discuss examples across various creative disciplines from photography to installation, arising out of the author's personal experience, and other engagements, and drawing on the author's background in journalism, art practice, and archaeology/anthropology. One is a series of six works commissioned by RIBA and funded by Arts Council England, which was installed at a family home; the second, a work for the Library of Lost Books, was a commission for an exhibition to mark the opening of the new library in Birmingham, UK, and another is a two-part sculptural installation, made in Jersey, Channel

Islands, and New Jersey, USA. The author will show the narrative arc of both the creative impetus, and the engagement with archaeological practice which, she will suggest, made the works possible.

LV6 ART / ARCHAEOLOGY: CREATION THROUGH DISARTICULATION

Doug Bailey

SAN FRANCISCO STATE UNIVERSITY

Art / Archaeology is the creative space beyond the boundaries of the disciplines of archaeology and art. In this paper, I suggest that we explore this space by embracing the challenge of doing archaeological work that uses the past and parts of it as media, canvases, materials, and tools to create new work; this new work we release from its connections to the past. Moving beyond the limitations of standard explanation and interpretation, and drawing inspiration from non-narrative, non-linear practice, art / archaeology work uses the rhetorical power of the past in new ways to open up debates over issues central to human behavior of the present, past and future. The proposal is neither to do an archaeology of art, nor to make art about the past. Rather, the call is to make new work that lives outside of archaeology and art, but which engages the key themes of humanities, social sciences, art practice, and art theory. Examples will be drawn from recent montages, films and book projects.

LV27 DIGGING IN: RECREATING A GREAT WAR TRENCH IN GLASGOW

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Over the past decade there have been a number of attempts to recreate Great War trenches as visitor attractions, educational facilities or as a stage for dramatic re-enactment. From museum displays to the badly received BBC reality TV show *The Trench*, through to various film sets, including that for *Downton Abbey* and private playgrounds for re-enactors, people have been digging in. A number of these reconstructions, particularly those aimed at giving young people some idea of what life was like on the Western Front, are associated with the centenary of the war.

This presentation will provide an introduction to one such centenary scheme, but hopefully one with a difference, as it places close attention to archaeological findings and will attempt to give some impression of the ways in which what has been oversimplistically referred to as *trench warfare* developed. The discussion will highlight how it is one thing to dig a trench and quite another for it to make a meaningful contribution to public understanding.

While this abstract is being written the trenches in question do not yet exist, as the authors still await the outcome of a major Heritage Lottery Fund application. If the grant application fails and the project does not go forward then a consideration of existing recreations and the considerable thought that went into this project will still provide ground for fruitful discussion.

LV22 SOURCE OF LIVELIHOOD AND SO MUCH MORE: WOODLANDS OF FINLAND IN THE PAST

Riikka Mustonen

METSÄHALLITUS

Today there are 23 million hectares of woodland in Finland. This wasn't always the case. After the last glacial period, pine (*Pinus sylvestris*) and birch (*Betula pendula*, *B. pubescens*) were first to arrive. The third dominating tree species, spruce (*Picea abies*) arrived 5000 years ago. Prehistoric people dwelled in woodlands that looked very different from today.

During the past three centuries woodlands were intensively harvested, due to ship building, slash-and-burn agriculture and tar-burning. The state of the woodlands became so poor, that the state had to regulate these activities. Today the woodlands have grown back again and they are replete with wooden cultural heritage structures. These structures are about to decay and disappear. They have been a huge part of the structures surveyed during the past five years by the NFP Cultural Heritage Survey -project. This paper examines wooden structures surveyed in the project, how they can be studied and what they can tell us about people's relationship to woodlands.

LV2 THE SOCIAL CONTEXT OF ARCHAEOLOGY IN ROMANIA: TEACHING FIELD METHODOLOGY ALONGSIDE AN ORTHODOX HOLY SITE

Emily Hanscam

DURHAM UNIVERSITY

This paper presents the final results of an archaeological ethnography undertaken from 2014-2015 in the annual field school at Halmyris, a Roman legionary fort in the Romanian Danube Delta. It attempts to understand how the social context of Halmyris reflects ongoing national tensions within Romania, how the 27 western students involved in 2014 used the archaeological site as a focal point through which to understand the national space, and how the yearly presence of foreigners affected local culture and identity as related to the site. It examines how the student's experiences on the site impacted their developing perception of self as archaeologists and how it influenced their theoretical understanding of archaeology. Halmyris hosts an annual Orthodox pilgrimage which forces the students to confront and absorb massive contradictions about Romania involving wealth, poverty, faith, the use of antiquities, and the role of Halmyris. The wider social context of a site is rarely so obvious, and the students spend the rest of their time at Halmyris trying to deal with the tensions they see and the newfound realization that archaeologists cannot control the knowledge they produce. This study also focuses on the students who chose to return to

Halmyris in 2015, examining their understanding of the social and political environment of the site from their more experienced position. The students' engagement and education in rural Romania greatly impacts their understanding of the sociopolitical aspects of archaeology, thereby influencing their development as archaeologists in a globalized world.

LV11 STRUGGLING IN THE TRENCHES – EXCAVATION OF THE LATE MEDIEVAL TOWN NYA LÖDÖSE IN THE SHADOW OF THE GREAT WAR

Oscar Ortman

THE COUNTY MUSEUM OF BOHUSLÄN

During the Great War, the art historian Sixten Strömbom (1888 – 1983) conducted the excavation of Nya Lödöse. The excavation, which was one of the first urban archaeological excavations in Sweden, was initiated by the city of Gothenburg. It was to be part of the 300-year anniversary celebration of the city.

In the seventeenth century, the site of Nya Lödöse was turned into countryside residences for rich citizens of Gothenburg. During the 18th century, some parts became industrialised.

The celebration of Gothenburg also included the development of a new suburb "Gamlestaden" (the old city) beside the site of Nya Lödöse, which was planned to provide housing for the workers employed at the factories. The intention of the architect was to let the new suburb conform to the old town plan, in order to preserve the remains.

The city of Gothenburg provided the excavation with workers not suitable for military service. They hand-dug the trenches, which were shallow and some of the exposed surfaces were quite extensive. The impact of the Great War was most clearly seen in bad nutrition, but also by the fact that the site consisted of arable land that was giving crop and was therefore not always accessible for excavation.

Until the 1980's, interpretations of Nya Lödöse relied on the results of Strömbom's excavation; these are now being challenged by excavations carried out in 2013 to 2017.

LV24 IN SEARCH OF THE HIDDEN PATTERN. REMARKS ON THE BRONZE AND EARLY IRON AGE HOARDS FROM POLAND.

Katarzyna Slusarska

UNIVERSITY OF GDANSK

The late Bronze and early Iron Age in Central Europe is the time of gradual unification not only of so-called material culture (mainly metal objects), but most of all in realm of values and ideas. It is also a time of intensified exchange of both ideas and goods. Studies over selected types of bronze objects and the exchange of raw materials are incorporated into discussion about the organisation and mean of exchange and existence of specific metrological standards. The role of medium of exchange in the Bronze Age was attributed to the different categories of items: sickles (Primas 1986), axes and socketed axes (Malmer 1992; Sperber, 1993; Pare 1999) ring necklaces, ring bars and small bronze ring (Sommerfeld, 1994; Lernerz-De Wilde 1995, 2002; Neugebauer 2002). Moreover, in the central European graves of the late Bronze Age has been found some objects interpreted as weights of mass corresponding with weight units of the Bronze Age Aegean region.

However, apart from being subject or means of exchange, the standardised sizes, weights and ornaments of metal objects can give us in insight in "aesthetic" preferences or, at least, the way of defining "the proper" form of particular categories of objects.

The main aim of undertaken studies is to analyse large bronze deposits from Oder and Vistula basins in terms of existence repeated values in and between particular groups of objects. For analysis were selected hoards containing at least each one item of following categories of objects: axes, sickles, ring ornaments.

LV27 EXCAVATING ARCHIVES: GLASGOW UNIVERSITY'S GREAT WAR PROJECT

Tony Pollard, Jennifer Novotny, Moira Rankin

UNIVERSITY OF GLASGOW

Since March 2014, the authors have been researching the legacy of Glasgow University's involvement in the Great War. This influential project builds on the online Roll of Honour put together in 2006 by the University's Archives Service. Honoured on the Roll are 4506 staff, students and alumni (men and women) who served in the war, of whom 761 gave their lives. The project is exploring the impact of the war on the university as a community, shedding light on the contributions to the war effort made by its members on the frontline and the home front, while also examining how the university continued to function through those dark days of 1914-1918.

The aims of the project are various, with memorialisation and public engagement, including the involvement of local schools, being key among them. One output of this research will be the mapping of the university's war, with Google Earth and Twitter playing a part here. It is notable that two of the project's key researchers are better known as archaeologists and the opportunity will be taken here to explore the parallels between the university's impressive collection of archives and the archaeological record with which archaeologists are more familiar. The collections range from official university documents,

including minutes that record the university establishment's responses to the war, to personal papers, ranging from notes taken during training to poems written while a Prisoner of War.

LV28 PUBLIC PERCEPTIONS OF ARCHAEOLOGY AND HERITAGE

Sophie Laidler

DURHAM UNIVERSITY

Qualitative approaches provide an invaluable tool for gaining unique contemporary insights into public perceptions of archaeology and heritage. Interviews, focus groups, questionnaires and visual elicitation methods facilitate the collection of a wide range of narratives, spatial and visual data. In this paper, I will focus upon two aspects of utilizing qualitative data in collaboration with traditional archaeological enquiry. Firstly, this paper will outline the benefits of using a multi-faceted approach for the identification, promotion, representation and memorialization of marginal forms of heritage and archaeology. This section will utilize qualitative evidence of public perceptions of the infamous Anglo-Saxon monastic remains at Wearmouth and Jarrow. Data was collected in advance of the sites UNESCO World Heritage bid. The bid raised contemporary concerns about the perceived erosion of marginal forms of heritage that have local importance; a contrast to the high profile and heavily promoted scheduled Anglo-Saxon monasteries. Secondly, this paper will argue that the archaeological process can have an enduring legacy that can become engrained in contemporary narratives of local landscapes. This section of the paper will draw upon preliminary findings from my doctorate research into the impacts of archaeological initiatives in the North East of England. It will demonstrate that qualitative research techniques are an invaluable tool for understanding the direct and diffuse impacts of archaeological research upon public audiences. Although qualitative methods are not traditional in archaeological enquiry, this paper will demonstrate why a collaborative strategy may be beneficial for both the archaeologist and the wider public.

LV8 REDISCOVERING THE ARCHAEOLOGICAL TERRAIN: THE ARCHAEOLOGICAL SUBSTANCE OF "MARGINAL" SPACES

Jan Kolen

FACULTY OF ARCHAEOLOGY, LEIDEN UNIVERSITY

Since the 1990s onwards, landscape archaeology has significantly contributed to the thinking about and reconceptualization of "landscape" in the social, geographical and environmental sciences. Instead of viewing landscape simply as the backdrop to human activity or as the natural world 'out there', archaeologists increasingly propagated the 'humanization' of landscape as a basic concept for scientific research, interpretation and societal discourse. Yet, in the process, the archaeological terrain itself has moved to the background. The archaeological terrain appears fragmented if viewed and analysed as isolated time slices, depositional events or 'horizons'. However, if we do not consider it as a set of eroded surfaces or frozen stages but as a dynamic whole, we might be able to follow path dependent changes that constantly reworked the material qualities and human legacies of environments through time. Rediscovering the archaeological terrain may increase our understanding of how human environments have evolved over the long term as a kind of *process totalized*, at least at the local level. Finally, such an exercise and exploration will enable archaeologists to tell new or better stories about the environment *as heritage*, of which the archaeological terrain forms an integral part. The potential of such a project will be illustrated by discussing three –very different- examples: a very *old* human environment with "marginal" off-site scatters dating to the Middle Pleistocene, some 250.000 years ago; inter-visibility in a late prehistoric landscape with barrows and (other) burials; and a liminal landscape (or "terrorscape") dating from the Second World War.

LV16 PROTOHISTORIC ARCHAEOLOGY AND ECONOMICS: THE WEIGHT OF THE PAST

Clara Millot-Richard

UNIVERSITÉ DE STRASBOURG

Economics and protohistoric archeology are two disciplines that do not usually work together. It is essential first to understand the reasons why archeologists are reluctant to apply economic ideas to analyze archeological data, and second to stress the conflicting notions between both disciplines.

The separation between disciplines and researchers, the use of inappropriate words, and the existence of prejudice on both sides create a vacuum in archeological research concerning the economies in ancient societies. It is also heard that data are lacking in order to produce an economical analysis but protohistoric archeology gained a lot of data during the last three decades, and there is enough material in order to support such an analysis. For example, some central notions in economics, such as "market economy" or "industry", are sometimes met with reluctance by some researchers. That is why we broach ancient economies with notions that belong to anthropology, or sociology, such as the exchange of gifts, and that is a consequence of historiography, and a part of our legacy. As a consequence we are building a distorted image of subsistence in ancient societies. Nowadays, our challenge is to overcome this old fear of economics, in order to lighten this heavy legacy.

The main contribution of this communication is manifold: it allows us to precisely analyze the scientific legacy of ancient economies and to suggest a new interpretative framework, inspired by economics that would operate on archeological data.

LV7 DOMESTICATION AND HUMAN-ANIMAL RELATIONS IN THE ANTHROPOCENE: CHANGES IN TERMS OF ENGAGEMENT

Kristin Armstrong Oma

UNIVERSITY OF STAVANGER

The anthropocene is a term that is rapidly gaining momentum. It presupposes that humans stepped up and took a leading role in driving processes of change in a hereto unprecedented scale. Domestication, both of plants, animals and environments, is bottom line vital to this development. Domestication from this perspective is a process that presupposes modification and manipulation of the behavioural dispositions, morphology and life world of other beings.

Archaeology has played a role in trying to explain these processes by way of environmental archaeology. This strand of archaeology has epistemologically been informed by a fundamentally cartesian, i.e. humanist/enlightenment paradigm, that has presupposed that humans have conquered animals, plants and landscapes and subjected these to the human will, as though these are passive, even inanimate, matter. The agency of plants and animals has rarely been considered. This perspective has led other disciplines to mistrust the ability of archaeology to respond to questions of domestication - and fundamentally - questions of which factors pushed the development of the anthropocene. What are the consequences of this mistrust? Are there solutions?

This paper specifically deals with domestication of animals, both in the past and in recent times, from a perspective of reciprocity, commitment and co-authored life-ways.

LV27 MEMORY-SHAKERS: ARCHAEOLOGISTS AND THE MISSING OF THE GREAT WAR

Anthony Byledbal

UNIVERSITÉ D'ARTOIS

For many descendants of the Great War soldiers, the battlefields are still today cemeteries at the dimension of this conflict. Abandoning the dead bodies, remaining on the place of their death, is the fact of the military context where funeral and religious practices could not take place at the end of the battle. Archaeologists rediscover each year lost bodies that the literature often quotes.

The excavation of the portion of the frontline named the "Glory Hole" at La Boisselle (Somme, France), where several bodies buried by the fights were uncovered, and few of them identified, drives the archaeologists in a process which can't control. Contrary to others excavations from others periods, where the archaeologists store bones at the end of his works for future studies, at La Boisselle, the question of the remains did not arise: these soldiers who had no know graves, would have one.

As identification gives a face to simple bones, a game of hide-and-seek is also taking place to find the descendants. From then on, how families welcome the announcement of the discovery of the body of their ancestor? How they close a centenary mourning? How this family mourning overlap to a collective one in view of the commemoration of the centenary of the First World War? Where then is the place of the archaeologist in this memory work?

LV25 ARCHAEOLOGY ENTANGLED IN POLITICAL NARRATIVES: THE CASE OF AUGUST SCHÖRGENDORFER AND HIS WW II EXCAVATIONS ON CRETE

Georgia Flouda

HERAKLION ARCHAEOLOGICAL MUSEUM - FELLOW, CENTER FOR HELLENIC STUDIES/HARVARD UNIVERSITY

This presentation aims at addressing the impact of the recruitment of young academic archaeologists into the German militia on the development of archaeological agendas during the Third Reich. It specifically explores the archaeological activity of August Schörgendorfer, an Austrian academic archaeologist, on the occupied island of Crete as a case study. Schörgendorfer enlisted as a Wehrmacht officer, was upgraded to a Kunstschutz officer, and in 1941-1942 undertook illegal excavations at Knossos and in the Mesara. By presenting data collected through archival research and Schörgendorfer's previously unpublished photo-album, I aim to reconstruct his ideological and archaeological "itineraries". Integrating the latter with the historiography of Nazi-era archaeology and with historical evidence will primarily help illuminate undocumented aspects of Wehrmacht's archaeological research on Crete. Parameters of the cultural policies of the German Archaeological Institute at Athens ("Abteilung Athen des Archäologischen Institut des Deutschen Reiches") during the war conflict will also emerge. The study stems from the necessity to reassess the entanglement of the newly emerging professional archaeology within the challenges of cultural and political identity that shaped Europe in the early and mid-20th-century. Although this may sound as a self-reflective endeavour, it seeks to place the notion that "at each of its moments archaeology is practiced in the present" (Schlanger 2004, 165) to the centre of modern archaeology, in order to lead to a critical discourse of the connection between politics and culture professionals.

LV22 A PALAEOENVIRONMENTAL INVESTIGATION OF TWO PREHISTORIC BURNT MOUND SITES IN NORTHERN IRELAND

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This paper provides a summary of the palaeoenvironmental evidence from a spread of Late Mesolithic burnt material and two Late Neolithic to Early Bronze Age burnt mounds from Northern Ireland. Monoliths were collected from two sites, Ballygawley and Roughan, in Co. Tyrone, Northern Ireland. This provided an opportunity to use a palaeoecological approach to investigate the environmental context, use and function of burnt mounds for the first time. Pollen, NPPs (non-pollen palynomorphs), micro- and macroscopic charcoal were used to place these features within the landscape, and to establish if such an approach could provide further insights into their function. The palynological results showed that activity horizons at each site shared similar, unique characteristics. All were associated with high microscopic charcoal values, repetitive fluctuations in tree and shrub taxa, increased Sphagnum, and the presence of NPPs HdV-114 and HdV-146. While the data does not allow us to ascribe a specific function for the burnt mounds, the 'seesaw' pattern of tree and shrub pollen, combined with the macroscopic charcoal data, indicate possible species selection and management of the local woodland species for fuelwood.

LV8 HISTORICAL GEOGRAPHY AS A LOST TRACK; THE RISE AND FALL OF GEOGRAPHICAL RESEARCH INTO THE HISTORIC LANDSCAPE

Hans Renes

UTRECHT UNIVERSITY

Interdisciplinary research presupposes knowledge of – or at least an interest in – the research tradition of other disciplines. In historically-oriented landscape research, the long geographical tradition can be seen as a 'lost track' (the term was coined by the Swedish geographer Mats Widgren). For much of the twentieth century, geographers dominated the historic landscape research in much of continental Europe, with a focus on [1] settlement and field structures and [2] deserted settlements. From the 1960s onwards, mainstream geography moved away from these topics, with the exception of a small group of historical geographers. A few decades later, landscape archaeologists and agrarian historians took up both themes, but often without references to the old geographical research tradition. This paper focuses on the historiography and tries to trace the present relevance of some 'lost tracks'.

LV17 MANAGING THE ARCHAEOLOGY OF DAMS IN BRAZIL: SCIENTIFIC AND SOCIAL CHALLENGES

Erika Robrahn-Gonzalez

UNICAMP, UISPP, DOCUMENTO

Brazilian cultural heritage is known to be considerably diverse. Given its multicultural aspect, the country has a varied history of human occupation, resulting in the existence of a great diversity of archaeological sites that, in many cases, are still related to actual indigenous societies.

In this context, heritage management in many Brazilian dam areas (and especially in the Amazonian region, which means around 50% of the country's territory) needs to consider that many archaeological sites are related to indigenous sacred sites and other remains from their ancestral occupations located in their traditional territories.

The examples from research programs in Brazilian large-scale dam projects, which will be discussed on this presentation have, as their main directive, analyze the different aspects related to heritage management on a scientific, legal and social perspective.

Good practices need, therefore, to ally the accomplishment of scientific research with the symmetrical involvement of local communities, leading to an integrated treatment of scientific results and traditional knowledge and establishing a complementary relationship between Science and Tradition. In light of this, the approach needs to be plural in its essence, once good practices encompass a great variety and complexity of possible actions, including a scientific one.

LV17 MANAGING CULTURAL HERITAGE ON BRAZILIAN DAMS

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In Brazil, hydroelectric plants account for 75% of the energy production, counting with hundreds of hydroelectric power plants present on all the country's hydrographical basins. The first units were constructed on the XIX century, but from 1986 the national legislation considered mandatory environmental studies alongside the construction process, including studies regarding Cultural Heritage and Archaeological Programs.

In order to regain, at least partially, the loss of knowledge and the destruction of archaeological heritage in dams constructed before the environmental legislation, the Brazilian Government instituted in 2003 the Determination n. 28, establishing the obligation of archaeological research in the borders of those plants. In this context, this communication will present the experience of the cultural heritage and archaeological management that has been happening in the last 8 years in eleven hydroelectric undertakings located in the state of São Paulo.

This presentation will focus on the management strategies regarding research and preservation of the cultural and archaeological heritage involved (including the implementation of archaeological reserves across the three main hydrographic basins that cut through the state of São Paulo); and the high investment on Heritage Education taking the 88 cities involved, with the intensive use of technologies and free media.

LV24 WORSHIP OF THE IASIAN NYMPHS: SACRED SPACE, RITUAL AND LOCAL IDENTITIES

Blanka Misic

CHAMPLAIN COLLEGE LENNOXVILLE

In recent years the field of cognitive science of religion has become ever more popular among scholars of antiquity who seek to understand the relationships that ancient peoples entertained with their divinities and with the spaces which they regarded as sacred. The present paper proposes to analyse, in light of the cognitive science of religion theoretical approaches, material evidence from a seldom-examined religious site of Aquae Iasae, located in the southern part of the Roman province of Pannonia. Since material culture in itself is an embodiment of one's cognitive framework, by examining the latest archaeological, epigraphic and iconographic finds with respect to the cult of the Nymphs at Aquae Iasae, this paper seeks to shed greater light on the nature of religious ritual performed at this site: the manner in which religious space and sacred objects may have been perceived and used, and what their manner of use can reveal to us about worshippers' identities and their relationships to the divinities of this site.

LV25 A NEW APPROACH TO HISTORY. THE BREMEN EDUCATOR FRIEDRICH WALBURG AND HIS TEACHING OF PREHISTORICAL ARCHAEOLOGY AFTER WORLD WAR II

Jannik Sachweh, Matthias Loeber

LANDESARCHÄOLOGIE BREMEN

The educator Friedrich Walburg became known as the editor of educational books entitled "Geschichtsunterricht im neuen Geiste" from 1923 to 1967. Although being part of the school reform movement in 1920s, with its traditional sympathies for social democratic politics, he became an active part of the national socialist educational system and archaeological science structures. His active commitment to national socialist educational policies hardly influenced his career after 1945. This lecture is aiming to reconstruct Friedrich Walburg's educational and scientific activities after the end of the Second World War. While his university career as an archaeologist seems to have ended with the disorganisation of the "Amt Rosenberg", his efforts for the teaching of archeology in schools continued without any noticeable rupture. His books for teachers and pupils alike were continuously published until his death in 1967. He made various attempts to invite former Nazi archaeologists to the town of Bremen and to the school he was the headmaster of. He participated in both local and military governmental attempts to found an international university in Bremen. This was where he wanted to install a "Northern Europe"-Institute which should take care about the connections between Germany and the Nordic countries which he saw as historically most connected.

LV9 MANIPULATING MEMORY. INVENTING ANCESTORS AND HOUSE FOUNDATIONS PRACTICES IN THE EARLY CHALCOLITHIC IN THE POLISH LOWLANDS

Joanna Pyzel, Lech Czerniak

UNIVERSITY OF GDANSK

The Brześć Kujawski culture (BKC) emerged in the Polish lowlands around 4400 BC. This article examines the ritual practices performed by BKC communities at sites with remains of LBK longhouses. The most spectacular example is provided by Bożejewice 22, where, after a hiatus of almost 1000 years, a BKC house was deliberately dug into an earlier LBK longhouse. There are more examples of this type and they may be indicative of two phenomena. On the one hand they possibly reflect the continuation of Neolithic rituals addressed to ancestors, which served to refresh social memory as the cornerstone of group integration. On the other, they may point to a shift in perception involving a transition to a more abstract way of thinking about ancestors. The several-hundred-year hiatus in development at settlement sites might lead us to believe that what we are witnessing is the manipulation of memory and the 're-inventing' of ancestors. The aim of these rituals may have been, for example, to assert rights to land or to enhance the status of a household within a wider local community. Rituals of this sort may have both been directed towards the outside world and being a part of internal group rivalry. In the case of the BKC we are dealing with the fresh integration of post-LBK communities following a long period of settlement disintegration. The emergence of the BKC may have been linked to the process of establishing new 'definitive' territorial divisions and the inter-group negotiations which this entailed.

LV16 NAMING THE MONUMENTS: SOME PROBLEMS IN ARCHAEOLOGY AND PLACE-NAMES

Thomas Clancy

UNIVERSITY OF GLASGOW

As well as recording monuments, archaeologists and their allies (e.g. in monuments commissions) often have an unwitting role in officialising or perpetuating names for those monuments, and the places associated with them. This can sometimes have problematic effects, and can create issues in historical scholarship. This paper examines some Scottish case studies involving the creation or perpetuation of names implying the dedication of monuments (in particular, churches, wells, and stones) to saints. These names, though sometimes baseless, can go on to have long-lasting effects on historical perspectives, and even on the names of modern parish churches. A closer working alliance between onomastic specialists and archaeologists is called for, and an attentiveness to the cultural legacy of names.

LV7 SHOULD WE BE GETTING OUR MUSEUM OBJECTS FROM SOLID WASTE MANAGERS?

Myra Giesen¹, David W Graham², S. R. Edwards³

¹NEWCASTLE UNIVERISTY, ²SCHOOL OF CIVIL ENGINEERING AND GEOSCIENCES, ³

This presentation will re-examine garbology to assess 'values' ascribed solid wastes within a contemporary context. Considerable pressure is being placed on solid waste engineers around the world to reduce final disposal, which has led to increased recycling, reuse, and energy recovery from valuable wastes. However, "value" is primarily being defined by factors like reducing one's carbon footprints for processing (e.g., reducing greenhouse gas emissions at landfills) or energy recovery (e.g., organics that can be anaerobic digested), but value also can be defined based on heritage importance as reflections of society. Using archaeological and engineering principles, this presentation will promote a shift in how we handle material "wastes" with potential cultural value. More ephemeral definitions of value will be assessed, both related to original or alternate uses (e.g., glass bottles, newspapers etc.), to determine how heritage concerns might be embedded in grander recycling and reuse programmes. Solid waste management in Northern England will be used as a case study to examine how, how much, and what materials have value as cultural reflections, and then examine strategies for embedding the collection of materials of heritage value into modern waste reuse and recovery plans. Incentive programmes and partnerships between archaeologists, engineers, and the broader heritage community, including museums, will be described.

Authors: Giesen, MJ; Graham, DW; and Edwards, SR

LV4 SAFEGUARDING OPEN-AIR ROCK ART

Myra Giesen¹, P. A. Warke², P. Lewis², A. D. Mazel², D. W. Graham²

¹NEWCASTLE UNIVERISTY, ²

The United Kingdom and Ireland are endowed with a large number of Neolithic and Bronze Age open-air rock art panels. However, evidence suggest that rates of panel deterioration may be increasing, potentially placing these iconic monuments under growing risk. Climate modelling predicts warming temperatures, more seasonally variable precipitation, and increased wind speeds in Northern England; factors that all tend to accelerate stone deterioration due to increased physiochemical weathering. By investigating a range of environmental factors that influence the present and future condition of such panels, we have developed a better understanding of the environmental pressures that most impact deterioration. In this paper, we will present new findings from work conducted at 18 important rock art sites in England, Scotland, and the Republic of Ireland. In total, 77 rock art panels in Northumberland, Dumfries and Galloway, and Donegal were evaluated, where we gathered close to 200 soil samples, recorded over 900 in situ portable X-ray Fluorescence readings on stone surface mineralogy, and gathered condition and risk data per panel. These data were then statistically compared to identify key threats to panel preservation, which might be influenced by warmer, wetter climatic conditions. Recommended management interventions to safeguard panels will be provided based on these data to help ensure panel longevity into the future.

LV9 FORGIVEN BUT NOT FORGOTTEN, REMEMBERED BUT NOT BELIEVED: SOUTERRAINS, BROCHS, AND THE (MEMORY-) MAKING OF IRON AGE ORKNEY

Martin Carruthers

ARCHAEOLOGY INSTITUTE: UNIVERSITY OF THE HIGHLANDS & ISLANDS

The interiors of Orcadian souterrains are dark, relatively cramped, potentially oppressive or claustrophobic underground places. Paradoxically, perhaps, they are often centrally-placed and were apparently important parts of large Iron Age settlements but at the same time they remained, to some extent, hidden and deeply prescribed spaces beneath the hurly-burly of normal everyday movement and activity.

For their part, brochs confront the senses. They were massive, monumentally physical presences, great houses towering into the sky, lending corporeal expression to potent Iron Age households in an extensive, open, often treeless landscape, omnipresences in cultural landscapes, and cultural Island-scapes, even up to today.

In this paper, I would like to discuss some of the biographical details of several souterrain sites, and a broch, that I have recently excavated on the Island of South Ronaldsay, Orkney. I hope to tease out a narrative of the acts, performances and interventions that were involved in the construction, use and dissolution of specific features and also what that entailed in terms of practical, embodied engagement with places that were already millennia old; more recent ruins, and the contemporary working landscape.

The findings from the fieldwork show that the phenomenon of reuse apparently extended to the use of past material remains that had been recently created, abandoned, re-encountered, curated and remembered by Orcadian Iron Age groups. It would seem that the legitimate and meaningful resources potentially available to Iron Age Orcadians, for such manipulation and memory-making, therefore incorporated the entire material world that they had inherited.

LV22 SEEING THE WOODS FOR THE TREES: RECENT ADVANCES IN THE RECONSTRUCTION OF WOODLAND IN ARCHAEOLOGICAL LANDSCAPES FROM POLLEN DATA

Mairi Jane Bunting¹, Michelle Farrell²

¹UNIVERSITY OF HULL, ²SCHOOL OF GEOGRAPHY, ARCHAEOLOGY AND PALAEOECOLOGY

Northern European woodlands have relatively few tree species, mostly wind-pollinated, so woodland should be readily visible in pollen records. Regional scale patterns of woodland composition and timing of woodland loss provide a useful general framework for archaeologists, but are of limited relevance to the study of individual landscapes or sites. Reconstruction of landscapes from pollen records is only semi-objective, having a relatively weak empirical base, and can be constrained by the expectations and experiences of the individual analyst. In this paper, we explore how surface sample studies and modelling approaches are improving the scientific basis of reconstruction of past landscapes and opening up new approaches, such as the testing of archaeologically derived hypotheses of landscape structure against palaeoecological data.

Three aspects will be briefly explored:

1. Detecting the presence of woodland fragments in predominantly open landscapes, using results from Orkney and the northern Scottish mainland.
2. Reconstructing the spatial organisation of trees within an open landscape, such as discrete woodland stands or wood-pasture. As part of the Crackles Bequest Project, surface samples from traditionally managed semi-natural woodlands and unimproved meadows were collected in multiple European countries. The contrasting distribution of trees within different types of traditional farming landscape, and the pollen signals they generate, emphasise the need for a better empirical basis for reconstructions of possible past landscapes.
3. The effects of woodland management on pollen abundance and therefore on the pollen signal, drawing on studies in managed wet and coppiced woodlands in lowland England.

Non-attending co-author: Professor Waller, Kingston University, UK

LV4 IMPACTS OF CLIMATE AND ENVIRONMENTAL CHANGE: THE EFFECTS ON COASTAL SALTMAKING IN LINCOLNSHIRE, UK

Tom Lane

ECOSAL UK

Following the results of English Heritage sponsored Surveys, chiefly in the 1980s, and subsequent investigative works, information is present about a series of past climate and environmental change events in the Fenland and coastal regions of Lincolnshire, Eastern England, covering some five millennia. These changes have resulted both in coastal erosion in places and elsewhere on the coast accretion. These altered landscapes affected not just coastal communities but those inland for up to 50km. Because of its specific natural resource requirements it is intended to view the issue through the coastal saltmaking industry, which flourished from the Bronze Age through to the end of the 16th century. The mapped west–east movement of the industry, and back again, reflects the displacement and movement of people, particularly the specialist saltmakers, and considers how such specialists may fare when the environment and resources necessary for their craft/industry is no longer available. The paper also considers human adaptability to such changes and asks what happened to people who were forced to move and become, in effect, refugees in their own country. Also touched on are issues of individual and group identity and cultural heritage of such groups.

LV22 HOW MANY TREES DOES IT TAKE TO MAKE A WOODLAND? HISTORIC WOODLAND LANDSCAPES IN WORCESTERSHIRE, ENGLAND

Suzi Richer

WORCESTERSHIRE ARCHIVE AND ARCHAEOLOGY SERVICE

Richer, Suzi, Pearson, Liz and Mindykowski, Adam Today, 47% of Britain's woodlands are undermanaged or unmanaged ¹, meaning that any upstanding archaeology is often physically masked by undergrowth and an image prevails of a 'natural' and 'wild' place especially in those woodlands classed as 'ancient'. These perceptions, coupled with woodlands being used primarily for recreation purposes, can mask what were once thriving industrial landscapes.

Using two sites from Worcestershire, Wyre Forest and Shrawley Wood, this paper will examine through a range of techniques, how people have historically managed the woodland resource. Using methods such as LiDAR, the Small Wetlands Mapping Project, pollen and charcoal analysis, dendrochronology, historical and documentary evidence, we examine how each technique can be used as a proxy for understanding the relationship between people and woodland landscapes in the past. Importantly, it is the interplay between the techniques that has revealed how new lines of investigation can help us to understand the role people have played in shaping woodland landscapes.

¹Forestry Commission Sustainable Forest Management spatial data

LV9 FROM MONUMENTAL TO MUNDANE? A DISCUSSION OF POST-BRONZE AGE USES OF ROCK ART SITES IN SOUTHERN SCANDINAVIA

Per Nilsson

STOCKHOLM UNIVERSITY/NATIONAL HISTORICAL MUSEUMS

Rock art can arguably be regarded as both a monumental and an everyday feature. When visiting the major rock art sites in southern Scandinavia you certainly get the picture that the rock art sites were dominant features in the prehistoric landscape. The most famous sites are fenced and cleaned and the figures are even painted with red colour to make them more visible. In fact, many of the sites were probably kept clean during the Bronze Age as well. Superimpositions are quite rare and it is likely that many of the older figures were known and respected, and sometimes even recut to make them appear as new. But towards the end of the Bronze Age (and Early Iron Age in a few areas) the tradition of making figurative rock art came to an end. The question I would like to discuss is: what happened to the rock art sites when new figures were no longer being made? Were they still remembered and respected? Were they known, but no longer regarded as meaningful, or overgrown with vegetation and simply forgotten? I will use results from excavations at rock art sites to suggest that some of the sites were still being used during later parts of prehistory - although the landscape setting, as well as the social context of the rock art sites, had changed from the monumental to the mundane.

LV19 THE ANTIQUE VIRTUAL: HISTORICAL PERSPECTIVES ON AERIAL PHOTOGRAPHY AND VIRTUAL CARTOGRAPHY

Martyn Barber¹, Helen Wickstead²

¹ENGLISH HERITAGE, ²KINGSTON UNIVERSITY

This paper uses aerial survey to examine concepts of the real and the virtual in mapping, counterposing recent debates surrounding digital mapping technologies with nineteenth century concerns surrounding aerial photography. The virtual was a significant part of modern visualities long before the spread of computers.

Today, aerial photographs are often treated as virtual maps, but the unsuccessful efforts of early aerial photographers, for example the French pioneer Nadar, or Lt-Col Henry Elsdale of the Royal Engineers, demonstrate that treating photographs as if they were maps required fundamental changes in ways of seeing. These 19th century failures allow us to analyze the kinds of difficulties involved in establishing aerial photographs as virtual maps, both on the part of the map-reader and the map-maker.

In this paper we investigate the development of virtual images in analog technologies. Viewing virtual images became essential to the development of methods for mapping from aerial photographs, allowing maps to be created directly from the hallucinatory stereoscopic images that existed only within the mind of the cartographer. We interrupt the assumed equivalence between aerial photograph and map by highlighting the work that has been necessary to allow aerial images to appear like virtual maps.

LV27 FIRST WORLD WAR REMEMBRANCE IN GERMANY

André Schürger

UNIVERSITY OF GLASGOW

Despite many German books and TV-documentations in commemoration of the 100th anniversary of the First World War and thousands of still existing monuments, there is no real tradition of remembrance in Germany. This paper gives a short introduction into the development of German First World War remembrance traditions and how the excavation of a prisoner of war camp in Quedlinburg (Saxony-Anhalt) had an unexpected impact on the mutual French-German commemoration of the war, which raised the question of how to deal with POW camps in the future.

LV18 SEEDING WATER UP HIGH IN THE MOUNTAINS... PEASANT PRODUCTIVE LOGICS IN SIERRA NEVADA SINCE THE ISLAMIC PERIOD (GRANADA-ALMERIA, SPAIN)

José María Martín Civantos

UNIVERSITY OF GRANADA

Sierra Nevada is one of the MEMOLA project sample areas (www.memolaproject.eu). It's a high mountainous landscape under anthropic influence since ancient times. Despite its characteristics, the main production trend has been intensive irrigation agriculture. However, the complexity of the resources management and utilization systems includes not only water uses but also an intensive cattle raising activity and land forest utilization, as well as mining exploitation. During the VIII century the major landscape transformation was triggered by the arrival of the Arabs and Berbers, and it has kept its general layout thanks to the stability of the hydraulic systems.

Water management includes not only technical aspects, but also the social ones, which are even more important to understand the significance of peasant strategies. Water will condition most of the activities for the subsistence of local communities until the end of the XXth century. All the agrarian activities will depend on water management, including complex systems for aquifer recharge, artificial pastures, cultivated forests, intensive or eventual irrigated agriculture, etc...

This traditional knowledge comprises also cattle, plants or soils management, and has demonstrated an enormous capacity of resilience for more than a thousand years. In the context of global and climate change, an interdisciplinary approach can be very fruitful to take advantage of this knowledge, preserving these landscapes and its uses for the future.

LV15 HISTORICAL MAPS – UNDERSTANDING PAST AND PRESENT LANDSCAPES

Pär Connelid

KULA HB

The Swedish large-scale historical maps are unique due to their high technical standard, detailed descriptions and coverage. Their value for archaeological research was demonstrated by historical geographers already some 50 years ago. Today studies of maps play an important role in Swedish archaeology. The analysis, however, is quite often restricted to the tracking of individual features like settlements, graves etc.

In order to illustrate the great information value of the historical maps, examples from the county of Halland on the Swedish west coast will be presented. By means of in-depth analysis of maps from the 18th century, where the distribution of landholding, soil quality, field names etc. have been studied, several fundamental changes concerning settlement *and* land use can be captured. During the 15th and 16th centuries the agrarian landscape in Halland seems to have undergone radical transformations that included a large-scale relocation of settlements. The moving of the farmsteads was part of a wider rearrangement of land use and fences; the contours of this process can be detected in the maps.

The reviews of these maps illustrate the usefulness of an *agrarian historical perspective*, where land use patterns, farming systems and the overall organization of the landscape are taken into consideration. The events during the late Medieval period and the 16th century raise new questions concerning land management strategies and property rights. Which were the underlying forces and who initiated the radical transformation of the agrarian landscape in Halland during this period?

LV18 PIZZO MONACO: THE FORMATION OF A NEW SOCIAL LANDSCAPE IN SICILY (ITALY)

José María Martín Civantos¹, M^a Teresa Bonet García², Rocco Corselli³

¹UNIVERSITY OF GRANADA, ²ARQUEOANDALUSÍ. ARQUEOLOGÍA Y PATRIMONIO, ³UNIVERSITY OF SHEFFIELD

The Trapani Mountains in Sicily (Italy), are one of the sample areas of the MEMOLA project (www.memolaprojec.eu). The research in this area began in 2010 with a previous project (ARPATRA) making a thematic survey and two testing pits in two archaeological sites. One of them was in Pizzo Monaco peak. The site is surrounded by a defensive wall 2 metres width, built using limestone facing front and dry-lay with rubble filling. Inside the sub-circular area enclosed by the fortification and partially even outside the wall, there are limestone and roof-tile debris, a typical occurrence in structural collapses.

In 2014 another field campaign took place in the site. The general alignments of the walls are difficult to determine, but we were able to realise a plan of the settlement and to identify almost 50 inside-wall and 9 outside-wall structures. They look like small cells with a roughly square shape. We could excavate five of these cells the gate and two streets. The structures were covered with tile roofs and all of them seem to be similar in size and shape.

Considering the material record, the plan, building technics and the written sources, we interpret preliminarily Pizzo Monaco as an *aghadir*, a fortified collective granary dating from the Islamic period in Sicily (10th-11th centuries a.C.). The social significance of the place is inside a complex context of change due to the Arab-Berber conquest. Those changes can be also seen in the rest of the landscape.

LV16 MOUNTAIN FISHING IN THE PAST – ARCHAEOLOGICAL INVESTIGATIONS AT LAKE TESSE IN SOUTHERN NORWAY

Axel Mjaerum

MUSEUM OF CULTURAL HISTORY, UNIVERSITY OF OSLO

The lake Tesse is mentioned in one of the most important Norwegian Medieval texts about mountain fishing, and the lake is known for its unique material of fishing gear from the Viking and Medieval period. It is also well known as a good fishing lake for trout. During excavations in 2013 and 2014 archaeologists have succeeded in gaining additional knowledge of fishing methods and how fishing was organized at Tesse, from the earliest utilization in the Stone Age until the 16th century AD.

The presentation will focus on results gained from the Stone Age part of this excavation, and use these as a vantage point for a broader discussion of Stone Age fisheries in the south Norwegian mountains.

The Tesse excavation is a project of dam archaeology and part of a national system which investigate regulated rivers and lakes in Norway. This is one of four submitted abstracts related to dam archaeology in Southern Norway.

LV14 NEOLITHIC LEGACIES: RECORDING, UNDERSTANDING AND MANAGING THE HEART OF NEOLITHIC ORKNEY WORLD HERITAGE SITE

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ARCHAEOLOGY INSTITUTE, UHI

The Heart of Neolithic Orkney World Heritage Site area includes a remarkable concentration of sites dating to the 4th and 3rd millennia BCE. The area encompasses settlements like Barnhouse and Skara Brae and monument complexes such as Maes Howe, The Stones of Stenness, Bookan and the Ness of Brodgar. As with many World Heritage areas, previous work has focussed at the level of individual sites, primarily upstanding monuments. This scale of investigation has important consequences for the management of the area; there are significant gaps in our understanding of what these landscapes were

like in the Neolithic, and in how they were worked and reworked over the longer term. This paper presents the results of geophysical and related surveys across an area of c.285 hectares between Skara Brae and Maes Howe. The project has made it possible to talk for the first time about the landscape context of some of the most renowned prehistoric monuments in Western Europe. Our results shed important new light on the character and extent of known prehistoric settlements and ceremonial monuments. They also document the afterlives of these and their relation to the lived landscapes of the historic and more recent past. We can now begin to take this landscape seriously, as an artefact of several millennia of dwelling, working land, attending to wider worlds and to the past itself. Such an understanding is a prerequisite for effective and sensitive management, and for the communication of what it is that makes this area so remarkable.

LV4 MEDMERRY: COASTAL CHANGE FROM THE NEOLITHIC TO MEDIEVAL PERIOD

Kristina Krawiec, Lucy Allott

ARCHAEOLOGY SOUTH-EAST

The site of Medmerry has been subject to a program of managed retreat through a multi-million pound Environment Agency scheme undertaken in 2011. As part of this scheme the site was subject to set-piece archaeological excavation and palaeoenvironmental investigation. The results of these have demonstrated a range of landscape processes which in conjunction with the archaeological evidence have shown that this area and its inhabitants have been coping with coastal change for thousands of years. The site has now been given over to the RSPB who are forming a 'new' wetland which bears striking resemblance to the landscape during the prehistoric period. This paper will present the approach used to investigate a deeply buried palaeoenvironmental resource in order to provide context for the archaeological remains encountered at the site.

LV14 DIGITAL RECORDING IN THE BRÚ NA BÓINNE WHS, IRELAND: PAST, PRESENT AND FUTURE PROSPECTS AND IMPACTS

Stephen Davis¹, Conor Brady²

¹UNIVERSITY COLLEGE DUBLIN, ²DUNDALK IT

Brú na Bóinne (The Archaeological Ensemble of the Bend in the Boyne) is one of only two archaeological World Heritage Sites designated in Ireland. It comprises a core area of c.750ha with northern and southern buffer zones extending the total area to c.2400 ha. Within this are located around 41 Middle Neolithic passage tombs, including the 'megatombs' of Knowth, Dowth and Newgrange. The area contains c.30% of all megalithic art in northern Europe, 8 Late Neolithic henge monuments, Iron Age settlement evidence and several important early medieval sites. Unsurprisingly it is one of the most intensively studied archaeological landscapes in Ireland and has in the last two decades been subject to a range of digital recording campaigns using varied remote sensing methods. Such campaigns, as well as being essential from a research perspective have been strongly supported by local and national institutions. A comprehensive review of archaeology and research in the area was undertaken recently resulting in the Brú na Bóinne Research Framework (Smyth 2009) which identified 'big gaps' in research and prioritised a series of research questions. The current paper examines how existing digital datasets have been managed and explores the impact they have had on management (a new WHS management plan is currently being drafted), policy and public engagement in the WHS. Rather than providing an exhaustive overview of the datasets as they currently exist, the focus here is on their utility to date and to consider how such data may be best utilised going forward.

LV10 GRAFFITI AS A MEDIUM TO TEACH AND ENTHRALL

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¹ARCHAEOLOGY SCOTLAND, ²UNIVERSITY OF CHESTER

The validity of graffiti as an art form has at last become recognised and accepted by 'establishment', yet there are still many arguments about what to do with it. The act of graffiti is still filled with tension, with many questions and debates of what to do with the finished result. Within the heritage sector, there are still questions on how (if at all) we should record and conserve this form of cultural heritage and it often seems that it is the context of the site which can lead to the (often professional) decision of whether to record, preserve and value.

Yet with controversy comes a unique opportunity to use this subversive art form to engage initially reluctant heritage audiences. This paper will present two different case studies, one based in Scotland and the other in Wales, of where graffiti has been used to engage with new heritage audiences. Both case studies have used graffiti as a modern medium to teach archaeological theory and practice to initially reluctant participants. By using this recent, relevant and recognisable heritage, participants were able to identify with a cultural heritage that is immediate and relevant to their lives. With these case studies, graffiti was used as a gateway to further heritage work, but was additionally attributed new value by participants and professionals due to its status as a 'recorded event'.

LV6 PERFORMING STORIES: THE THINGS WE CARRY

Saini Manninen

BIRKBECK, UNIVERSITY OF LONDON

In this paper I will discuss an ongoing performance project entitled *The Things We Carry* which I started with Louise Coleman in 2011. The project consists of both one to one performance encounters and exhibitions of site-specific collections. Visitors are invited to stop at our stall, usually pitched up at performance festivals. Through conversation, we wish to find out what they

carry with them, in particular, what are the small forgotten items they have left in their pockets or bags weeks, months or years ago. We ask our participants to leave one item behind, while cataloguing the details of its origin, its owner and purpose. All the items collected during the day will form a site-specific collection named after the venue or surrounding area. The collection will then be exhibited at our next event. I will use this presentation to focus on the one to one encounters we have with the visitors who donate their objects. Ranging between enthusiastic, curious and hesitant, the visitors have different approaches to participating. The stories they tell us about their objects are framed in a performance context. The emphasis in the encounter is on relieving the visitor's load, taking the weight off their shoulders. I wish to explore what implications that might have for the encounter and the subsequent collections. I ask, what does that encounter provide? Is it a transaction? What is the implication of the testimonials to the stuff we collect and exhibit?

LV4 RECENT LANDSCAPE EVOLUTION OF THE RIO GRANDE DRAINAGE BASIN AND IMPACTS ON THE UNESCO WORLD HERITAGE LIST OF THE NASCA LINES AND GEOGLYPHS (PERU)

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The arid Peruvian coastal plain, where the Nasca Civilization flourished between 200 BC and 600 AD, has a long history of landscape changes and alterations induced by not only human action and modern urban activities along the riverbeds of the Rio Grande drainage basin, but also environmental factors and natural land processes. Although erosion by flowing water seems of minor concern, the susceptibility to natural hazards such as flash floods and run-off of sandy materials from the Andean foothills persists for the fragile archaeological heritage of the UNESCO World Heritage List (WHL) site of the Nasca lines and geoglyphs. The potential risk to this heritage is also exacerbated by the effects of climate change, e.g. variations in the regional precipitation regime.

Our research analyses satellite radar imagery depicting the WHL site over the last 20 years and aims to map landscape changes from the regional scale, looking at the whole drainage basin, to the local scale, focussing on river valleys of the tributaries Rios Ingenio, Nazca and Taruga and studying the recent hydraulic regime of the *puquios*, i.e. the ancient waterways and sources of irrigation water. We use a variety of radar sensors, including those onboard the European ERS-1/2 and ENVISAT missions, and the German TerraSAR-X and TanDEM-X satellites. Analysis of satellite time series with feature extraction and change detection approaches allows improvement of our knowledge of archaeological features, identification of surface indicators of environmental changes in such a dynamic region, and their correlation with climate pressure.

LV30 ART AND ARCHAEOLOGY: A HAPPY MARRIAGE?

Joana Valdez-Tullett

UNIVERSITY OF SOUTHAMPTON

Art is an ambiguous concept with a controversial application to Archaeology. Although the word has been used since the beginning of the discipline, as archaeologists recognize the aesthetic value of many of their artefacts, there is a general reluctance in using such it to describe the archaeological record. This is due to our current knowledge that the notion of "Art" and "Artist" as we understand it is inexistent in many societies and may as well have been absent in the Past. In a way, this demonstrates the rigidity of definitions that characterizes Archaeology, perhaps sometimes constraining the evolution of ideas.

Working with prehistoric creations, I often come across the word "Art" and my specific study object carries this notion in its name – "Rock Art". Questions such as "What is Art?" or "Is this Rock Art?" are common.

Interestingly, archaeologists continue using this word to describe the archaeological record, even whilst admitting that "Art" is a western concept and considering the evidence provided by Ethnography reinforcing the idea that many societies relate differently towards their creations.

Lately I have been arguing that Art and Archaeology are complementary disciplines. Without aiming at the production of an analogy between the two fields or direct comparisons, this paper will explore the ways Archaeology can find support from Art in the interpretation of its evidence.

The paper will be illustrated mainly with cases studies from Atlantic Rock Art that is in itself archaeological evidence and bears the label "Art". But is it?

LV25 THE IMPACT OF EXILE. HELEN ROSENAU'S CAREER AS ART HISTORIAN AFTER WORLD WAR II

Jannik Sachweh

LANDESARCHÄOLOGIE BREMEN

The presentation will show the impacts of exile on the academic career of Helen Rosenau after 1945. Helen Rosenau did her PhD on the building history of the Cologne Cathedral in 1930 in Hamburg. She stood at the beginning of her academic career

as historian specialized on the architecture of medieval cathedrals and did the first archaeological excavations ever made in the Bremen Cathedral in 1931. While already being criticized for her work in Bremen, she had to leave Germany in 1933 after the national socialists' access to power. Her plan to qualify as a professor in Münster had been rejected due to her Jewish religion. After migrating to London, she succeeded in establishing herself as an academic after the troublesome process of doing another PhD. After World War II she thought about returning to Germany but decided to stay in England, where she lectured at the University of London, the University of Manchester and at the Leo Baeck College.

Helen Rosenau started her academic work based on archaeological researches in medieval cathedrals. After her work was made impossible in 1933 by the national socialistic laws which prohibited Jews from working at universities she changed the subject of her research. First, she turned to the architecture of synagogues and then focused on Jewish art and ideal town concepts. How her career after World War II was affected by her experiences of exile will be discussed in this lecture.

LV15 'A STRIKING PICTURE OF ANCIENT TIMES': CRITICAL ANALYSIS OF HISTORIC MAPS

Mark Bowden, Pete Herring

ENGLISH HERITAGE

All maps are, of course, valuable sources regarding the material their makers have either chosen or been commissioned to include. However, as well as drawing face-value information from them, we learn to read between their lines to appreciate what has been edited out, what over-emphasised and what over-simplified. And that applies to historic maps as well, not just to our CAD-based, GIS-mounted, ultra-accurate modern archaeological planning and mapping.

This paper examines the role of critical examination of late 17th century estate plans and mid 18th century county maps in overturning long-held assumptions about rural settlement, rural social organisation and rural life, using a case study from West Penwith, Cornwall. It shows how landscape archaeology can not only draw upon such maps, but also undermine earlier readings of them and so encourage useful revision. And it shows how such maps can in turn undermine and upset landscape models derived from archaeology, or other routes to landscape history.

LV4 CLIMATE CHANGE ADAPTATION FOR SCOTLAND'S HISTORIC ENVIRONMENT

Mairi Davies

HISTORIC SCOTLAND

As a large public body, Historic Scotland (HS) has duties under Part 4 of the Climate Change (Scotland) Act 2009 that require it to contribute to climate change mitigation and adaptation, and to act sustainably. Ministers have identified HS as a 'Major Player' because it has a larger influence/impact on climate change than other public bodies. HS's Climate Change Action Plan 2012-2017 sets out how it will fulfil its duties under the Act.

The UK Climate Change Risk Assessment 2012 identified a range of risks and opportunities that climate change may present. Many of these have the potential to impact on the historic environment. Historic Scotland is key to the delivery of the Scottish Climate Change Adaptation Programme, which includes quantifying heritage assets affected by climate change, collating action on understanding and mapping anticipated coastal erosion/flood risk to cultural heritage, and researching the physical effects on buildings of changing weather patterns and profiles.

We will present an overview of our work, including initial climate change risk assessments from around the Historic Scotland Estate, and specific conservation measures such as dune stabilisation and soft-capping of exposed wallheads. We will also outline collaborative work with Buildings Standards and other agencies to increase resilience against climate change impacts such as rainwater penetration, flooding, coastal erosion etc., and publication of guidance on how owners of traditional buildings can ensure that their property is 'Climate Ready'.

LV22 CHARCOAL, WHAT IS IT GOOD FOR? ABSOLUTELY EVERYTHING?

Scott Timpany

ARCHAEOLOGY INSTITUTE UHI

Charcoal analysis is becoming more routinely undertaken from archaeological sites but are we getting the most out of the available data? This paper seeks to examine the levels of information charcoal can provide in relation to former woodlands and how people in the past utilised this resource for construction timbers and wood fuel. Using examples of charcoal analysis undertaken from archaeological sites across Scotland, Wales and Ireland ranging in date from the Neolithic to the medieval periods the paper will discuss what we can learn about structures and construction from examining charcoal from an Irish Neolithic Timber Hall, woodland management strategies and sustainability from archaeological features such as burnt mounds and isolated pits from sites in Ireland and Scotland. The potential cultural values that were placed on trees in the past from Bronze Age cremation pyre fuel assemblages in Wales and Ireland will also be examined. Lastly the paper will suggest some possible future directions for charcoal analysis and how it can be better integrated into current research themes.

LV16 133 YEARS AND SEVEN GENERATIONS

Aja Guldåker, Gertie Eriksson

KULTUREN

Kulturen is an open air museum in Lund that was founded by Georg J:son Karlin in the 1880s, as a reaction to the industrialization. When trenches for a sewage systems were being dug during the 1890s all through the town, the medieval cultural layers were exposed and Karlin was perceptive enough to realize the potential of them as a near enough inexhaustible source of knowledge. He also realized the value of the medieval remnants and the importance for the museum to be able to illustrate a local cultural history. Karlins successor, Ragnar Blomqvist, was more of a scientist, and he introduced a more systematic urban archaeology. He also introduced a topographic approach to the medieval town; a map of all archaeological observations was drawn up together with a topographically organized archive.

The black soil contained of not only building material from the churches that co-existed in Lund before the reformation, but also foundations of houses, artifacts and traces of the people of the town. The first antiquarians started collecting and documenting, and since then methods have evolved but the heritage is still the foundation of the archaeological work at Kulturen. This paper will address the gain of having a legacy that invites vision, and encourage methodological progress. Also how the archaeological results and collections can be used to convey knowledge of the history and the benefits for the society as a whole, before, during and after the archaeological fieldwork.

LV17 DESTROYING THE PAST. DAMS, ARCHAEOLOGICAL SITES AND SALVAGING WHAT REMAINS.

David Loeffler

MURBERGET COUNTY MUSEUM OF VÄSTERNORRLAND

Sweden has a long tradition of heritage management, not least as concerns archaeological sites affected by hydro-electric power plants and dams. In spite of this a vast majority of sites situated near regulated waterways have been destroyed without ever having been documented. This is a situation both known and completely ignored by those institutions entrusted with preserving, protecting and documenting the past. Fieldwork in the county of Västernorrland has shown that many sites still have the potential to yield meaningful archaeological information despite the fact that they have lain submerged and exposed to erosion since the mid-20th century. The results of this discovery and the methods employed will be presented here

LV20 LANDSCAPE CHARACTERISATION AND SUSTAINABLE DEVELOPMENT: A QUESTION OF SITUATED, PROBLEM-ORIENTATED, PUBLIC DISCOURSE

Chris Dalglish¹, Alan Leslie², Aphrodite Sorotou¹

¹UNIVERSITY OF GLASGOW, ²NORTHLIGHT HERITAGE

The *European Landscape Convention* and the *Convention on the Value of Cultural Heritage for Society* identify sustainable development as the organising principle for heritage and landscape practice. Sustainable development centres on human needs and quality of life, and prioritises those cases where the need is greatest. Just and sustainable development requires an integrated, long-term approach to social-cultural-economic-environmental concerns and broad-based participation in objective-setting and decision-making.

Sustainable development is a valuable but nebulous principle, hard to operationalise. This is where 'landscape character' becomes important. Landscape character is 'the things that matter' about a landscape (i.e. about particular interactions and relationships between people and their environment). As archaeologists, we recognise the importance of a landscape's past to its present and the value of engaging with that past for landscape justice.

We will argue that landscape characterisation (i.e. the definition of landscape character) has great potential in relation to the enactment of sustainable development, but that established practice is failing fully to realise this potential. Instead, we need a practice rooted in situated, problem-orientated, public discourse. We will outline this argument, drawing on ideas developed with Helen Green, Gavin MacGregor and Kenny Brophy in the heritage-landscape collective *Cycletree*. We will explore the practical implications through case studies in Scotland and Greece. We will consider the framing of 'character'; the relationships between different people in the characterisation process; the tensions and connections between characterisation as a lived process and characterisation as a technical field; and the role of spatial tools in this context.

LV8 HOW GEOARCHAEOLOGY AND LANDSCAPE ARCHAEOLOGY CONTRIBUTE TO HUMAN NICHE CONSTRUCTION THEORY (HNC)

Sjoerd Kluiving

VU UNIVERSITY AMSTERDAM

A review is given of examples of geoarchaeological and landscape archaeological research from various locations throughout Europe. Water as example of small (and large) scale use of the natural landscape and/or topography is discussed with implications for HNC and how research in the future makes a better contribution to HNC: 1) scales of landscape research and the importance of landscape gradients, 2) are landscape gradients the starting points where organisms (humans) are altering own selective environment (inceptive change)? 3) is it the lack of landscape gradients that initiate humans to respond to a (deteriorated) selective environment (counteractive change)? Examples of landscape gradients are: elevation/altitude, sand/clay, freshwater/seawater, land/water, loam-rich soil/loam poor soil etc. Case-studies from the North Sea coastal zone in the Netherlands and the Eastern Mediterranean are presented to illustrate the potential of geoarchaeology and landscape archaeology to HNC. Unintended consequences of human impact on large scale natural processes will be considered. In the

discussion a gradient driven occupation pattern will be presented, as well as transitions of high to low attractiveness of sites of human occupation.

LV19 'ALL THE MEMORY OF THE WORLD'

Joana Alves - Ferreira

UNIVERSITY OF PORTO

In 1956, Alain Resnais created a 20' documentary-film entitled "Toute la Mémoire du Monde". Shot at the *Bibliothèque Nationale* in Paris, it shows its labyrinthine architecture through the dramatic journey of a book. The film addresses the exponential process of bringing together memories - the eternal process of accumulating them - and thus becomes a meditative piece on the fragility of human memory. Two years later, Italo Calvino wrote "The Adventure of a Photographer", a reflective short story involving *Antonino* a photographer with a desire to document everything and how, caught in a state of isolation, he turns himself into a "hunter of the unattainable". Calvino points out that, paradoxically, it is the compulsion to document that dooms photography to transgress the limits of the visible, opening up a surface that belongs to the imagination only.

In 2014, Daniel Blaufuks presented in Lisbon "All the Memory of the World - Part One" - an exhibition which presented a vast array of works associated with the creation of an "atlas of images". Through the process of collecting, the work stresses the necessary condition of absolute compromise and understands memory making as a "changing shadow".

Such a "constellation", as in the mythological metaphor of *Atlas*, points to the ethical sensibility of photography, still cloistered in the idealism of totality while also an image of reality. Given that the shadows of the past will change with the light projected onto it, how are we to read such a "fragile house of cards"?

LV21 A NEW DAWN AT STONEHENGE:VISITOR MANAGEMENT AND PROTECTION OF THIS ICONIC MONUMENT IN THE 21ST CENTURY

Heather Sebire

ENGLISH HERITAGE

After over thirty years of negotiations the new Visitor Centre at Stonehenge has now opened giving visitors an experience of Stonehenge and its landscape suitable for the 21st century. The transformation of the visitor facilities and the resetting of Stonehenge in its landscape, free of as much modern infrastructure as possible, were not straightforward. Many stakeholders were involved. These included people who deem Stonehenge their modern temple such as the Druids and other pagan groups, along with local residents, other charitable bodies such as the National Trust, archaeologists, academics and increasingly modern day cultural tourists all of whom feel they have a stake in Stonehenge. This paper will consider the transformation of Stonehenge into a 21st century icon of the historic and cultural landscape and how as heritage managers English Heritage takes on the role of guardian of both the integrity of the prehistoric monument but also of the visitor experience ensuring intellectual and physical access for all.

LV15 CLEARING AND CULTIVATION IN OUTLYING LAND CA 1100-1750. HOW THE MAPS CAN HELP US UNDERSTAND THE CLEARANCE CAIRNS OF GÖTALAND.

Ådel Vestbö Franzén, Ådel Franzén

JÖNKÖPING COUNTY MUSEUM

Swedish large scale maps from the 17th to the 20th century, depicting infield and outlying land of single farms and villages, forms an important source material for land-use history. Most studies have been linked to the infield, ie. crop-rotation, the consequences of the enclosures and questions about individual or dispersed ownership. The outlying land has not been in focus. A new reading of the maps offers a different way of approaching the remains of fossiled arable fields, especially the vast areas of clearance cairns, that is to be found in the forested areas of the Götaland region in the southern part of Sweden. ¹⁴ C-dating from hundreds of clearance cairns reveals arable activity during the period ca 1100 - 1750 AD. During the same time-span, historical sources and pollen-analyzes gives clear evidence that swidden cultivation on fullgrown spruce or deciduous forest of 20-40 years, was carried out at an extensive scale. According to researchers that study swidden cultivation, no stone clearance was needed before sowing. These studies are, however, based on the Finish swidden agriculture tradition, and may not be applicable when we study the Götaland region.

By combining maps, written sources and archaeology, a new way of stratigraphic thinking facilitates the new interpretation of arable cultivation in the Götaland forests and also sheds light on the clearing cairn areas in the region. The theoretical framework of the Property-rights school sheds light over the swidden cultivation complex as an economic institution.

LV22 THE POWER OF THE PYRE - A HOLISTIC STUDY OF CREMATION

Lorna O'Donnell

UNIVERSITY COLLEGE DUBLIN

Adoption of the ritual of cremation became widespread throughout most of Europe by the end of the Bronze Age. While analysis of bone and artefacts from cremation burials has become standard, this is not the case for environmental remains, particularly charcoal. This paper discusses environmental results, focussing on charcoal data, from the largest Bronze Age cremation cemetery discovered in Ireland, Templenoe. A holistic approach combines charcoal, plant-macro, osteological and

artefactual data to provide new insights into the cremation process in prehistory. It demonstrates that particular trees, *Quercus* sp. and Maloideae were repeatedly selected over 600 years to fuel the cremation pyres at Templenoe. For the first time, osteological data is compared with pyre material to examine if fuel was selected based on demographic trends. Pyre material was consistently buried with the cremated bones in graves indicating the importance of the pyre itself in the overall cremation process. Empty funerary pits or possible 'cenotaphs' contain the exact same wood taxa as the graves with bone. It is possible that pyre material could have been buried as a proxy for the body. This research presents an integrated framework for the interpretation of environmental remains from funerary sites.

LV9 MEMORIES ON THE LANDSCAPE OR THE NEED TO MAKE MEANING OF THINGS.

Joana Valdez-Tullett

UNIVERSITY OF SOUTHAMPTON

Although prehistoric remains are difficult to identify due to perishable character, evidences of Past communities' can still be discerned upon the landscape. As technological complexity increased, so did the ways in which these populations interact with their environment, inevitably leaving more enduring marks of their passage.

The world, created not only by stratigraphic but also cultural layers of occupation becomes what has often been called a *palimpsest* of evidences in which memory plays an important role. In fact there are many examples of sites that have been recycled, reused and rebuilt demonstrating the importance of the Past to the communities. This relationship may have a more evident material side but often the intangible facet is also very important. In fact, some sites only survived until today due to narratives that grew around them.

In this paper I will explore two different situations of appropriation of the landscape in which memory is fundamental. On the one hand, the appropriation of natural features for permanent purposes and on the other, the appropriation of symbols. When studying rock art, it is common to find motifs of various cultural and chronological backgrounds inscribed upon the same surface, denoting an appropriation of space and on occasion of the symbols. This suggests acts of adaptation, adaptation and transformation of cosmogonies, that confer importance to these cultural, as well as natural landscapes.

The paper will be illustrated with examples of sites from Portugal.

LV22 PICTS AND POLLEN: INVESTIGATING LAND USE IN NORTH EAST SCOTLAND

Laura McHardie

UNIVERSITY OF ABERDEEN

The Picts were the indigenous population of north eastern Scotland during the early medieval period (c.AD 400-900). These people had a distinct cultural identity evidenced through their secular and religious sculpture. Due to a scarcity of contemporary literature, little is known about their day to day lives. Despite recently renewed interest and interdisciplinary research on all aspects of life in early medieval Scotland there has been limited focus on how the Picts interacted with their environment.

This paper uses pollen analysis, non-pollen palynomorphs and peat geochemistry to examine how changing records of vegetation and land use correspond with the evolution of the Pictish kingdom. Few pollen-analytical studies focusing specifically on the Pictish period exist and there are currently no published high resolution regional studies focused on this period.

To address this gap, this paper presents the results of three sites (Bennachie, Craigmaud Moss and Knock Hill) that characterise the regional vegetation of the north east of Scotland. Change point modelling revealed similar vegetation responses across the region during the Pictish period. Although land use intensification was expected, the palynological evidence suggests that this was a period of woodland regeneration with a muted agricultural signal across all three sites.

LV17 ARCHAEOLOGY SURVEYS IN DAMS - A MODEL

Elin Dalen¹, Kristine Johansen²

¹RIKSANTIKVAREN/DIRECTORAT FOR CULTURAL HERITAGE IN NORWAY, ²RIKSANTIKVAREN/DIRECTORATE FOR CULTURAL HERITAGE IN NORWAY

From about 1900 and onwards many waterways were regulated to produce hydroelectric power. Before 1960 hardly any archaeological surveys were done in the areas affected by the dam constructions and regulation of waterways. Despite the fact that the Norwegian heritage act said it was obligatory to do such surveys, it was not done. Concessions are now to be renewed and this opens up to do the archaeological surveys that should have been done before 1960. In collaboration with Norwegian Water Resources and Energy Directorate (NVE) we have established a model for how to finance surveys so that we can extract new knowledge about the past along the waterways. This model will be presented in this session. Even though the waterways have been regulated for more than 60 years there are still archaeological remains that are not affected by the processes of ice and water going up and down. The results from the archaeological surveys will also be presented by colleagues.

LV14 RECORDING AND MANAGING THE ASTRONOMICAL IMPORTANCE OF THE STONEHENGE WHS.

Amanda Chadburn

ENGLISH HERITAGE (FROM 1ST APRIL HISTORIC ENGLAND)

The Stonehenge World Heritage Site - one half of The Stonehenge, Avebury and Associated Sites WHS - is internationally important for its outstanding prehistoric funerary and ceremonial monuments of the Neolithic and Early Bronze Age. One of the most important features of the Stonehenge stone circle is that its design is aligned upon the midwinter sunset-midsummer sunrise solstitial axis. We now know that a number of other prehistoric sites in the Stonehenge WHS have astronomical significance, with a number of monuments designed on the midwinter sunset-midsummer sunrise solstitial axis and others on the midsummer sunset-midwinter sunrise solstitial axis. This contrasts with Avebury, where there are no known sites which demonstrate alignments on the solstitial axis.

This paper presents the result of research by the authors at Stonehenge since 2010, as part of an ICOMOS-IAU Thematic Study on the Heritage Sites of Astronomy and Archaeoastronomy. The 'design of Neolithic and Bronze Age funerary and ceremonial sites and monuments in relation to the skies and astronomy' is recognized by UNESCO as one of the 'Attributes of Outstanding Universal Value' of Stonehenge, but little thought has been given as to what that means on the ground, or what that means for managing the World Heritage Site. The authors will briefly set some management issues and recommendations arising from their research on the astronomical importance of the WHS, focusing in particular on the recognition and preservation of once-significant sightlines in today's living landscape.

LV22 LOCAL WOODLAND CONSERVATION IN NORSE LANDSCAPES OF SETTLEMENT

Eileen Tisdall, Ian Simpson

UNIVERSITY OF STIRLING

Eileen Tisdall, Amy Nichol, Huw Smith, Ian Simpson, Rebecca Barclay (Biological and Environmental Sciences, University of Stirling) and Orri Vesteinsson (Department of Archaeology, University of Iceland)

To effectively challenge the traditional narrative of the onset of land degradation and loss of woodland cover with the Norse settlement of Iceland, environmental records must be generated at farm scale from places of colonisation. Our study location is the high status farm site at Hofstaðir in northern Iceland; a palynological record is obtained from a small basin located just inside the farm boundary wall and the geoarchaeological (soil micromorphology) record of fuel use is obtained from waste midden deposits associated with the farm and are temporally constrained by tephrochronology. The evidence for changes in domestic and industrial type fuel use presented here shows how the open woodland at Hofstaðir was conserved throughout the occupation of the farm site. This is against a backdrop of an enduring high status farm and the associated domestic fuel use in addition to phases of intensified industrial activity. The fuel resource evidence from Hofstaðir suggests that there is a near continuous use of birch wood from early settlement to the present day. Our analyses opens discussion on the role of local woodlands as valued for fuel and grazing resource and its role as a cultural resource.

LV28 ORAL HISTORIES AND THE ARCHAEOLOGIST: A VIEW FROM THE AFRICAN CONTINENT

Stefania Merlo¹, Cornelia Kleinitz²

¹UNIVERSITY OF THE WITWATERSRAND, ²INSTITUT FÜR ARCHÄOLOGIE, HUMBOLDT UNIVERSITY

Oral history has been a fundamental method of research in archaeology and heritage in the African continent since the late colonial period. Initially used as a way of discovering or interpreting archaeological sites of the deeper African past, oral history was at the same time constantly questioned with the use of the western 'scientific method'. Post-colonial archaeologies have challenged this narrow application of the method and used it rather to investigate the relationship between western researchers and local communities in the process of discovering, protecting and celebrating African pasts.

In this paper we will present our recent work in the island of Mográt, Sudan, where this method of research was used alongside spatial mapping, to investigate issues of heritage perceptions and heritage management in a salvage context. Preliminary results have confirmed that oral histories are powerful repositories of memory at the family level, and that such family histories serve as a bridge between past, present and future. Yet, using oral histories also raises several issues such as the representativeness and representation of local voices and the role of the archaeologist and archaeology when local voices indicate, as it is the case in our study area, that local interests may not align well with those of the incoming research community.

LV11 WARTIME ARCHAEOLOGY IN THE OTTOMAN EMPIRE: TWO CASE STUDIES OF EXCAVATION PROJECTS CARRIED OUT BY OCCUPATION FORCES, 1915-1922.

Sinem Türkteki

BILECIK ŞEYH EDEBALI UNIVERSITY ARCHAEOLOGY DEPARTMENT

The Ottoman Empire participated to World War I (1914-1918), and subsequently components of its military fought against Allied forces (1919-1922), a struggle that ultimately led to the creation of the Turkish Republic (1923). Throughout nine years of war, most of its territory fell under foreign occupation. Although episodes of uncontrolled looting were certainly commonplace in the battlefields, there are at least two known cases of formal excavation projects carried out by occupation

forces on the Anatolian front: Karaağaç Tepe (Gallipoli peninsula), excavated by French archaeologist R.Démangel (1916), and Klazomenai (Izmir/Smyrna), excavated by Greek archaeologist G.P.Oikonomos (1921-1922). It will be argued that these projects, both financed and supported by their respective armies, were to a large extent different with regards to their aims. The French excavation can be described as "opportunistic" and a "by-product" of industrialised warfare, part of a larger phenomenon of more or less systematic attempts to document archaeological remains uncovered by extensive trench-digging and artillery barrages. An altogether different goal was behind the excavation of the ancient "Greek colony" of Klazomenai at the hands of Greek archaeologists employing Greek soldiers as workforce, which aimed at using archaeological remains to reinforce Greek ownership claims over large areas of the Aegean coast. As such, it represents one of the first instances in which archaeology has been used in Turkish territory to construe and promote nationalistic agendas.

LV28 LET'S TALK ABOUT RUINS: A CASE STUDY IN ORAL HISTORY AND ARCHAEOLOGY

Heather Sebire

ENGLISH HERITAGE

My current professional post involves the conservation and presentation of historical sites in the care of English Heritage (EH) - a process which has a considerable written history back to the earliest days of monument protection in Britain. There is now a corpus of published material reviewing the history of the EH estate (e.g. Thurley, 2013), alongside files and paper records but I have also had the opportunity to be able to use a form of oral history to inform my work both from colleagues who have many years of experience in the field and are still in post but also from retired colleagues. One of these, Michael Thompson, who wrote about his work for the Ministry of Works in the 1960s and 70s (Thompson, 1981, 2006) allowed me to record his reflections on the presentation of ruins. I would argue that the value of this historic eyewitness view of how sites were conserved and presented, often in a manner that would seem inappropriate today, adds to the evidential value of their significance. This paper will reflect on the value of oral history with regard to many iconic sites such as Woodhenge in Wiltshire.

Thompson, M. V. 1981 *Ruins: Their Presentation and Display*. British Museum

Thompson, M. V. 2006 *Ruins reused: changing attitudes to ruins since the late eighteenth century*. Kings Lynn

Thurley, Simon. 2013 *The Men from the Ministry*. English Heritage New Haven & London

LV16 ARCHAEOLOGY, AGRICULTURE AND AGRONOMY: CAN PRECISION FARMING AND ARCHAEOLOGY BE INTEGRATED FOR USEFUL OUTCOMES IN ARCHAEOLOGICAL PROSPECTION AND HERITAGE MANAGEMENT?

Henry Webber

UNIVERSITY OF BRISTOL

Precision farming, precision agriculture or site specific farming are terms that have been used within agriculture for a number of years, however within the last decade have become more popular among farmers. The aims of precision farming are to utilise technology to record and manage the variation of crops and soils within a field, thus reducing surplus inputs, increasing yields and aiding environmental sustainability. Archaeology utilises a number of different technologies on different scales to identify, record and manage archaeological sites that appear 'different' from the normal background crop or a soil. Often archaeological sites are on farmland and thus there is large potential for overlap of certain datasets. Archaeological geophysics for example now covers significant areas with multi-sensor arrays gathering information about the soil that could also be relevant for farmers in managing their crops precisely. These two subjects have thus far been separate despite significant overlaps with regards to datasets such as satellite imagery, geophysics and geochemistry. These datasets have the potential to relate to a number of different variables, some of which are archaeological, agricultural or agronomic. Thus this research will focus on collecting and collating existing knowledge and new data from both archaeological sources and agricultural sources to produce useful outcomes that link the legacy of archaeological sites with the vision of future technological innovation within agriculture.

LV16 A NEW VISION FOR LOCAL HERITAGE PROTECTION

Stella Jackson

UNIVERSITY OF YORK

The legal protection of 'heritage assets' in England began with the Scheduling of Ancient Monuments in 1882; and developed to include the listing of buildings of historical or architectural interest as part of comprehensive planning following the second World War. These nationally-focused designation systems have always been based on the premise that the assets included in their lists must be protected so that they can be left, as a legacy, for those who come after us.

This legacy of what should be protected, however, is borne out of the essentialist ideas of early conservators such as William Morris and John Ruskin. It is, therefore, a legacy of traditional, mid-18th century values, with a focus on heritage assets which communities do not necessarily feel connected to, or even class as their heritage.

For many communities, it is more often the mundane and everyday heritage of their local streetscapes that they value, and which they wish their children to inherit. This a heritage which, due to the legacy of those who developed our protection polices over 100 years ago, is not recognised as 'special' enough for national designation systems to protect.

Can the 2010 Coalition government's vision of a Big Society, however, with its focus on localism and community decision-making, inspire us to discover new ways to protect what matters to us? This paper will explore these ideas using research and case studies from England, but hopes inspire those from across Europe to think differently about local heritage protection.

LV25 THE RESEARCH OF GERMAN ARCHAEOLOGIST ROBERT RUDOLF SCHMIDT IN CROATIA (1938-1943)

Ana Solter¹, Dragana Rajkovic², Jacqueline Balen¹

¹ARCHAEOLOGICAL MUSEUM IN ZAGREB, ²MUSEUM OF SLAVONIA

R. R. Schmidt (1882-1950) was a German scholar active in the fields of archaeology, geology and ethnology, which he studied in Munich, Leipzig and Tübingen. He was the founder of Institute of Historical Research at the Tübingen University and headed the institution until 1929. However, under unclear circumstances, he left Germany and moved to the then Kingdom of Yugoslavia. He excavated three sites in Croatia: Vučedol (1938), Bapska (1938) and Sarvaš near Osijek (1942.-1943.)

In the paper we will present circumstances of his excavations at Vučedol and Sarvaš, based on Archive material kept in the Museums in Zagreb and Osijek. The excavations at Vučedol Schmidt started in summer of 1938 without permissions of the Ministry of Culture, but V. Hoffiller, the director of the Archaeological Museum in Zagreb, reacted without hesitation and sent his associates to oversee the excavation and the safety of the excavated material, which Schmidt wanted to split without any legal right. Only with big efforts V. Hoffiller managed to store all of the archaeological finds from Schmidt excavation in Zagreb museum. In the midst of War Schmidt started another excavation in Croatia, at Sarvaš. For better understanding the circumstances of the research, the correspondence R. R. Schmidt maintained with prominent cultural workers and politicians of the Third Reich, as well as those of the Independent State of Croatia, plays a crucial role. This primarily refers to the researchers' society *Das Ahnenerbe* and German ethnic group, which should have largely financed the excavations in Sarvaš.

LV22 DEFORESTATION AND AGENCY IN THE WESTERN ISLES OF SCOTLAND

Rosie Bishop¹, Mike Church¹, Ian Lawson², Katherine Roucoux²

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The timing and mechanisms of the development of the open, treeless peat-covered landscapes of the Western Isles of Scotland during the Holocene have become a major research focus. Current evidence suggests that the birch-hazel scrub woodlands that developed at the end of the post-glacial period were significantly reduced during the Neolithic and Bronze Age through the combined effects of climate change and anthropogenic clearances. However, the precise timing and causes of woodland decline in the region remains a matter of contention, which has considerable national and international research significance. This paper presents new archaeological and palaeoenvironmental data from a peat sequence and sub-peat horizons, covering the period of occupation and use of the prehistoric landscape of the Calanais Stones in the Western Isles of Scotland. The results will be discussed with regard to the timing, causes and significance of deforestation in the local and region environment through a novel synthesis of archaeobotanical and palynological evidence from the wider region of the Western Isles.

LV15 TO GET THE PICTURE RIGHT -THE NECESSITY OF A STRATIGRAPHIC PERSPECTIVE ON THE ARCHAEOLOGICAL SOURCE MATERIAL

Moa Lorentzon

JÖNKÖPING COUNTY MUSEUM

The archaeological view tends to result in a simplified reading of the archaeological source material overlooking the dynamics and complexity of the material with a misguided picture of both prehistory and history as a result. I will argue that a more adequate reading of the source material, prehistoric as well as historic, requires a consistent stratigraphic perspective. Combining large scale maps, historical written sources and archaeology the stratigraphic perspective can help developing the reading of the archaeological source material. Most probably this will show the need for questioning already established readings of both prehistory and history. To illustrate this issue two different types of archaeological sites in the southern part of Sweden will be used both of which have been interpreted and excavated as prehistoric or early medieval which, based on recent years' findings, can be questioned. Vast areas of clearance cairns are often located on the outfield of the historically known villages. Several investigations have proven these cultivation remains to be dated from back to the Iron Age and up until the 1950's, that they are the result of a dynamic relation between infield and outfield and in several occasions represent farmsteads that were abandoned during medieval or historic times. For the remains of iron production excavations have been able to show a far greater time depth than previously assumed and the geographical positions of the sites in relation to the historically known settlements makes it necessary to question the established readings of these remains.

LV9 LATE IRON AGE MNEMONICS AT BROXMOUTH, SE SCOTLAND

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The Late Iron Age in southern Scotland saw huge social upheaval, in light of successive incursions and final withdrawal of the Roman army in the first few centuries AD. It is against this backdrop that we must consider the material remains of the communities who inhabited this region. This paper will examine the last phase of settlement at Broxmouth, in south-east Scotland; a site which was inhabited for roughly 800 years and which demonstrates the active referencing and erasing of elements of this long occupation by its Late Iron Age inhabitants.

The first part of the paper will consider the mnemonic role of domestic architecture in the creation and abolition of connections with the past. The remodelling of roundhouses, and the occurrence of specific (and repeated) structured deposits, suggests that these structures played a fundamental role in the renegotiation of social identity on a roughly generational basis. As such, they provide glimpses into the perception of time on an individual/household level, and the ways in which references to past inhabitants were actively embedded within the fabric of the roundhouse itself.

The second part of the paper will examine the mnemonics of craft, moments of becoming and unbecoming in metalworking and worked bone/antler. Biographies of selected objects, including skeuomorphic objects, from the Iron Age of southern Scotland will also be considered, as these can be argued to be examples of objects situated in-between the familiar and the unfamiliar; a product of the renegotiation of identities in times of social upheaval.

LV28 'EVERY PLACE HAS WORDS ATTACHED': USING ORAL HISTORY TO RECONSIDER HISTORIC PASTORAL LANDSCAPES

Sally MacLennan

UNIVERSITY COLLEGE LONDON

Archaeology and oral history have at times been seen as uncomfortable bedfellows, with limited value beyond locating archaeological sites or providing supplementary detail via first- or second-hand accounts. Instead, oral history has substantial, and often unrealized, potential to provide additional dimensions to our understanding of archaeological sites and cultural landscapes. This paper discusses how approaches to oral history more commonly employed in Australian Aboriginal heritage, such as using spatial prompts and mapping oral histories, were applied in an investigation of a European-context historic pastoral landscape at Rawdon Vale, in southeastern Australia. This research demonstrated how the careful analysis of oral history combined with more traditional approaches to archaeological survey and the historical record revealed a complex cultural landscape inscribed with tangible and intangible features. Various relationships between the oral and archaeological records were identified, which allowed a more nuanced understanding of the landscape and its development to be established. For example, examining how stories are attached to place, or how some places are continuously used and re-used while others are forgotten can tap into social histories not as easily accessible in the historical or archaeological record. Ethical considerations are also discussed, such as uncovering uncomfortable aspects of past social relations, renegotiating accepted family and local history traditions and undertaking oral history in the context of family bereavement.

LV9 DOORS WIDE SHUT

Hanna Stoger

UNIVERSITY OF LEIDEN

The proposed paper is concerned with the deliberate 'deposition' of two door panels hidden in the urban space of Roman Ostia. The 1973 excavation of an area close to Ostia's forum revealed, to the surprise of the excavators, the deposition of wooden door panels, including their metal hinges. These panels were fully articulated and placed in a horizontal position, covered by an earthen mound of about 40 cm. This small 'tumulus' formed the focal point of a larger peristyle garden, adjacent to the Byzantine baths (IV iv 8). This unique find raises a number of questions regarding the physical and symbolic meaning of this deliberate act of interment of these mundane objects. The symbolic use of door imagery is well-known from Roman and Etruscan burial contexts. Although a funerary context can be securely excluded in the case of the buried doors from Ostia, the architectural awareness for this particular 'burial' suggests a profound acknowledgement of this site. This is even more remarkable when considering the tumulus' close proximity to Ostia's forum, and the city's dynamic transformation in the second century AD. The tumulus of this 'door burial' remained unaltered from the Republican to the Late Antique period, and was eventually forgotten when the site was abandoned. It stayed intact until the 1970s when the area was excavated, and was only rediscovered (by the author) after 45 years of wating in the excavation reports.

The paper explores various avenues of interpretation, combining aspects of ritual deposition with textual and archaeological evidence.

LV7 DEEP TIME MATERIALIZING

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Whilst, on the one hand it can be argued that time is an immaterial dimension; on the other hand it can be understood as material, evidenced when tracing layers in geological formation or by following different strata in archaeological excavations, where depth reveals earlier layers, time-layering superimposed. This paper deals with such materializing processes of time (see Lucas 2012) and is inspired by both new materialism, feminism and posthumanism (see for example Barad 2007, 2010,

Braidotti 2013, Haraway 2003, 2011) and subjects like archaeology and geology, and will explore how such immaterial/material aspects of time do provide glitches in the system as they are situated and situating jumbled up present absences. The paper will also add a discussion about materializing history to a current debate on the role of history in understanding the anthropocene (see Chakrabarty 2009, 2012), which also has been discussed as a tragedy of the commons (Colebrook 2014, 19) where heritage, natural and cultural matters.

LV2 INTERPRETING ATLANTIC IBERIAN HILLFORTS OUTSIDE ACADEMIC ARCHAEOLOGY: LOCAL PEASANT FOLKLORE VERSUS 'NEW AGE' PAN-EUROPEAN DISCOURSES

David González Álvarez

UNIVERSIDAD COMPLUTENSE DE MADRID

Iron Age hillforts are prominent places in the landscape of Atlantic Iberia. The monumentality of their ruins and their proximity to villages, have made them very significant places in the collective memory of peasant communities. Accordingly, hillforts are recurring elements in oral traditions of peasant folklore, usually related with legendary creatures, enchantments and hidden treasures.

In the last decades, 'New Age' discourses, mainly those with a Celtic bent, have achieved great success, leading to the alteration or replacement of traditional peasant folklore by new pan-European narratives. These new stories present us an idyllic past where the Celts lived in hillforts, in harmony and communion with nature. This notion of a uniform 'Celtic culture' is largely derived from contemporary forms of spiritualism related to ecological concerns, the return to the rural and a holistic conception of health. However, the memories of pre-industrial local peasants are overlooked in these speeches.

Archaeology as a discipline has remained outside this process. This is related to the traditional lack of interest of Spanish Academy in the socialization of scientific knowledge, and the contempt of archaeologists regarding pseudoscience. Nevertheless, the discourses and representations produced by archaeologists serve as sources for the pseudoscientific practices and discourses. In this paper, I will present a critical reflection on these contemporary processes of uses of the past in the present, and then about the risks that forms of extreme multivocality entail and their relation with processes of mercantilisation of the past that usually lurk behind New Age discourse in Spain.

LV22 EVERGREENS IN WILTSHIRE: A EARLY PREHISTORY

Gill Campbell, Pete Marshall

HISTORIC ENGLAND (ENGLISH HERITAGE)

The historic ecology of pine, juniper and yew in southern England is intimately tied to the activities of Mesolithic and Neolithic populations. This paper will examine how the spread, distribution and decline of these three species is likely to have been affected by these activities in Wiltshire, in particular the around Stonehenge and Avebury. It will focus on the evidence derived from charcoal and other macroscopic plant remains alongside direct radiocarbon dates on this material. The pollen record for these species, where available, will also be explored.

LV6 WILDER BEING: CREATIVE PRACTICE IN THE LITTORAL ZONE

Jane Downes, Anne Bevan

UNIVERSITY OF THE HIGHLANDS AND ISLANDS

The 'Wilder Being' participatory art and archaeology project was undertaken as part of the UK-wide 2014 'Being Human' Festival of the Humanities. Sub-titled 'Creation and destruction in the littoral zone', 'Wilder Being' aimed at setting an understanding of coastal erosion of archaeological heritage within wider contexts of climate change and sustainability. Our place-based event at the coast on Sanday, Orkney aimed to highlight the connectivity between humanities and sciences, as it highlighted the blurring of lines between land and sea, culture and nature.

The Sanday workshop was an innovative form of experience, bringing together archaeologists, artists, environmental scientists and community for a field workshop. The participants observed and recorded artefacts and materials and used archaeological techniques of survey and artefact recording combined with photography, drawing, sculpture and text to explore responses to place and environment. Modern materials from the shore were collected, analysed, interpreted, and then re-interpreted and configured into a new form. Fine Art & Textiles students from UHI created a '*wilder being*' sculptural costume, influenced by the folklore of the island. These sculptures, along with material from the interdisciplinary event and a commissioned film by Mark Jenkins <https://vimeo.com/112154339>, were then exhibited at the Pier Arts Centre, Stromness.

In this paper we reflect critically upon the processes, challenges and outcomes of the project: in undertaking an experimental and fully participatory transdisciplinary project have we broken new ground in relational social practice?

LV9 BUILDING ON THE PAST: AN EXAMINATION OF THE CONCEPT OF MEMORY IN THE CONTEXT OF PREHISTORIC ORKNEY

Jane Downes

UNIVERSITY OF THE HIGHLANDS AND ISLANDS

Bronze Age burials have been a focus of developing theories about remembering, and forgetting, in relation to identity, ancestry and mnemonics. The siting of Bronze Age barrows on early Neolithic houses is now well attested in Orkney, Scotland, with clear examples of the building materials and architectural features of the houses being incorporated and referenced in the creation of burial monuments as much as 2000 years later. This phenomenon provides new perspectives through which memory in prehistoric communities can be considered. Does this activity represent commemoration or appropriation, and can a distinction be made between these? Moving away from contemplating how things help people remember, this paper examines dislocation and continuation, the landscape context and material details of these occurrences.

LV10 BANKSY IS A WOMAN: GENDER AND FEMININITY AS DISPLAYED IN GRAFFITI

Erin Osborne-Martin

SOCIETY OF ANTIQUARIES OF SCOTLAND

By and large, our default image of a graffiti artist is male. Unless the work is signed with a feminine name or deals with 'feminine' themes, most people tend to assume that the people behind this largely anonymous art form are men. In Roman Pompeii, where graffiti is sometimes signed and gender is easier to identify than it often is today, we can see that much of the output is created by men and a significant portion of it is about women. But there are also examples of graffiti created by Roman women, from prostitutes talking about their clients to wives discussing their husbands and domestic lives. Themes of gender and identity are equally present in modern graffiti. In particular, by using graffiti to subvert advertising – itself a commentary on femininity and womanhood – female artists are able to negotiate gender roles within the public landscape.

LV4 PREDICTING FUTURE CHALLENGES: CREATING A FORESIGHT METHODOLOGY FOR CLIMATE CHANGE ADAPTATION

Meredith Wiggins, Jen Heathcote

HISTORIC ENGLAND (FORMERLY ENGLISH HERITAGE)

Foresight has become an important tool for identifying potential future challenges. It involves gathering together myriad lines of evidence to characterise unknowables and address long-term, strategic issues. To that end, Historic England (formerly English Heritage) are working to develop an holistic methodology to assess possible future stresses upon the historic environment. This approach involves the spatial and quantitative analysis of data drawn from varied UK environmental, land use, infrastructure, climate projections and other sources. The combination and interrogation of these data will allow us to identify places at possible risk in the medium to long term.

We have two aims. First, to improve our ability to assess the likely location and scale of future threats to the historic environment. Second, to generate robust information that allows us to begin talking about the adaptation measures required to improve protection where that is possible, and to develop alternative strategies where it is not. This paper will focus on case studies involving potential future environmental and climatic change.

LV17 ARCHAEOLOGICAL HERITAGE AND RESCUE EXCAVATIONS DURING LARGE-SCALE ENGINEERING PROJECTS (HYDRO-ELECTRIC STATIONS, ROADS, RAIL, AND PIPELINES). THE RUSSIAN EXPERIENCE.

Asya Engovatova

INSTITUTE OF ARCHAEOLOGY RUSSIAN ACADEMY OF SCIENCES

Rescue excavation of archaeological sites in Russia dates from the 1920s, connected with large-scale State construction projects such as the Moscow-Volga Canal, the Baksan and Perm Hydro-Electric Stations, and so forth. These specific projects prompted the beginning of rescue excavation (survey & excavation) in Russia.

From the 1930s to 1980s the Russian Academy of Science undertook large excavations during hydro-electric power station construction in Krasnoyarsk, Bratsk, Kuibyshev (today's Samara) when building a unified energy network for the USSR. These studies gave the first comprehensive information about these territories, and the first archaeological sites received their first listings.

Today Russia has 58,000 listed archaeological sites, which comprise 40 % of the total number of heritage sites throughout the country. There are 1500-2000 Open List Permits granted yearly. More than 70% of archaeological work is Rescue Excavation, involving 30-50 surveys prompted by large-scale construction projects, such as hydro-electric power stations, every year.

In recent years rescue archaeology has been a crucial part in the building of hydro-electric power stations in Central Russia, Siberia, and the Caucasus. Large-scale rescue excavations played a part in the building of the Olympic infrastructure in Sochi, and during road- and pipe-line building in the European part of Russia, and in Siberia.

Archaeological surveys can take place at any stage of construction projects.

LV9 CULTURAL HERITAGE: RE-CYCLE VS PRESERVATION

Giulia Menziatti

SCHOOL OF ARCHITECTURE AND DESIGN

The practices of reuse and recycle characterize contemporary culture more than in other periods of history. If between 1923 and 1927 Aby Warburg with *Mnemosyne* was one of the first to test an art history based on anachronisms and connections of a

mounting of images, today more and more often in music, film, narrative and architecture, fragments and pieces of stories already consumed become relevant again in a process of continuous revision; the citation is not important, the focus is in the ability to reclaim the raw material and turn it into another. It looks to the past, but without ideology, without reconstructive or narrative will, but only to draw from a memory with which to build the present. These techniques of cultural production put seriously in crisis the concept of identity and integrity of the work. In architecture, in particular, the practices of reuse and recycle of the existing collide with the categories of authorship, of the value of testimony now considered a priori parameters for the allocation of value to the excellence heritage. Re-cycle in architecture highlights some contradictions in the way today we judge the existing, often with regard to these immaterial meanings that push in the one dimension of conservation and restoration. It is therefore necessary to look at the ease with which, in other disciplines, existing materials are reassembled and reused in new life cycles. In this sense, re-cycle becomes a crucial tool to re-interpret the coordinates with which we manage the existing architectural heritage.

LV11 THE BELLS FELL SILENT - THE ROLE OF CROATIAN ARCHAEOLOGISTS IN SAVING CHURCH BELLS DURING WWI

Ana Solter

ARCHAEOLOGICAL MUSEUM IN ZAGREB

For the Archaeological Museum in Zagreb the period of WWI meant four almost lost years. In the difficult war years many cultural monuments were exposed to risk: copper roofs were stripped off churches and other buildings, the bells were shattered and taken to the artillery factories, anything that contained copper and tin was removed from the houses. The museum staff soon became busy saving the objects of cultural value, which left no time for anything else.

The mighty Austrian-Hungarian army soon felt the shortage of metal for continuing the war, so the first requisition of bells across the Empire started in 1916 when the government confiscated and melted down 3,703 tons of church bells, followed by 9,771 tons in 1917. The bells were always subject to requisition but never before did it occur to such a large extent.

Viktor Hoffiller, curator in the Archaeological Museum, inspected over 3,000 bells and wrote an inscription on 2,000 of them. With his huge efforts such bells older than 1700 were not taken down from the bell towers, and Hoffiller took special concern for the bells made by domestic bell makers, saving this way more than 300 big bells in Croatia and Slavonia. From the great mass of requisitioned bells Hoffiller managed to purchase 77 of them for the museum collection corresponding to a weight of 3,902 kg. After the war, most bells were returned to the churches from where they had been taken, although some bells are still part of the museum collection.

LV5 AN ARCHAEOLOGICAL PERSPECTIVE ON THRACE: SHARED PASTS, CONTRASTING IDEALS AND REALISTIC CONDITIONS

Denitsa Nenova

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The discipline of archaeology needs to operate on a variety of scales, most often ranging from local to regional, national and international levels. The often-addressed spatial heterogeneity, patterns and distribution are a matter of scale. In Thrace the essence of the scale lies in the constant fluctuations in the area between at least two out of the countries of Bulgaria, Greece and Turkey. Consequently, specific political conditions have discouraged the growth of adequate research across the borders. The type of archaeology practiced in each of the countries contrasts substantially to that practiced by its neighbours according to each country's ideological and political settings. In other words, three different national and nationalist archaeologies have thereby made their impact on the archaeological investigations in the overall area. The discrepancies born thereafter have caused not only practical difficulties and miscommunication across borders, but have also influenced the level of objectivity in any social pattern recognition, while tracing modern geopolitical divisions. In an attempt to awaken national consciousness, a 'centralised ideology' was developed in Bulgarian archaeology. In Turkey, after the collapse of the Ottoman Empire the divide between the traditional Islamic framework and the Western model led to emphasising the formation and development of Anatolian cultures. Similarly, in Greece, attention was directed chiefly towards the centres of the Classical past and the *Megali Idea*. This has divided Thrace into three politically conditioned archaeological zones without intended interconnection, with each of them seeking to connect to the South Aegean, Anatolian or Central European cultural spheres.

LV10 WILD TIMES IN WILD PLACES: COUNTER-CULTURES, GRAFFITI AND THE WILD AT THE DEVIL'S SPITTLEFUL

Andrew Hoan

UNIVERSITY OF WORCESTER

Whilst graffiti is often considered to be an urban activity it is also an essential element of the rural scene. Exposed rock faces, buildings, trees and other living surfaces have often been painted and inscribed over long periods of time. This paper wishes to explore how wild places are used and modified by modern urban populations and how we as heritage professionals might approach and theorize those activities. This paper will explore the role of the wild as theorized by Thoreau and examine how recent counter-cultures take that concept of wildness to use spaces designated as 'wild or natural' to express their identity.

The case study will be based on the record of graffiti, rock art and monuments constructed at the Devil's Spittleful, Worcestershire, UK, wildlife reserve and SSI. This nature reserve is surrounded on three sides by post- WW2 urban sprawl and in its 60 years of existence has become a location for a range of ad-hoc recreations. In local folk lore it has a long history as a location for revelry and the sandstone crag at the centre of the reserve has become the focus for a significant concentration of graffiti and 'naïve art' carved in large continuous panels on the surface of the rock. I aim to include in this discussion how we should see graffiti as part of a suite of behaviours that lead to landscape modifications in the "wild".

LV24 HOUSE TYPOLOGY REVISITED

Anna S. Beck

MUSEUM SOUTHEAST DENMARK/AARHUS UNIVERSITY

Typology is the traditional choice of approach when studying the development of prehistoric architecture. By identifying repeated choices in form, size and construction a varying range of 'house types' is defined and chronological order is established, so one type follows the other. When it turns out that the actual material rarely fits this model, the conclusion is that the existing typologies are not good enough and need revision. But maybe it is the typological approach in it self that needs revision.

In archaeology, there has been an increasing focus on studying the house in relation to the people who inhabit it. The house is treated as active material culture that reflects and influences the world perception of the inhabitants. In the typological study though, the development is still presented as an uncomplicated, one-stringed process where development happens as a 'natural' process where the houses themselves are passive; leaving out all the choices and potential conflicts between tradition and innovation behind building a new house.

The aim of this paper is to present my thoughts on the inherited problems with the existing approach to house typology and discuss how to re-think house typology, so it can be an active tool in understanding and interpreting prehistoric architecture. The case study will be taken from my on-going phd-project where I study the relationship between people, architecture and the changing ideals of how to live a good life during the Viking Age.

LV21 A DIACHRONIC APPROACH TO THE IRON AGE SACRED PLACES: THEIR ROLE AND THEIR IMPACT ON THE LANDSCAPES OF SOUTHEAST SPAIN

Leticia Lopez-Mondejar

UNIVERSITY OF MURCIA

This paper aims to approach, from a diachronic perspective, the role of the Iberian Iron Age cult places both as agents of transformation in the landscape and elements with a crucial and long-lasting impact on it, not only during the Iron Age but also throughout the Roman period. Our interest will focus on the Iberian southeast, a region scarcely analysed from this perspective even though some of the most important cult places of that period are located here, sometimes in areas which kept their sacred character in later periods.

To illustrate those aspects, some case studies from the Iberian southeast will be analysed, paying special attention to La Encarnación (Murcia), a prime example to explore those questions. A study of the development of this site and its archaeological record will be carried out along with a diachronic GIS-based analysis of the settlement patterns in the area and their relation with the sanctuary. Basing on these data, two main issues will be addressed. Firstly, how the development of cult places transformed the Iron Age landscape of the study region. From their emergence, they played a key role in the configuration of the socio-political landscapes and the territorial consolidation of local elites. Moreover, they contributed to create a sense of community beyond the walls of the *oppida*, giving cohesion to wider territories. Secondly, the paper will focus on the legacy on those sites in the later landscapes, approaching their role during the Roman conquest and the integration process of this Iberian area.

LV20 JOINED UP THINKING: AN INTEGRATED LANDSCAPE ANALYSIS OF YARROWS, SCOTLAND

Graeme Cavers

AOC ARCHAEOLOGY GROUP

Graeme Cavers and Oscar Aldred

Increasingly lidar data is being used for site, complex and landscape investigation beyond its important role for visualisation. This paper shows how newly-available data can be used to improve the GIS-based landscape interpretations such as historic landscape characterisation (HLC), historic land-use assessment (HLA) and field survey. Such interpretations are relevant both for understanding and managing present-day landscapes, and for improving our knowledge of past societies. In our paper we use an example from Yarrows in Caithness, north east Scotland, to advance an interpretation of the landscape from digital map content, aerial photographs that is evidenced by lidar. In the example we examine particular land-uses and the site types, exploring the ways in which 'new' data complements as well as refines several different kinds of landscape survey investigations, and we offer examples of the challenges involved in achieving this.

LV7 ARCHAEOLOGICAL RESEARCH OF WILDERNESS AREA: HUMANIZING THE NON-HUMAN WORLD

Jari Okkonen

UNIVERSITY OF OULU

In order to study the Northern Fennoscandia, environmental historians need to take account of the overarching importance of forest and its resources. For the hunter-gatherer societies and reindeer herders the importance of forest had been self-evident. But also the farming communities, striving in the narrow ecological margins of the North, were economically dependent on forest. This paper is dealing with observations and interpretation of the archaeological field work conducted in Syöte wilderness area in Northern Finland. It is a remote area which was utilized by hunter gatherers in prehistory and later by the farmers until the 20th century. Basically it was the growth of the industrial towns and migration from the countryside in the late 20th century which altered the traditional culturally perceived view of forest to fit the urban ideal of pristine intact wilderness without human impact.

The result of the fieldwork challenged the common ecocentric view of the wilderness. It was believed that the area had been desolated or only temporarily visited. However, the research are turned out to possess plenty of traces of past land use. The areas of high biodiversity turned out to be intensively used in slash and burn cultivation in the 19th century and the remote brooks, which first appeared to be in natural state, were heavily impacted by the local farmers in order to grow hay for the cattle. Similarly, several tar kilns indicate that the Syöte wilderness area was connected with North European economic network during the 17th and 18th centuries.

LV8 LEGACY, MEMORY AND MATERIALITY: SPATIO-TEMPORAL COMPLEXITY AT GREAT ZIMBABWE

Paul Sinclair

ARCHAEOLOGY AND ANCIENT HISTORY

Paul Sinclair and Ezekia Mtetwa

Decades of research at Great Zimbabwe have resulted in disparate sets of complex archaeological data. This presentation aims to discuss the multiscalar spatial and temporal dynamics embedded in the landscape of Great Zimbabwe contrasting geospatial data from the architectural, soil sampling, coring and magnetic susceptibility programmes of the 1990s led by Paul Sinclair with recent ground survey and excavation by Ezekia Mtetwa focussed upon iron working in the vicinity of the town. This approach to the *longue durée* at Great Zimbabwe provides the basis for formulating a hypothesis of reflexive long term interactions between people landscape and climate while at the micro level recurrent intangible values and legacies account for anomalies in the spatial expression of archaeological remains. Future work aims to assess this hypothesis with detailed paleo-environmental analysis of multi proxy data sets.

LV21 UNLOCKING THE SACRED LANDSCAPE OF THE EARLY MEDIEVAL AEGEAN

Sam Turner

NEWCASTLE UNIVERSITY

The organisation of rural landscapes in much of the eastern Mediterranean during the early Middle Ages (AD c.600-1000) remains difficult to understand. Our understanding of the organisation and experience of sacred space after Late Antiquity is similarly limited by relatively poor knowledge of settlements, land-use patterns and the location and nature of churches in many regions. The island of Naxos in the central Aegean provides outstanding opportunities to explore the sacred aspects of rural landscapes and thanks to the survival of many small early medieval churches. At least a hundred such buildings still stand in a rich historic landscape which is dominated by terraces and other remains of pre-modern farming. Recent collaborative fieldwork and GIS-based research has begun to unravel the complexities of this landscape through a case-study in the region of Apalirou, a major early medieval centre where the development of medieval urban space from the 7th century onwards is also being studied.

LV5 INFORMATION COLONIALISM AND THE POLITICS OF ARCHAEOLOGICAL FIELD-WORK: REMARKS ON ARCHAEOLOGY OF SILENT

Mirette Modarress Sadeghi, Jari Okkonen

UNIVERSITY OF OULU

Archaeological field-work has been commonly seen as neutral acquisition of data that is more or less uncontaminated of ideological hegemony and is free of political intentions. This paper is dealing with the apparent shift in the practice of colonialism in the sphere of archaeological knowledge production that occurred in Iran and neighboring regions at 20th century. National legislations to protect the local archaeological heritage in this region were implemented mostly in the beginning of the 20th century. Before that the colonialist practices concentrated on material values (antiquities), which were openly in use by the foreign archaeologists and explorers. The mode of colonialism changed after the shift. In the 1960s Iran was the focus of archaeology and several multidisciplinary foreign projects yielded scientifically significant knowledge concerning the Neolithisation and urbanisation. Especially the W and SW Iran was seen as an ideal laboratory for testing the archaeological theories. Archaeological objects excavated by the large foreign projects, were passed to the museums together with a considerable antiquarian workload. However, the theoretical and methodological ideas connected with the observations and data acquired on foreign field-projects were not disseminated among the broader local public. According to this new mode

of colonialist practice, the local intangible values (information) were utilized by the Western academic elite in the international scholarly fields far away from the local needs and concerns. We should be aware of colonial practices in archaeological knowledge production. The future visions should lay in more participative and multivocal archaeology.

LV11 HOW CROATIAN PRIEST, RUSSIAN PRISONERS OF WAR AND US NAVY INFLUENCED SALONA IN WWI

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Eruption of WWI caused the halt of majority of excavations throughout Europe and Mediterranean, Frane Bulić, as a director of Archaeological museum of Split, but also a priest and a renowned politician, used his influence to continue excavations of Roman city of Salona. Excavations of that site were renowned throughout the Austrian-Hungarian empire as one of the most important in the Empire, and as such funded from Vienna. While the Empire was preoccupied with war, Frane Bulić continued his work in Salona and scientific activities in Dalmatia through publishing of *Bullettino di archeologia e storia Dalmata*. Curiosity of these wartime campaigns was the fact that Russian war prisoners were used as labor force for excavations of Salona. Another curiosity is related to US Navy. US Navy troops were settled in Split to *preserve order* on Dalmatian coast in post-WWI period, along which they damaged a sarcophagus in Salona. This provoked strong protest by Frane Bulić with US command, although he tried to develop social relations, especially to US admiral Andrews. To understand impact of WWI on heritage in Croatia, particularly in Dalmatia, it is important to observe activities of Frane Bulić after the war, when he was in charge of repatriation of the Dalmatian heritage from Italy. This paper will present activities of Frane Bulić during the WWI and postwar period to observe influence of WWI on development of archaeology in Dalmatia.

LV1 MATERIAL/DIGITAL AUTHENTICITY: SOME THOUGHTS ON DIGITAL 3D MODELS AND THEIR MATERIAL COUNTERPARTS

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Forms of material replication (casts, copies etc.) have long set up complex and fraught relationships with their originals. Whilst they can be seen as extensions of the biography of original (Foster and Jones 2008), they also create anxiety about both their own and the original's authenticity. Digital forms of recording create related tensions. In particular, the authenticity of digital 3D models and their printed material analogues has been cast in doubt. Yet in recent work it has been argued that authenticity can indeed 'migrate' from the original to these virtual replicas under certain circumstances (cf. Latour and Lowe 2011; Jeffrey in press). In this paper we draw on recent research to examine the dynamic and complex relations that are established between 3D models and the objects they represent. We use examples from the ACCORD project to show that the networks of relations set up between material/digital objects can place the authenticity of both in question, whilst simultaneously generating new forms of authenticity. In short, authenticity can indeed migrate, but it does so in multiple directions with often unforeseen consequences.

LV19 WE ARE ALL AERIAL ARCHAEOLOGISTS NOW: THE ASCENT AND DESCENT OF ARCHAEOLOGY

Oscar Aldred

RCAHMS

The view from above offered by aerial photographs gives archaeologists an unprecedented perspective on landscape. Early aerial archaeologists used their gaze from the air to follow features on the ground and to examine landscapes under the threat of large-scale change. From the early-20th century through to the 1950s, the likes of O. G. S. Crawford and others photographed a less intensively farmed landscape than it is now, with well preserved features, and used techniques that remain benchmark. There is still much to learn from these innovators; not only how and what they photographed, but their approach to archaeology and landscape. In this paper I will explore aerial photography's penchant at *recording* landscape's deep time, as well as Walter Benjamin's optical unconscious; qualities *revealed* that might otherwise remain hidden. Far from an aerial photograph being portrayed as a static snap-shot - capturing time - through the lens of aerial archaeology it becomes a device that mediates an *optical unconsciousness*, that hosts an abundance of time, and hints at glimpses of the expansive terrain of the human imagination. Aerial photographs are representational features with potential, showing subtle but not exposed things in-the-frame, and features that lie off-centre and out of focus. Linking these ideas with Ruth Benedict's understanding of experience as human imagination, I will examine the potential, affect, (dis)orientation and the paradox of proximity while up above and when looking down. This is to consider an archaeology that is camera-like but *of a different shutter speed and duration of exposure*.

LV8 MODELLING SOCIAL BEHAVIOUR ACROSS THE LANDSCAPE: THE CASE OF EAST RHODOPE

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Since Archaeology looks at the unfolding of past events through geography, time and culture, the results of archaeological studies consist of spatial information. In the 1970s spatial analysis was introduced to Archaeology, attempting to detect patterning, relationships and correlations behind recorded archaeological site distributions. GIS was also involved in order to

help fulfil the geographical requirements of spatial analysis. Essential to some extent appeared to be the identifying of any relationships between the archaeological sites and their environment. The cultural factor behind site locational causality was often excluded from the locational modelling. However, it is a fact that the behavioural reasons are hidden beyond the visible relations with the environment and could be influenced upon space. Moreover, correlation between human beliefs and patterns detected across the landscape, just like pure behavioural modelling, cannot be interpreted on their own. On the other hand, the visible patterning that humans' choices leave in the landscape, used carefully, could contribute tracing the social reasons behind it. One way to address this is by the means of 'predictive modelling', a technique used mostly to detect site locations by identifying significant environmental variables and the interactions between them. It becomes even more powerful when, overcoming the charge of environmental determinism it involves a behavioural factor during interpretation. A combination of spatial-statistical parametric and non-parametric techniques is proposed here in attempt to examine and model cultural phenomena across the landscape of eastern Rhodope Mountains in Bulgaria during the Late Bronze Age.

LV11 REMEMBRANCE OF BLOODLAND: BETWEEN MEMORY, ARCHAEOLOGY AND DIFFICULT HERITAGE OF POLISH HISTORY

Dominik Kurek, Kamil Karski, Tomasz Tokarczyk, Michał Czarnik, Katarzyna Skowron

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Dominik Kurek, Kamil Karski, Tomasz Tokarczyk, Michał Czarnik, Katarzyna Skowron

During the past decade archaeology of modern conflict became one of the fastest developing branch in Central European archaeology. Numerous projects are realized along Europe, as well as in Poland. In 2014 archaeological excavations in Zdziary (Nisko county) were begun, as a part of this scientific movement, initiated by Podkarpackie Voivodeship Office.

The aim of the research was to identify the gravesite of soldiers killed in I world war during the fight for crossings over the San River near Nisko (SE Poland). This battle (between Russian and Austro-Hungarian Armies), called 'The Rudnik battle' was one of the biggest WWI fights. During the work archaeologists discovered 11 collective graves, exploring two of them. 16 individual skeletons were exhumated and then analyzed by anthropologist. About 300 relics were found and forwarded to the Regional Museum in Stalowa Wola.

Awareness of the scale of the conflict and its impact on history is well known by the locals. What researchers were able to do was giving material proofs - they located collective graves and did research on soldiers' skeletons and the ordnance relics found with the dead. Conflict is still "remembered", but peoples' contribution to this "memory" is diversified. That is why the stories of war, heroism, death, patriotism also became the aim of the study.

LV4 PRESERVING AND PROTECTING THE PEATLAND RECORD POST-KYOTO PROTOCOL

Benjamin Gearey

UCC

European peatlands are well known for remarkable archaeological discoveries and for the preservation of records of environmental change in the form of proxies such as pollen. However, these environments face a number of threats, ranging from anthropogenic activities including drainage, agriculture and peat extraction, to the impact of climate change. The possible response of peatland ecosystems to future climate change scenarios is also an area of some debate and discussion. Recent years have also seen the emergence of the ecosystem services framework which seeks to identify and value the 'services' provided by healthy, functioning ecosystems, which for peatlands include carbon storage and hence the potential to mitigate the effects of climate change. This framework looks set to be adopted by many institutions and governments. Associated with this is the increasing move towards peatland restoration and conservation, which is being driven in part at least by the Kyoto Protocol which includes wetland restoration as contribution towards the carbon targets set for signatory parties. This complex of political and environmental factors presents a range of threats as well as opportunities for peatland archaeology, which do not as yet appear to have been widely identified or recognised. This paper will review this situation and suggest the necessity of concerted debate and engagement to ensure that the ecosystem services represented by the archaeological record and the particular requirements for the protection of the resource are included in future policy developments.

LV5 ARE WE ALL THE CAPITOLINE SHE-WOLF'S SONS? IDENTITY BUILDING IN ITALY FROM URBAN TO PUBLIC ARCHAEOLOGY.

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The Central Archaeological Area in Rome shows how the same ruins can be manipulated to fulfill different and variable political, economic and social needs. Late 19th century excavations in the Roman Forum aimed at finding the remains of the primigenial City, the capital of the newborn unified Italian state, while some decades later the same place was used as lieu de mémoire by Fascist regime propaganda –the urban landscape was reshaped by the notorious demolitions functional to the construction of Via dell'Impero. After World War II archaeological research in Rome lost its connection to national identity building and

undergone a profound transformation: no excavations were carried out and the focus shifted on historical, topographic and material culture studies. In the early 1980s new excavations started and became the first and most representative experiences of urban archaeology in Italy, followed by archaeological works for the Underground in the 2000s. For the first time Italian archaeology faced the pressing need of transforming itself from a purely academic enterprise into modern public archaeology. This paper explores present day public archaeology in Italy and disentangles the multiple elements that contributed to its creation and development. Through the analysis of 19th and 20th century ideologies the role of archaeology in Italy will be examined focusing on Rome and the ideologies that have influenced present day approaches the most.

**LV18 COMMON LANDS, ENVIRONMENTAL RESOURCES MANAGEMENT PRACTICES AND CONFLICTS:
MULTIDISCIPLINARY PERSPECTIVES ON THE STUDY OF THE EUROPEAN MOUNTAIN HERITAGE**

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The existence of common-lands (meadows, pastures, woods, etc.), the complexity of their different uses and the permanence of common exploitation rights were crucial in shaping rural landscapes, so they are protected as natural and cultural heritage. Nowadays, the risks connected to the abandonment of rural activities, above all in mountain areas, involves also the management of common-lands. In this framework, history, historical ecology and archaeology are urgently called to reconstruct, in a long term perspective, the role of common property in the social, political and economic structures of rural areas.

The paper aims to discuss the first results of a multidisciplinary research project devoted to the investigation of common-lands through the comparison of case studies from the Basque mountains, the French Pyrenees and the Ligurian Apennines.

If the existence of historical conflicts concerning common-lands from the Ancien Régime to the 20th century is revealed by documentary sources, rural archaeological and historical ecology investigations reveal that a direct relationship exists between environmental resources management, the claim of common rights, and the transformation of settlements patterns. The assumption is that the activation of technical and agronomical devices has not only strong implications with the environmental history, but is also strictly connected with jurisdictional and social dynamics, and, so, with political and institutional transformation of the European mountains.

Particular attention will be paid to show how, through the regressive method, field investigations could help to connect historical reconstruction, present landscapes management and preservation of cultural heritage.

**LV7 WASTE, ATTITUDES AND ENVIRONMENTAL CONCERNS AN ENVIRONMENTAL PERSPECTIVE ON
METALLURGICAL PRODUCTION**

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Metal production (mining, smelting of ores, casting and forging) had a great influence on human society, leading some believe that it led to a more stratified society. But it also had an extensive impact on the environment and human health. Environmental impact through dispersal of heavy metals is one of the most discussed and studied the consequences of metal technology, but mining and exploitation of natural resources also affect the landscape and other aspects of the human environment. A current example is Kiirunavaara mine's impact on the city of Kiruna.

The purpose of this presentation is to discuss various examples of how metallurgy affected the environment including humans and the human landscape. A large part of this research focuses on historical materials and production contexts on an industrial/near-industrial level. The emphasis here will instead be on metallurgy during the prehistoric period and on smaller-scale production contexts. The environmental impact of small-scaled activities may not have been as great as the examples above, but polluted gases and fire hazards of non-ferrous and ferrous crafts would still have an impact at the local level. Did this form social attitudes and norms towards metallurgical crafts production and craftworkers, or bias patterns of behavior across subsequent populations? Ways to understand such attitudes, norms and practices require examination of waste management practices, the socioecological context production, and their long term interaction with geological and biological systems.

**LV10 GRAFFITI AT THE ASYLUM: RECORDING AND INTERPRETING GRAFFITI AT A PSYCHIATRIC INSTITUTION
IN RURAL IRELAND**

Maggie Ronayne

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In 2012 a team of staff and students from the Department of Archaeology at the National University of Ireland, Galway was asked to undertake a salvage survey at St Bridget's psychiatric hospital in Ballinasloe, a town in the rural west of Ireland. The hospital began life as a 19th century lunatic asylum which first opened in 1833. The main 19th century building was in use until 2010. Although the interior was considerably altered, original features still survive. A photographic survey was conducted as well as recording and collection of a representative range of material culture from the now derelict building. Ongoing work on

the site includes a collaborative project by archaeologists and artists. Among the material recorded were layers of graffiti mainly dating to the very recent past. This paper will discuss the spaces and acts of inscription involved, their content and context as well as the process and ethics of recording, including the experience of project participants and how and why we engaged with this material. Institutional confinement in Ireland has received much public attention in recent times and remains a source of controversy. A key consideration will be the extent to which the graffiti and other evidence inform us about the lived experience of patients in a 'total institution'.

LV22 NEW INSIGHTS INTO WOOD USE AND RESOURCE FROM EARLY MEDIEVAL KILNS IN IRELAND (400-1100 AD): INTERPRETATION AND ANALYSIS USING ARCHAEOLOGICAL WOOD CHARCOAL

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Despite the ubiquity of medieval crop drying kilns in the Irish archaeological record, details on the woods used to construct and fuel these features remains somewhat elusive. Considering that woodlands in early medieval Ireland were regulated and protected by law and custom, wood species preferentially selected for kiln activity may have held some economic and cultural significance. The systematic sampling of these features for wood charcoal remains therefore offers a unique opportunity to evaluate the nature and composition of wood selection for kiln construction and operation.

This paper will present a detailed study of charcoal remains from a series of early medieval crop drying kilns located across two distinct regions in the south of Ireland, counties Tipperary and Kilkenny. The range of wood species identified will be discussed with a view to understanding how kiln use was managed over time and if wood selection was a pragmatic or technological choice. In turn, this will highlight if practices differed across geographical zones and how local and regional trends in wood selection may have fluctuated.

Where charcoal has been sampled from obvious kiln components (chamber, flue and fire-pit) there will also be an attempt to extricate structural wood from fuel debris, which will strengthen the theoretical framework for wood management strategies and acquisition associated with these features. Attention will also be given to how accurately the woods identified can assist local woodland reconstruction or if the socio-cultural context which governed medieval wood appropriation hinders past ecological profiling.

Irish Research Council funded project

LV19 THE AESTHETICS OF AERIAL PHOTOGRAPHS IN ARCHAEOLOGY

Amanda Brend, Andrew Baines

ORCA

For over a century, aerial survey has provided astonishing views of archaeological monuments and landscapes, and the resultant air photos form an extremely valuable resource. Oblique photographs of extant and ploughed-out monuments provide archaeologists with a huge variety of scales for analysis, from the house to wider landscapes. Despite this potential, oblique photographs are not considered to be a driving force when it comes to writing accounts of the past. Transcription and mapping *from* aerial photographs, rather than the *photos themselves*, is often seen as a first step to interpretation. We argue that this situation has it backwards: photographs are the primary source, whereas transcriptions should function as a commentary on, or key to, their content rather than having status as evidence in themselves.

This paper argues that we can do much more with our aerial resource. Sites recorded on aerial photographs represent a tangible link to the material traces of the past. They are rich reservoirs of human experience, action and intent and, through them, we can think about *past social practices*. Aerial photographs are a map of the influences that material traces have on one another, both forwards and backwards in time. An over-reliance on transcriptions risks breaking apart this complex temporal web into a series of two-dimensional layers. Thinking about aerial photos in this way, combined with exploration of their aesthetic qualities, allows us to use the resource as a strong narrative and interpretive tool, opening up new avenues for approaching past landscapes.

LV6 IN THE FLOW OF TIME WE ARE BUT A MOMENT...

Gavin MacGregor

NORTHLIGHT HERITAGE

In this piece, you may be confronted with a dilemma.

Status ↔ Transform

Time ↔ Reorder

Order ↔ Art

Neolithic ↔ Value

Evidence ↔ Evolve

Situate ↔ Legacy
Where
do
we cross the boundaries...

LV25 ONE PERSON. MANY SUBJECTS. ONE AGENDA

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Croatian archaeologist Mirko Šeper was the Director of the Archaeological Museum in Zagreb and head of the Department of Archaeology at the University of Zagreb during the WWII under the rule of the Nazi collaborating Independent State of Croatia. He was installed at those positions after the forced retirement of Viktor Hoffiler in 1943. Šeper published many papers on various archaeological and art history topics and actively participated in excavations. He had wide research interest, so he published on prehistoric figurines, Roman gems, medieval baptistery, just to mention some of them. While it can be said that his publications were methodologically flawless, his interpretation was definitely embroidered with his political and ideological beliefs. After the WWII, he was fired from both the Museum and the Department and sentenced to long term imprisonment which was subsequently reduced. Because of his previous archaeological work, and because of the rather extreme jail sentence an image of Mirko Šeper as a person of misfortunate faith, rather than fascist regime collaborator was created. With the help of the influential figure in the new regime, he was employed by the Croatian Institute of Lexicography where he worked until his death in 1970. This paper re-evaluates present image of Mirko Šeper and his legacy in the current archaeological literature and public opinion.

LV21 THE NEO ASSYRIAN ROCK RELIEFS: VIRTUAL SETTLEMENTS, SACRED PLACES OR SPACES AT THE SERVICE OF THE POLITICS? WORKING TOWARDS A COMPREHENSIVE GEOPOLITICAL VISION

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During their reigns, Neo Assyrian Kings used to carve Rock reliefs in different areas of the empire, using them in order to inscribe their presence through their own image, fulfilling the order received from the God: "Matka rappish", "Extend your Land". Many scholars believe that Rock reliefs are sacred places, areas that were addressed to the Gods.

But just that, or something more? Starting with the etymological term "settlement", that is, "the place in which one takes one's position", this article will consider the Neo Assyrian rock reliefs in terms of a potential settlement, that is, ideologically and perennially anchored and engraved in the territory, with the aim of guaranteeing an eternal presence across time and space. The fact that these reliefs are often to be found in remote places, inaccessible or difficult to reach, allows one to formulate hypotheses regarding the true meaning attributed to these displays of settlement art and politics by the Central Power.

I believe that, whatever the temporary reason (religious or not) was for a king to decide to create a rock relief, in the end it seems to have been perceived as an instrument of geo-political control, and a tool of communication through time, in order to create a common past, which was perpetually reconstituted through memory and acts of commemorations.

LV21 RELIGION, RITUAL, AND THE ROMAN RUS: TEMPLES, MAUSOLEA, AND NECROPOLEIS ON LATE-ANTIQUITY VILLA ESTATES

Sarah Beckmann

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Over the last several decades, excavations of late-Roman villas in the Iberian Peninsula have brought to light evidence of the symbiotic relationship between rural life, and religious practice and ritual in Late Antiquity (3rd – 5th centuries C.E.), in the form of temples, mausolea, and necropoleis located on villa estates. Roman villas have traditionally been studied as vestiges of elite habitation, but the estate's role in developing religious economies has rarely been examined in depth. This paper will explore late-antique and post-Roman religious practices in the rural sphere, paying particular attention to the role of the villa in shaping religious landscapes. Considering material evidence for temples and necropoleis found on villa properties, I parse the nature of estate life in the Roman world, asking how it encouraged and informed the foundation of religious structures. Late-antique villas were themselves often major rural centers, with a unique power to gather together and build communities. I then focus on a large necropolis associated with the Roman villa El Ruedo (Almedinilla, Spain), some of whose burials can be dated two centuries later than occupation of the villa. I hypothesize that these post-Roman burials may be evidence of ritual behavior that has less to do with specific religious beliefs or tenets; rather, burial traditions should be linked to a larger human process of manipulation of and interaction with the physical landscape. In conclusion, I ask how the late-antique physical landscape preserved a sacred quality which transcended successive cultures and epochs.

LV9 À LA RECHERCHE DES LIEUX PERDUSA REMEMBRANCE OF FORGOTTEN PLACES; LATE ROMAN HOARDS AND MEMORY

Nicholas Wells

INDEPENDENT RESEARCHER

Coin hoards represent an act – an act whose reasons in virtually all circumstances are unintelligible to us. Nevertheless in general hoards are interpreted normatively – they were buried, and were intended to be recovered – therefore all hoards discovered by archaeologists were unsuccessful as they were not recovered by those who buried them. How many were successful – were recovered – we will never know. However there is a growing awareness that some – perhaps many – were never intended to be recovered, and that other motivations were at play in the deposition of the hoard – the recently discovered Frome Hoard providing a fairly clear case in point.

Roman coins hoards are sometimes found in or close to prehistoric monuments and these may be seen as acts of remembrance - whether the memory is accurately represented or not. Others are found associated with settlements and thus may be related to activity within these centres of occupation. But most have been found divorced from archaeological context – isolated finds in a landscape removed physically and conceptually from our perception of Roman occupation patterns.

Yet there are clear indications that these isolated hoards are located for specific reasons at specific times; groups of hoards buried over a short period in close proximity and deposits buried in earlier features suggest that there were complex motivations for their burial and that memory and commemoration may have been the primary force behind their burial. This paper explores the physical evidence of these hoards and the nature of remembrance that they may represent.

LV21 STREETS AS CULTURAL SPACES

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Landscapes are spaces of action and interaction, subject to continuous change and perpetual motion. This movement can be physical, but also emotional - it has an effect on how people perceive the space they are moving through. A fine example of an 'emotive' landscape is Istanbul, which has been a space of continuous 'motion' for hundreds of years.

This paper will focus on aspects of movement-motion and emotion and the ways archaeological approaches of movement can help us understand the ways landscapes gain their cultural identity.

Particular attention is drawn to cultural perceptions of routes and roads that are often seen just as mundane and secular. The paper will show how they are sensually perceived multifaceted networks that facilitate movement from one site to another. This paper starts approaching an understanding of the byzantine religious processions and the routes they followed, in order to stimulate ideas on the ways streets transform through religious practice into meaningful places, offering links to the sacred. It also examines whether and to what extent cultural perceptions of streets are inherited through time and the ways these perceptions are reflected on the urban development of the landscape.

LV8 BRONZE AGE RITUAL PRACTICE AS ENVIRONMENTAL BEHAVIOR

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How is prehistoric man's relation with his natural environment to be described?

Although regularly raised, this challenging question is far from being discussed exhaustingly. While the appropriation and enculturation of the environment is predominantly viewed from an ecologic and economic perspective, discussion concerning the relevant symbolic dimensions is mainly based on post-modernist concepts. Though the subsistence related activities and the symbolic performances happen to be entangled strategies and processes, the two topics are often treated separately and the approaches are hardly ever brought together.

This paper asks initially about the conceptual and factual parameters of prehistoric environmental behavior. For this purpose traces of 'non-economic' (i.e. by society caused, respectively primarily not motivated by an economic interest) environmental behavior in the archaeological record are detected and questioned. The obviously crucial role of the topographical setting of a series of Bronze Age rituals leads for instance to the understanding that these practices must be understood as an environmental behavior. Not least, the study of the environmental behavior in every respect opens up perspectives on the variety of prehistoric environment notions and concepts. Not only will the issue of 'non-economic' environmental behavior as such be brought to the archaeological conscience, but it will also be demonstrated that traces of this kind of behavior are existent in the archaeological record. Subsequently a complementary application of scientific environmental studies and archaeological data as well as interpretation considering concepts from neighboring disciplines is demanded in order to stimulate the archaeological discussion around the prehistoric man-environment relationship.

LV21 THE SACRED LANDSCAPES OF PHRYGIA

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KOÇ UNIVERSITY

From the tiny idols carved onto rocks for the cult to the monumental tombs for the dead, the Highlands of Phrygia provides multiple layers of evidence for the reuse of sacred space across centuries. The Phrygian Highlands, the mountainous area extending between the modern provinces of Eskişehir, Kütahya and Ayfonkarahisar, is marked by spectacular volcanic formations, rocky hills, water springs and numerous rock-cut monuments of various size, function and date. The monumental transformation of this long-inhabited space through rock-carving began sometime in the first half of the first millennium BC (Iron Age) and continued until around the Islamic times. The "Phrygian" legacy embedded in its natural topography can still be traced in the present-day landscape referred to as *Frig Vadisi* (the Phrygian Valley) by locals and most travellers in Turkey. In this paper I explore this "symbolically charged" landscape from a *longue-durée* perspective to better understand its significance as a place of social memory and a medium for long-term religious practices under changing relations of power. My focus will be on the role of key multi-period sites and associated ritual practices in structuring this highland landscape to create a sense of place. I also discuss the problems and difficulties in their interpretation using traditional approaches.

LV17 PLANNING DAMS – LEGAL REQUIREMENTS AND THE MANAGEMENT OF THE HISTORIC ENVIRONMENT

Friedrich Lueth

DEUTSCHES ARCHÄOLOGISCHES INSTITUT

By the end of 1995 the list of dam constructions completed comprises 107 dams – this list consists only of dams with more than 10 km³ volume. These major dams are spread all over the world, including Europe, Africa, the Americas, central and Eastern Asia. Many of these dams were built with a minimum effort on heritage management. More recently the management requirements for cultural heritage have been strengthened and there are good examples to be reported upon. With regard to a large number of dam projects on the development list from different parts of the world this presentation will raise questions of standards in documentation and management.

This presentation is an introduction to the theme of managing the archaeology of dams. It takes stock of legal requirements in Europe and beyond. Light is shed on the requirements from financing institutions such as the European Investment bank, the World Bank and others.

LV17 ARCHAEOLOGICAL HERITAGE AND DAMS IN GHANA: A REVIEW OF THE CURRENT SITUATION

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Dam construction and large scale infrastructural development often leads to improvements in people's economic, material, and social conditions. In spite of the merits of these activities as catalysts for development in Ghana, they are potential sources of the destruction of the nation's natural, cultural, and heritage resources. Confronted by the threat of large-scale construction projects, archaeological and anthropological interventions are among the few humane ways in which tangible and intangible heritage properties can be salvaged, preserved, and conserved to benefit future generations and to bring closure to construction-related conflict in affected communities. A 400-megawatt-hydroelectric power dam that has been constructed on the Black Volta at Bui in the Brong Ahafo and the Northern Region of Ghana has created a 440 km² reservoir of water that flooded a number of villages in its catchment area. Through discussions of salvage archaeology and relocation of exhumed shrines and human remains in the Bui dam project area, this paper highlights how archaeologists have been instrumental in the management of conflict between the Bui Power Authority (BPA) and the people of three settlements who were relocated from the dam's flood zone. This work underscores the potential of archaeology in mediating human rights issues whilst managing heritage in large-scale construction zones.

LV17 ARCHAEOLOGY OF DAMS IN NIGERIA. AN INEXCUSABLE NEGLECT

Musa Oluwaseyi Hambolu

VERITAS UNIVERSITY

Archaeological surveys and excavations conducted before the construction of Kainji Dam on River Niger in the 1960s produced data and materials that form a significant component of Nigeria's heritage repertoire. Three universities dams were also subjected to archaeological surveys.

However subsequent construction of dams did not avail Nigerian archaeologists the opportunity to conduct cultural heritage impact assessments leading to many regrettable consequences beyond the obvious ones. This inexcusable neglect on the part of all stakeholders is being confronted by the ongoing review of the laws governing archaeological excavations in Nigeria and mounting of sensitisation campaigns.

The loss of opportunity for capacity building in rescue excavations and heritage management is being ameliorated by the development of courses at some Nigerian Universities with a view to producing archaeologists capable of handling such projects within the usually limited time allotted.

Support for Nigerian archaeologists in developing the required manpower should be seen in the context of safeguarding the heritage of mankind. The numerous dam projects on the drawing board would indeed provide avenue for righting the wrongs of decades of neglect.

LV10 MARKING MILITARY IDENTITY: TEXTUAL GRAFFITI IN NINETEENTH-CENTURY MALTA.

Russell Palmer

GHENT UNIVERSITY

Malta abounds with stone carved graffiti incised into the soft limestone walls of buildings and monuments, ancient and modern. Studies of post-medieval graffiti have traditionally focused on those found on the walls of prisons and churches, often concentrating on votive ships and other pictorial graffiti. Surprisingly little consideration has been given to textual markings. In a move to address this imbalance, this paper will examine the mark-making practices of British soldiers and officers at barrack and mess sites in nineteenth-century Malta. As documentary evidence rarely locates individuals or battalions to their quarters, the graffiti left by highly mobile military personnel provides valuable information as to where individuals lived and died. Furthermore, handwriting, spelling, and duplication of these graffiti shed light on to writing practices and levels of literacy. Through the case study of an officers' mess and barrack site, textual wall graffiti and scratched markings on archaeological finds will be considered alongside "official" incised markings, such as room numbers. Rather than isolating the text from its materiality and its material/spatial surroundings, it shall be used to reconstruct the practices involved in its production and subsequent "reading." By considering the graffiti within their context, this paper will argue that mark-making was an important practice in the articulation of regimental "family" membership and a military identity.

LV28 "SO THE EVIL-EYE CANNOT SEE MY CATTLE" – ORAL HISTORY AS A TOOL FOR THE ARCHAEOLOGY OF FOLK RELIGION

Sonja Hukantaival

UNIVERSITY OF TURKU

The vast collections of oral history accounts collected in the late 19th and early 20th century into the Folklore Archive in Helsinki, Finland, have previously been studied mainly by scholars in the fields of folkloristics or comparative religion. In the forthcoming doctoral thesis in archaeology by the author of this paper the oral accounts are studied together with material remains of practices that these accounts describe. This discussion concerns deliberately concealed objects in buildings which belong to the sphere of folk religion.

When analysed with a contextual approach the abundant oral accounts reveal patterns that are useful for the archaeologist studying finds of apparently deliberately concealed objects in buildings. It is evident that the same methodology could be successfully used in connection with other questions of historical folk religion as well. This paper discusses the benefits of this multi-source method, but also its challenges. The oral accounts offer a unique insight into what the practices have meant in the communities, but the methodology also requires a good understanding of the source-critical issues involved.

LV4 INCREASED FLOOD RISK AND ITS IMPACT ON HERITAGE ASSETS IN A CHANGING CLIMATE: PREPARING EMERGENCY SERVICES AND THEIR PARTNERS FOR DISASTER PLANNING

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Under future climate change scenarios, a significant problem for society will be the impact of flooding caused by riverine, groundwater and surface water processes.

Following the widespread flooding of 2007, which affected large parts of the UK, the Climate Change Act (2008) and Flood and Water Management Act (2010) increased the requirements of Local Authorities to address flood risk by delegating to them responsibility for flooding from ordinary water courses; the Environment Agency retained responsibility for main rivers. To add to this responsibility, local authorities and other organisations are also responsible under the Civil Contingencies Act for developing emergency plans, contingency plans and business continuity plans to help reduce, control or ease the effects of emergencies, including flooding. Whilst the challenges of safeguarding modern infrastructure are well known, there is a growing awareness of the impact of natural events on the Historic Environment.

Managing the threat to historic assets, whether by enhanced fluvial, groundwater or surface water processes requires the development of tools that provide information for multiple agencies and emergency response teams.

With funding from English Heritage, Worcestershire County Council and Landscape Research & Management have undertaken a project to map the incidence of fluvial and surface water flooding in the county and assess the relationship between 'hotspots' and known heritage assets and the potential impact on them. In addition to understanding the immediate threats to Worcestershire's built heritage and historic environment, the project has studied the practices of mitigation, adaption, response and recovery, providing lessons for emergency response.

LV21 CAVES AS RITUALISED SPACES FROM THE IBERIAN IRON AGE UNTIL TODAY

Sonia Machaue López

UNIVERSITAT DE VALÈNCIA

The Iberian people were connected with their deities in many different sacred places. In archaeological research, however, caves-shires remain unknown. The cavities have been considered as symbolic places over the centuries. A few of them, situated in liminal territories, became ritualised places in the Iberian Iron Age (6th century BC to 1st century BC).

The geographic space of this phenomenon, documented throughout the Mediterranean coast of Spain, and the variety of their materials (including ceramics, metals, charcoal, fauna and human remains) reveal regional and cultural variations. The study of these caves, spanning time and space, allows us to approach not only the ritual practices produced by the Iberian people in these places, but also provides insight into the relationship between them and the settlements which these spaces involve. The remains are increasingly bringing to light very complex ritual contexts.

Furthermore, some of these caves served as connecting places with the deities and also between the people who came to them. In fact, the rituality of these spaces is still in force in some of these caves, which are visited in traditional ceremonies in the 21st.

LV30 FUTURE THINKING ON CARVED STONES IN SCOTLAND

Sally Foster

UNIVERSITY OF STIRLING

This poster summarises the progress of an ongoing strategic effort to link, inspire, mobilise and help direct diffuse communities with an interest in and responsibility for carved stones by creating a Scottish Archaeology Research Framework for carved stones. The project is supported by the Royal Society of Edinburgh, Historic Scotland, the National Committee on Carved Stones in Scotland (NCCSS) and others, led by Dr Sally Foster (PI: University of Stirling) and Dr Katherine Forsyth (CI: University of Glasgow).

Carved stones - prehistoric rock art, Roman, early medieval, later medieval and post-Reformation sculpture, architectural sculpture, architectural fragments and gravestones and memorials - include some of Scotland's most characteristic monuments and some of its most significant contributions to European art and culture. There is a general under-appreciation of the significance of these carved stones and the threats to them. Analysis by the NCCSS in 2013 suggests addressing the underlying causes of this requires targeted research into what carved stones can tell us about both the past (their historical context) and the present (social value, national and community identity, etc.). Research is needed also into curatorial issues including the identification of best practice. As both 'monument' and 'artefact', carved stones often transgress traditional curatorial and disciplinary lines — they are prone to 'fall through the gaps' and thereby suffer intellectual and curatorial neglect. Understanding this rich resource is an interdisciplinary undertaking drawing on both humanities and sciences, and involving not only the academic community *per se* but also the fragmented heritage and stewardship sectors.

LV10 "HARRY WAS HERE 1945": GRAFFITI AND THE NAZI OCCUPATION OF ALDERNEY

Caroline Sturdy Colls¹, Kevin Colls², Rachel Bolton-King², Tim Harris², Czelsie Weston²

¹STAFFORDSHIRE UNIVERSITY, ²

During the Second World War, the island of Alderney in the British Channel Islands was occupied by the Nazis, who intended to use the island as a strategically advantageous position from which they could invade mainland Britain. In order to facilitate the large-scale construction of fortifications, thousands of people were sent there from across Europe to undertake forced labour. Housed in a network of camps, these prisoners were held in appalling living conditions, beatings and ill-treatment were common, and many were literally worked to death. These prisoners and their overseers left behind a complex body of graffiti which attests to their existence on the island. Likewise, the fortifications built by the prisoners have seen various layers of graffiti added to them over the years by people who have inhabited or visited Alderney.

This paper will consider the contribution of this graffiti to our knowledge about the events of the Occupation and the various ways it can be used to recall individual and collective experiences. As some of the graffiti takes the form of names of prisoners, the role of this evidence in identifying individuals will also be considered. Graffiti created since the end of the Second World War will also be addressed in order to evaluate how these motifs can help assess past and present attitudes towards the Occupation. Looking to the future, this paper will consider the role of graffiti as evidence of recent conflict.

LV4 ARCHAEOLOGICAL PROSPECTION AND NATURAL RISK MANAGEMENT IN PREHISTORIC SITES FROM EASTERN ROMANIA

Andrei Asăndulesei, Cristi Nicu, Cristian Stoleriu, Felix Tencariu, Radu Balaur, Ștefan Caliniuc, Alin Mihu-Pintilie, Radu Pirnau, Robin Brigand, Mihaela Asăndulesei, Gheorhe Romanescu, Vasile Cotiuță

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

Presently, in the field of archaeology it is universally accepted that the archaeological sites are more than ever being endangered by natural and human factors. As a result of their activity, archaeologists are nowadays fully aware of this acute 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 manage should demand from the scientific community to employ modern techniques of analysing the archaeological sites, which can turn into 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 non-destructive techniques (aerial photography, magnetometry, GPR, electrical resistivity, terrestrial 3D laser scanning), while acknowledging and valuing the complexity of prehistoric archaeological sites. In direct connection we will consider the identification, evaluation and monitoring of the endangered sites, either by natural or human factors, based on the same

unified research model, comprising the methods and principles mentioned above. Furthermore, a careful examination of the geomorphological and morphometric features and especially of the dynamics of the erosive processes completes the obtained information body.

LV4 DEVELOPING TERRESTRIAL LASER SCANNING FOR COASTAL ARCHAEOLOGICAL SITES AND SITE CONDITION

Michael Lobb, A. G. Brown, Julian Leyland

UNIVERSITY OF SOUTHAMPTON

Rapid Coastal Zone Surveys (RCZS) have revealed an increased number of archaeological sites along the UK coastline that are threatened by a combination of sea level rise, increased storminess and coastal development. These sites, which range in age from Palaeolithic to the post-Medieval, are a finite part of our heritage and should be recorded as fully as possible before they are lost forever.

Terrestrial laser scanning (TLS) has the capability of recording such sites with great accuracy and simultaneously providing the data required for the estimation of erosion rates, which can in turn be used to predict site loss rates. Some of the most threatened environments are difficult to record or excavate due to the restricted time available in the tidal cycle but need to be recorded intensively. This new approach offers a solution to these issues.

This talk will present a range of sites at which TLS survey has been applied as a method of recording and analysing coastal and intertidal archaeology sites, and in particular will focus on the site of Low Hauxley, Northumberland, which was heavily hit by the winter storms of 2013/4. Repeated survey of the site over the course of a year has provided a measurable analysis of the effects of the winter storms on the archaeological and palaeo-environmental resource.

LV3 METAL ARTEFACT DECAY AND THE BURIAL ENVIRONMENT: THE EFFECT OF LAND USE ON BURIED HERITAGE

Samantha Rowe

UNIVERSITY OF HUDDERSFIELD

In recent years the acceleration of artefact decay in plough soils has been identified as an issue. The reason behind this acceleration is not well understood though research has identified connections between the decay of metallic archaeological artefacts and the acidification of soils, as well as the use of agro-chemicals and machinery on farmland.

Unstratified artefacts in plough soils are particularly vulnerable to acts of decay as they are more exposed to the elements, erosion, and human and animal activities. I aim to highlight the effect agricultural land use can have on the condition and survivability of artefacts in unstratified contexts. One site type particularly vulnerable to this type of deterioration is battlefields where a large proportion of historic evidence survives in the form of artefact scatters in top soil deposits. I will use case studies to assess whether there is a positive correlation between the corrosion of battle-related artefacts and their burial contexts.

Studying the relationship between metallic artefacts and their burial environments will help to understand the reason behind what causes metal objects to decay and which objects may be more prone to decay in particular environments. In future it is a hope that an effective strategy can be established to manage and protect buried archaeological material whilst sustaining effective farming practices.

RI5 THE LATE BRONZE AGE OF THE SOUTHERN TRANSURALS: FORMATION OF A NEW TYPE OF SOCIETY BETWEEN RIVERS URSHAK AND DEMA

Nikolai Shcherbakov, Iia Shuteleva, Tatiana Leonova

BASHKIR STATE PEDAGOGICAL UNIVERSITY NAMED AFTER MAKMULLA, LABORATORY OF METHOD AND METHODOLOGY OF HUMAN RESEARCH

The territory of the Southern Transurals between Urshak river and Demä river was a unique archaeological microdistrict Late Bronze Age. For the first time this archaeological microdistrict was defined in 1964 K.V. Salnikov. This archaeological district called Kazburun archaeological microdistrict. Kazburun archaeological microdistrict belongs to homogeneous in archeological material interfluvium of Urshak river and Demä river (2657 km²), where 44 settlements and 16 burial mounds are located. In this area there are no monuments Early and Middle Bronze Age. We have a chronological interval between the Neolithic-Chalcolithic (Sauze II – SPb-943 4230–3780 BC, Ki-14432 4500–4330 BC, Ki-15071 2630–2340 BC) and Late Bronze Age (the AMS results can be grouped Beta Analytic-347343 1890 – 1750 BC). On this vast territory of Late Bronze Age was the turning-points in the formation of a new type of society. Kazburun archaeological microdistrict (Beta-347344 1930 – 1750 BC) was identified, which monuments materials were used as a base for a complex of natural science investigation methods (radiocarbon dating, ADNA, paleopedology, tracology, osteologic analysis, bronze metallographic analysis, application of ceramics spectral, technical and process analysis methods, etc.). The Late Bronze Age on the territory of Southern Transurals is represented by plenty of archeological cultures and population groups: Abashevskaya, Srubnaya and Andronovskaya (Alakulskaya) archaeological cultures. Interaction of these population groups constitutes special mixed material culture which (at the same time) preserves stable common features of independent Abashevskaya, Srubnaya and Andronovskaya (Alakulskaya) archaeological cultures, as well as creates stable local features.

LV17 THE SYSTEM OF WATER CANAL AND DAMS IN WOODLANDS OF ŠUMAVA MOUNTAINS (SW CZECH REPUBLIC) FOR TRANSPORT OF TIMBER WOOD IN 19TH CENTURY

Tereza Blazkova

FACULTY OF HUMANITIES, CHARLES UNIVERSITY IN PRAGUE

The industrialisation of Bohemia in the 19th century spurred not only the building of factories, urban expansion, development of mining areas and extension of transport infrastructure in the form of railways – it also had an influence which reached more remote areas. Such remote areas are not usually defined as industrial at all.

The project focuses on interdisciplinary study of unique wood transport system. The large canal system enabled the transport of timber – using water power – from these remote mountain locations to the urban timber markets. The Vchynicko-Tetovský Canal, 15 km long, transported firewood to the Otava and Vltava rivers, and Prague. But the canal system was not only the canal itself, which bypasses an unnavigable section of the river Vydra. But also eight artificial water reservoirs were constructed along mountain streams (at an altitude of approximately 1100 metres above sea level) and these reservoirs could be drained to float and navigate the timber. Trees were felled in the winter and the timber was floated in the spring when the winter snow had melted and reservoir levels were at an optimum height. We have made there a non destructive archaeological research on the dams, which are in 1st zones of national park of Šumava mountains now. We have compared the data with cartographic and written sources and we can say, that the landscape survey can tell us important informations about the dams and unique timber transport system from 19th century, which has changed the landscape till today.

LV3 LOST LEGACIES: THE DIMINISHING RESOURCE OF ORKNEY'S COASTAL HERITAGE.

Julie Gibson

ORKNEY ISLANDS COUNCIL/LECTURER UHI

About 100 years ago a sea wall was built facing the Atlantic in the centre of an eroding bay. This protects Skara Brae, Orkney's World Heritage Neolithic village against the force of the waves. That wall still stands. In the 1920s and 30's in the face of a grave national depression, there was investment in this site for the purpose of understanding and for exhibiting archaeological marvels to the public. Gordon Childe, one of Europe's leading archaeologists was commissioned to "clear out Skara Brae". His legacy and that of the then government are his researches and the site of Skara Brae, still in state care. It is central to the tourism industry of our small, ultra rural, islands today, where half our visitors state they choose to come to Orkney for the archaeology. Tourism is Orkney's second industry.

One third of all known archaeological sites in Orkney are on the coast and the sea is rapidly eroding them: The more interesting and complex these sites are the less likely it is that state money can be had to excavate and preserve any part of them. Sites as important and with potential as good as Skara Brae are being left to fall into the sea, and a community is left watching the erosion of its heritage

Excavation and sea walls worked together can create new attractions for our future, a positive legacy to be evaluated against a 50 or 100 year return.

LV26 ARCHAEO LANDSCAPES EUROPE - A PROJECT AS A WORKING GROUP?

Axel Posluschny

ROMAN-GERMANIC COMMISSION OF THE GERMAN ARCHAEOLOGICAL INSTITUTE

The EU funded project *ArchaeoLandscapes Europe* (<http://www.arcland.eu>) has been accepted as an EAA Working Group in 2013.

As the project will officially end in September 2015 (though the network set up within the project will still be alive and active after the EU funding has come to an end) my contribution as a round-table discussant will less focus on the experiences made but more on the hopes and expectations for the future, connected with this Working Group status.

LV12 CHALK AND TALK VERSUS HANDS-ON SEMINAR

Beatrix Nutz

INSTITUTE FOR ARCHAEOLOGY, UNIVERSITY OF INNSBRUCK

Teaching textile archaeology at university level can be approached in various ways. The conventional lecture that we all remember from school and which – let's be honest – had most of us bored to tears, or a more hands-on approach. Ex-cathedra teaching may be applied in an introductory class to impart basic knowledge on archaeological textiles in general, but for advanced courses small-group work should be considered. Especially, if possible, letting students study extant textiles and garments to catch their attention and arouse more interest in textile archaeology.

Lectures at the University of Innsbruck are a combination of both frontal teaching and group work. In an advanced course for students in the master's programme the lecture started off with the chalk and talk introduction into textile techniques and the basic knowledge needed for textile research such as weave construction. In the following hands-on approach the students were given fragments of medieval garments and asked to reconstruct the cut and patterns and to consider the seams and hems used in tailoring under supervision of the lecturer. This course of action proved to be a lot more satisfying than the

regular instruction encountered in most other lectures and provided the students with the practical skills needed to start their own textile research.

The aim is to contribute the knowledge and experience gained by conducting a hands-on seminar on archaeological textiles to the roundtable discussion in hope of providing information and new ideas to be added to the teaching of archaeological textiles at university level.

LV12 TEACHING TEXTILE ARCHAEOLOGY IN THE UK

Margarita Gleba

MCDONALD INSTITUTE FOR ARCHAEOLOGICAL RESEARCH, UNIVERSITY OF CAMBRIDGE

Archaeological textile studies have a long and eminent history in the UK. Elisabeth and Grace Crowfoot, Peter Collingwood, John Peter Wild, Penelope Walton Rogers, Frances Pritchard, Hero Granger-Taylor are just some among the most prominent textile scholars in the field. Yet, few if any university level courses integrate archaeological textiles as part of past material culture on the same level they consider lithic, ceramic, metal and other non-perishable artefacts (I do not include conservation courses here). The reasons for this are manifold and complex, however textiles can and should be incorporated into both specialised and, more importantly, general courses of archaeology and history: not only do they represent one of the earliest human technologies and one of the most labour-intensive materials, they also provide a tremendous amount of information about social, economic, agricultural, environmental and technological aspects of practically all past human societies. In this paper, I discuss my experience of teaching a term-length MA level course Textile Archaeology at the Institute of Archaeology, University College London, as well as including archaeological textiles into other courses at UCL, University of Cambridge and universities in other countries. Possible strategies for further integrating textiles into mainstream archaeological teaching are proposed, such as incorporating discussions and case studies of archaeological textiles into textbooks.

LV29 SHARING HISTORICAL SPATIAL DATA FOR BUILT ENVIRONMENT ANALYSES

Benjamin Vis

UNIVERSITY OF KENT

I have a vested interest in large-scale directives and projects that would enable us to consult the availability, explore, and share spatial datasets created by archaeology and associated historical disciplines, in order to offer a comparative spatial data sharing facility for urban built environment data through time and across cultures supporting application of formal analytical methods. Data may vary from remotely sensed built environments to building surveys done by architectural historians. The lack of infrastructure on the availability of coverage, the relationship to authoritative mappings of current land use/occupation, and the ability to make available, share, and explore existing datasets in a spatially anchored framework is debilitating. To ensure sufficient use for sustainably maintained systems it seems necessary that infrastructures serve several purposes, such as environmental and heritage management. The fact that in INSPIRE archaeology and heritage are under-consulted and thus under-represented is an oversight (cf. LiDAR data acquisition for historical use). If nothing else, it holds true that arguing the relevance of historical data requires improved access to extant resources, while improved access to extant resources likely increases the relevance of archaeological research. A layered spatial data infrastructure related to data acquired for other uses may seem a pipe dream, but as a discipline we should seek to establish the presence of heritage data and its uses in major directives, in line with legislation coupling archaeology to environmental surveys and planning concerns. My interest in such infrastructure is to enable comparative analytical research on built environment layouts.

LV12 RESEARCH ON SKILLS IN ACADEMIA. EXPERIMENTAL ARCHAEOLOGY AS A TOOL FOR TEACHING TEXTILE PRODUCTION (AT THE UNIVERSITY OF WARSAW)

Agata Ulanowska

INSTITUTE OF ARCHAEOLOGY, UNIVERSITY OF WARSAW

Textile manufacturing has been a complex craft consisting of many skills with an expanded and varied chaîne opératoire. Therefore, its comprehensive understanding requires adopting various methodological approaches, amongst which experimental archaeology seems to be a must. Archaeological experiments are designed to explain the functionality of textile tools, to clarify the consecutive steps in textile production (from the preparation of fibre and spinning to finishing cloths), and to visualize the high input of work required by cloth/fabric making. Wear marks on textiles and decomposition processes are analyzed by using laboratory tests.

Experimental archaeology may also be successfully applied as a teaching tool in academic courses focused on textile production in societies of the past. In my paper, I draw on my five years' experience in teaching textile production in Bronze Age Greece at the Institute of Archaeology, University of Warsaw.

I argue that students who have gained some hands-on experience in textile production techniques are better prepared to analyze archaeological remains and artefacts, better understand the functions of textile tools and, finally, are they become more aware what textile manufacturing was all about and how it was organized in practice. Moreover, although most of the experiments have been designed as an explanatory introduction of the basic "body knowledge" of the textile craft, students with their academic approach to textile studies are able to make observations of a more scholarly nature.

LV26 EXPERIENCE FROM THE WG ON FARMING, FORESTRY AND RURAL LAND MANAGEMENT

Karl Cordemans

VLAAMSE LANDMAATSCHAPPIJ

As chair of the Working group on farming, forestry and rural land management I will present the experiences of our working group as such in the EAA and highlight some of the benefits and mark possible opportunities for the future.

LV13 ARCHAEOLOGY AND STATE: THE CASE OF EASTERN EUROPE

Aleksandr Diachenko

INSTITUTE OF ARCHAEOLOGY OF THE NAS OF UKRAINE

This paper discusses the recent influences of states on archaeology in Eastern Europe (geographical grouping according to the United Nations Statistics Division). In this respect, the following issues will be considered. 1) What is the current situation of a nation-state? Countries in this region are members or non-members of international units; some of these countries are nation-states, while other countries are multinational states. Does this make any difference in how states influence archaeology? 2) What is the impact of archaeological traditions on the recent development of the discipline? 3) Do states influence archaeology at different levels (i.e. academics, funding and administrating, education, cultural heritage protection, archaeology and society)? To what extent, where and why is archaeology limited by nation-states borders? 4) Does archaeology still instigate nationalism? 5) And, finally, is archaeology obstructed by insensible nation-state politics?

LV1 ANALOGUE/DIGITAL: SPECTRUM, LANDSCAPE, MINEFIELD?

Colleen Morgan

UNIVERSITY OF YORK

In this introduction to the Analogue/Digital Roundtable, I survey the landscape of Analogue and Digital archaeology and propose discussion topics for the roundtable discussants.

LV29 WHERE IS CULTURAL HERITAGE IN INSPIRE?

Peter McKeague¹, Stefano Campana²

¹ROYAL COMMISSION ON THE ANCIENT AND HISTORICAL MONUMENTS OF SCOTLAND, ²UNIVERSITY OF SIENA

The INSPIRE (Infrastructure for Spatial Information in Europe) Directive (2007) mandates all European Union countries to share environmentally related datasets so that they can be easily accessed by other public organisations within their own and neighbouring countries. Key to delivering INSPIRE is the establishment of Spatial Data Infrastructures (SDIs) providing a framework for coordinating the policies, infrastructure and standards needed to acquire, process, distribute, use, maintain and preserve spatial data. Archaeological information is inherently spatial yet, despite the environmental focus of INSPIRE, there is limited guidance for archaeological datasets. INSPIRE only applies to data held by public authorities. Those creating data in academia or in the private sector are not required to contribute spatial data. They may also face restrictions in using data released through INSPIRE. Consequently engagement with INSPIRE by those working in cultural heritage is very limited and fractured. There is a case for developing a thematic SDI for cultural heritage data. However what are the benefits and drawbacks of developing such an SDI? How does spatial data relate to existing digital infrastructure initiatives – ARIADNE and Europeana? Where are the exemplar datasets highlighting best practice in gathering and sharing data?

LV13 TO RE-NEGOTIATE HERITAGE AND CITIZENSHIP BEYOND ESSENTIALISM

Anders Högberg

LINNAEUS UNIVERSITY

The heritage sector all through Europe and beyond is historically linked to the task of providing nations with glorious myths of origin within a metaphysical framework of essentialism. This is now changing. With ambitions to pluralizing the past, heritage in present day multicultural societies increasingly serves as individual or ethnical projects to provide citizens with a cultural identity. But, what is actually new in how this effects the way archaeology and the heritage sector addresses issues on heritage and citizenship?

Based on a recently conducted study on how Swedish archaeology and the heritage sector have worked with issues of multiculturalism and plurality between the years 2002 and 2012, I will discuss how the heritage sector tends to re-negotiate the essentialism of the nation state in theory, but at the same time maintains essentialism as the driving force in professional practices and interpretative frameworks.

To go beyond essentialism, I propose that archaeology and the heritage sector need to re-think the concept of heritage; from something inherited to something to be chosen, from a thing (a subject) to a process (a verb). Doing a re-think of the concept of citizenship is also needed; from a definition of who anyone is (based on ethnicity and origin) to what anyone does (based on future opportunities and obligations).

LV12 THE RESEARCH, PRESENTATION AND TEACHING OF ARCHAEOLOGICAL TEXTILE IN THE CZECH REPUBLIC

Helena Brezinova¹, Milena Bravermanova²

¹INSTITUTE OF ARCHAEOLOGY CAS, ²PRAGUE CASTLE ADMINISTRATION

An overview of the structure and organisation of textile research in the Czech Republic, an introduction to the most important projects and information regarding content, feedback and experience with the semester lecture cycle entitled 'Textile Production in the Prehistoric Period and the Early to High Middle Ages', which has been regularly taught at three universities in the Czech Republic for eight years now. (Supported by Czech Science Foundation project 14-06451S).

LV1 MATERIAL OBJECTS AND DIGITAL AVATARS

Kostas Arvanitis

UNIVERSITY OF MANCHESTER

In this presentation I argue that museum objects continue to have social lives through their 'digital avatars': digital representations and applications of material objects and their information that 'live' online and participate in people's everyday digital lives. Sometimes those avatars may transmit signals back to the museum, or the museum may be able to go out and look for their traces: the traces the avatars leave as they move in and out of different online contexts and networks. These traces can tell us more about the ways these avatars and the objects they represent continue to be understood, used, appreciated and valued. In this context then, the museum avatars represent the digital lives of material museum objects; or differently, they live the lives of the museum objects online.

Some avatars eventually may 'come home', e.g. in the museum. For example, avatars in the form of a mobile phone application in the back pocket of a visitor. This return at home will mean a re-connection of the avatar with the original museum object; a connection between the digital and the material. What happens when the avatar and the original find themselves in the same physical space? Can there be an interaction between the mobile avatar and its physical counterpart? And to push this further, what could happen if the material object itself and not only its avatar is digitally connected? What would be the life of that hybrid object that lives both onsite and online and is both material and digital?

LV13 THE NATION-STATE AS AN ARCHAEOLOGICAL CONTEXT

Nathan Schlanger

ECOLE NATIONALE DES CHARTES

The practice of archaeology has changed considerably over the past 70 years, from the World War to the Cold War and beyond, via decolonisation and globalisation. As we stand now, it seems to me that the nation-state (at least in its participatory-democratic, occidental variant) does not so much provide a "project" for archaeology as a "context" for its exercise, a context which, ideally, provides guidance, means and oversight towards securing the common good with regards to scientific knowledge and heritage management. At a time when freedom of expression needs renewed protection, and when financial probity is so sorely lacking, the admittedly often frustrating cumbersome machinery of the nation-state has a renewed vital role to play.

LV29 BRIDGING THE GAPP: THE GAS AND PRESERVATION PARTNERSHIP NATIONWIDE HERITAGE RESOURCES INVENTORY

Donn Grenda¹, Richard Ciolek-Torello¹, Michael Heilen¹, Marion Werkheiser²

¹STATISTICAL RESEARCH, INC., ²CULTURAL HERITAGE PARTNERS, PLLC

Shale gas development is a major component of the commitment by the United States for domestic energy development. Shale formations are located in 30 U.S. states and contain over 230,000 archaeological sites, which are at risk. Problems we face include the fact that only 6 percent of the potentially affected areas have been surveyed. Furthermore, in the United States as in Europe, many environmental spatial data are developed and managed under a common infrastructure and are made available through a few clearinghouse portals where multiple environmental datasets are available nationwide. By contrast, cultural heritage resource data are held in individual state repositories with different recording standards and access protocols. GAPP partnership between energy developers and private cultural heritage managers to seek collaborative solutions that will facilitate responsible shale development while protecting heritage sites throughout the nation. The GAPP initiative aims at developing a national GIS database of known archaeological and other heritage data (similar to the SDIs associated with INSPIRE) and screening tools to identify high sensitivity areas. There are a variety of approaches that we can take such as appending archaeological data to existing environmental databases or creating a separate cultural heritage database. There are also challenges to be resolved such as who owns the data and who has access to it, where will the data be stored, how will the data be standardized, and who will pay for all of this. In this presentation, we discuss these issues and our proposed approach.

LV26 CO-OPERATION ACROSS EAA GROUPS

John Collis

UNIVERSITY OF SHEFFIELD (RETIRED)

One of the strengths of the EAA conferences is that it brings together cross-national groups in specialist areas such as legislation, education, training, field methods, etc. It is useful every-so-often if these different groups share a session in which ideas and problems can be discussed between the different professional specialisms. This emerged in Istanbul in the Working Group on Farming, Forestry and Rural Land Management Round Table where the problem came up of interesting students in Landscape Archaeology and of finding people trained in the necessary skills to enter this important field. This in fact raises interesting questions on the theory and methodology of archaeology (what is it we are trying to do?) and how we teach it. My

generation was trained in a traditional way in which we were primarily educated to become period specialists (Palaeolithic, Prehistoric, Roman, Medieval and Industrial archaeologists) and dealing with methodology in excavation methods, dating, artefact analysis, etc. However in many professional posts we are now expected to cross-cut these specialisms, in excavation (multi-period urban sites), in 'curatorial' roles overseeing rescue excavation, or in new subject areas such as the evolution of landscapes. To what extent does our university training measure up to the new demands and are the present structures adequate to deliver (e.g. the small specialised departments in many countries rather than the large departments with a range of specialists)?

LV26 DISCUSSION

Timothy Darvill

BOURNEMOUTH UNIVERSITY, UK

Discussant for the round table.

LV12 HOW TEXTILE STUDIES WERE INTRODUCED INTO UNIVERSITY PROGRAM IN TORUŃ

Małgorzata Grupa

INSTYTUT ARCHEOLOGII UMK W TORUNIU

Research works on textiles started in the Institute of Archaeology in Torun at the end of the 80s of the last century accompanied by the Institute protests, as nobody wanted to recognize the subject as a proper research direction. Officially, the program on textile studies was not introduced, but since 1994 The Laboratory of Conservation has been conducting works on restoration, conservation and reconstruction of archaeological costumes, supported by technological analyses. Textiles have never been treated even as a side source of information and it is difficult to fight with this opinion, therefore only the cooperation with young researchers can bring any change in the attitude towards the problem. Next step was to prepare general university lecture, titled: 'Silk in Poland' (11th – 19th c), which is popular with students, not only of Archaeology Department, but also other specializations. Material presented during classes and lectures comes from archaeological excavations, conducted in Poland, completed with rich Western iconography. It is not complicated problem to prove that Byzantine, early mediaeval band with metal braiding delivers much more information than a sword found nearby. Unfortunately, archaeologists perceive the problem in an opposite way. The base of the work is creating data collection and material publishing. Here another problem arises because a sword or a spur is much more spectacular than a piece of brownish discolored fabric. However it is observable more and more young scientists are interested and involved in archaeological textiles and their history.

LV26 WORKING TOWARDS AN EUROPEAN PUBLIC ARCHAEOLOGY: THE WGPA

Jaime Almansa-Sanchez¹, Lorna Richardson²

¹JAS ARQUEOLOGIA, ²UCL CENTRE FOR DIGITAL HUMANITIES

Since the first contacts in Helsinki 2012, a group of European archaeologists decided to start a new working group to keep the debate on public archaeology going on and work towards a better practice. Since then, the WGPA held its first meeting in Pilsen 2013 revisiting the definition of public archaeology and setting an agenda for the group.

In this agenda:

- A schedule of round tables: Istanbul 2014 (theory), Glasgow 2015 (politics) and Vilnius 2016 (economy).
- A plan to engage with more colleagues across Europe and build a database of interested professionals.
- Ideas to bring to the EAA Board.
- Encouraging relations with other similar groups.

After the situation experienced in Istanbul, some organizational issues raised. The set of real open round tables has probably been one of our main achievements in our short live. Now is time to settle the group and bring work beyond the meetings.

LV1 FIELD WORK IN THE CUBICLE, AND OTHER COMPUTER HISTORIES

Christine Finn

INDEPENDENT SCHOLAR/FSA

The author has been championing the field of retro technology since 1999 (see *Artifacts: an Archaeologist's Year in Silicon Valley*, MIT Press 2001). Now that the pioneering work of early computer collectors is being recognised, not least because of concerns about lost data, she returns to the roots of her research to put into context this newly emergent branch of technology history. In a pre-history, of a kind, the author considers the practice of the first retro technologists, and their motivation, and why the attentions of an academic discipline are turning to what is has been often regarded as a hobbyist activity.

LV3 ARCHAEOLOGY AT A RURAL CROSSROADS: TOWARDS AN INTEGRATED APPROACH TO ARCHAEOLOGICAL HERITAGE MANAGE

Jonathan Wordsworth

ARCHAEOLOGY SCOTLAND

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. Following the success of our 10th Anniversary meeting in Istanbul last year, we are proposing to run a round table session on integrating managing the historic environment with other rural agendas. How can archaeological heritage benefit from other rural developments? Besides discussion on the EU agri-environment programme, we will also be looking at examples of integrated heritage and environmental management, food and heritage, landscape protection and communities and heritage. The session will outline best practice and how heritage management can be better integrated with other rural agendas.

LV12 SHIFTING THE PERSPECTIVE: MAKING TEXTILE STUDIES USEFUL

Penelope Walton Rogers

THE ANGLO-SAXON LABORATORY

The speaker, an archaeological project manager who also lectures in university programmes, offers a view from the standpoint of professional archaeology. She would like to challenge several myths concerning the recovery of textiles from archaeological excavations. She would also contend that textiles are no longer the poor relation of artefact studies: within her lifetime, the subject has advanced in parallel with the advancement of women archaeologists. She will argue that there is now a genuine desire for knowledge of the subject amongst archaeologists of both sexes.

The question is, how do the universities respond to this need for knowledge and how do we train the next generation of archaeologists, so that they have the skills to assimilate textile studies into their own work?

It can be argued that understanding what professional and academic archaeologists want to extract from the subject will help to improve its integration. Some simple strategies will be suggested, with a view to helping students to relate textile studies to other subjects in their university curriculum.

LV3 FOLLOWING IN THE WAKE OF CANUTE: A PERSPECTIVE FROM THE NEW FOREST NATIONAL PARK

Frank Green

NEW FOREST NATIONAL PARK AUTHORITY

King Canute, demonstrated successfully that secular authorities had no power over the elements. Well might we think otherwise perhaps at our peril!

This paper will provide a case study from the protected and unique landscape of the New Forest National Park and coastline. The 'Forest' has one of the largest single CAP land management schemes in Europe. The area is subject to rigorous data collection for understanding its landscape and providing information to assist with, conservation, ecosystem services and climate change adaptation issues.

Rising sea levels in the Solent reflect a long continuum of change that has already and continues to impact on archaeological sites, cultural heritage features and built structures that this landscape contains. Models have been produced using Lidar and other data sets that allow the impact of sea level rise on the cultural heritage to be assessed.

The European Water Framework Directive, water environment improvement plans and the CAP land management schemes all impact on existing cultural heritage resources through stream and other restoration projects.

Flash floods and erosion from extreme rainfall conditions cause damage, but can reveal unknown sites, perhaps a mixed blessing, examples will be provided.

The fragile soft geological landscape of the New Forest is particularly vulnerable to the impact of climate change. Constant monitoring is needed to ensure that both cultural and natural resources are being managed and recorded effectively to deal with tide and time.

LV13 THE SIGNIFICANT PAST AND INSIGNIFICANT ARCHAEOLOGIST. WHO INFORMS THE PUBLIC ABOUT THEIR "NATIONAL" PAST? THE CASE OF ROMANIA.

Catalin Popa

FREIE UNIVERSITÄT BERLIN

In this paper I argue that the past remains an important resource for the construction of public national narratives. However, while archaeologists are still the ones producing the material evidence, the "chronicle" of the past, consumed by the general public, is often written by people with little archaeological knowledge. These ideas are exemplified by the current situation in Romania.

The Romanian public has today great interest in the Iron Age people, usually called Dacians. This interest stems from the nationalist-communist propaganda of the 1970s and 1980s, which successfully transformed the Iron Age into a Golden Age

precursor of modern Romania. However, most archaeologists have since retreated to the ivory tower of positivistic science, in which communicating results to the public plays an insignificant role. Nowadays two other groups provide the public with the knowledge they seek. The first includes reenactment troops and consists of people with some archaeological training. Such reenactors portray a heroic and militaristic image of the past, through shows, festivals and media events. The second group contains self-declared specialists with no archaeological background. Through documentaries, social media and magazines, they create a parallel, mythical past, in which ancient Romanians represented the cradle of human civilization. Both of these narratives stand unchallenged by the academic community and can lend themselves easily to nationalistic agendas.

In light of this situation, it is my belief that archaeologists need to come out from the "trenches" and libraries to reengage with the public in the creation of a critical "public past".

LV29 IDEARQ: A CULTURAL HERITAGE SDI FOR ARCHAEOLOGICAL RESEARCH DATA IN THE IBERIAN PENINSULA

Carlos Fernández Freire, Antonio Uriarte González, Rocío Gutiérrez González, Juan Manuel Vicent García
SPANISH NATIONAL RESEARCH COUNCIL

Although there is not a thorough implementation of Cultural Heritage within the INSPIRE Directive, it is included in the Protected Sites theme, therefore considered as reference data. IDEARQ is an interoperable archaeological SDI developed from the Cultural Heritage Application Schema (CHAS), a proposal that endeavors an adequate integration of Cultural Heritage data within INSPIRE. The data model proposed by the CHAS tries to integrate real-world cultural entities (archaeological sites, in this case) inside the INSPIRE Directive, left apart by the Protected Sites Data Specification that focuses only on the legal definition of the protected site.

IDEARQ is a platform aimed at the dissemination of georeferenced archaeological data series of the Iberian Peninsula (mainly analytical as well as documentary), product of the research carried throughout many years within the archaeological research groups in the Institute of History of the Center for Social Sciences and Humanities CCHS of the Spanish National Research Council (CSIC). It has been jointly developed by the GIS Laboratory (uSIG) and the Landscape Archaeology and Remote Sensing Laboratory (LabTel) of CSIC.

It provides OGC-compliant WMS based on the localization of archaeological sites, gathering data relative to the chronological and typological characterization of the sites and related information as a basis for the organization of substantive research results. Nowadays, the platform includes data series on postpaleolithic rock art, radiocarbon dates and bibliography.

LV26 GENERAL PARTICIPATION

E. Nurcan Yalman

CENTER FOR INTERNATIONAL HERITAGE ACTIVITIES AND CULTURAL AWARENESS FOUNDATION, İSTANBUL

I would like to be a general audience in this round table, I'm interested in the networking idea of the working groups.

LV29 USING SPATIAL DATA INFRASTRUCTURES (SDI) WITHIN THE ARCHAEOLOGY AND ASSOCIATED DISCIPLINES

Anthony Corns, Robert Shaw

THE DISCOVERY PROGRAMME

Over the past 25 years the ability to collect detailed spatial data for archaeological research, e.g. high resolution remote sensing data for the purposes of has revolutionised our knowledge and management of our shared heritage. However, once processed much of this data is delivered through the traditional medium of the printed page. The full research potential of this data and its ability to be reused has therefore never been fully realized. In addition, much of this data is costly to collect; particularly in the case of lidar, therefore, the ability to reuse this remote sensing data is economically advantageous to the archaeological domain.

This roundtable will provide the opportunity to explore the sharing and reuse of remote sensing data within the context of spatial data infrastructures (SDI). By extending and developing the established EU INSPIRE directive, interoperable services including web coverage services (WCS), web feature services (WFS), web mapping services (WMS), and supporting metadata schemas can encourage their reuse and sharing. In addition, the development of open access to shared algorithms and processing tool kits, specifically developed for the archaeological community, enables new archaeological discoveries to be made within this available data. In addition the efforts and research to share and reuse data carried out within the EU co-funded ARIADNE (www.ariadne-infrastructure.eu) and ArLand (www.arland.eu) projects will be presented.

LV13 SCANDINAVIA: IS THERE AN ALTERNATIVE TO THE NATION NARRATIVE?

Christopher Prescott

DEPT. OF ARCHAEOLOGY, CONSERVATION AND HISTORY, UNIVERSITY OF OSLO

National agendas fuelled the rise of historical disciplines in Scandinavia. A lack of written sources gave archaeology a privileged position in the postulated co-development of people, culture and environment at the heart of nation narratives. National

agendas engendered comprehensive legislation, powerful archaeological resource management, and access to prestige and resources.

For political and scientific reasons the overt national rhetoric was abandoned in archaeology from the 1970's. But was it replaced by "progressive" identity narratives that are not substantially different? Globalisation is pressing a number of issues and this paper discusses:

- With mass migration into Scandinavia, the taken-for-granted identity narratives of homogeneous populations are under pressure, but do the alternatives engage the heterogeneous public?
- The valid critique of national agendas and their premises (like local development) led to an abandonment of research into the history of cultural institutions (like Indo-European language) that were perceived as part and parcel of nationalism – leaving the fields uncontested to fringe groups and chauvinist agendas.
- The extreme right has also appropriated "progressive" archaeological narratives concerned with ecology, identity, authenticity etc.
- Private antiquities collectors appeal to internationalist arguments, creating an altruistic defense for looting and smuggling that destroys our source materials.
- International agreements have limited impact on illicit trade, and in practice strong national antiquities services protect archaeological sites on the supply side, whilst national legislation in recipient countries inhibit the trade on the demand end.

LV12 DOUBLE DUTCH: THINKING ABOUT ARCHAEOLOGICAL TEXTILE RESEARCH IN THE NETHERLANDS

Ineke Joosten¹, Liesbeth Theunissen¹, Maarten Van Bommel²

¹CULTURAL HERITAGE AGENCY OF THE NETHERLANDS (RCE), ²UNIVERSITY OF AMSTERDAM

Archaeology in the Netherlands has passed the hectic world of developer-led archaeological projects. Now, moving in smooth waters, it is time to reflect on the new gained knowledge. Although the preservation conditions in the Dutch delta are very favourable, (prehistoric) textile finds are rare. However, a good overview of archaeological textiles present in depots or museums is not available and the number is likely to be underestimated. Textile finds and their potential are not always fully recognized and treated in such way that the maximum amount of information is subtracted nor preserved in the favourable manner.

In addition, the focus on university level is weak and there is a gap of knowledge between the archaeologist excavating a site and a conservator responsible for the long-term preservation of these valuable objects. To make it even more complicated, both the archaeologist and the conservator are not fully aware of the potential of scientific research which could add knowledge about the history, the making and the origin of archaeological textile on the one hand and help preservation and conservation on the other hand. So, the question is how to convert this current situation to a strong research field, preferably on the international level as archaeology is not bound to the present national borders and means are scarce.

LV13 ARCHAEOLOGY WITHIN, ARCHAEOLOGY WITHOUT

Jeff Sanders

SOCIETY OF ANTIQUARIES OF SCOTLAND

Nation-states today differ from their 19th and 20th century equivalents, but they still impact upon archaeology. By looking outwards from within *part* of a nation state, I will explore the forms that this can take. From a Scotland-based perspective, I will look at how various boundaries, and the aims and objectives of those responsible for them, affect archaeological work. As well as looking at institutional boundaries and their effect on archaeology, I will also explore how archaeological work, and the stories we produce, can both question or reinforce the nation state. I will then look outside the UK, to our near neighbours, in order to compare the nature of the impact of the nation state on archaeology.

LV3 THE RURAL DEVELOPMENT PROGRAMME FOR ENGLAND 2015-2020

Amanda Chadburn, Vince Holyoak

ENGLISH HERITAGE (FROM 1ST APRIL HISTORIC ENGLAND)

On 13th February 2015, the European Commission announced they had formally approved the Rural Development Programme for England, along with a number of others, as part of the CAP. This means that the replacement for the Environmental Stewardship Scheme can now go ahead in England. This paper will briefly set out the parameters of the new scheme – the Countryside Stewardship Scheme – and will set out the many changes between it and the previous one. It will also discuss the implications for the historic environment.

LV1 REDEFINING MEDIA IN ARCHAEOLOGY

Sara Perry

UNIVERSITY OF YORK

Here I reflect on the nature of media and the 'artefact' in archaeology, aiming to launch a debate about current relations between analogue and digital materials in the discipline. I seek to understand how physical materials and digital materials (as created, applied or re-constructed by archaeologists) are shaping one another, how these intersections are altering the unique

dimensions of each, and how such work is shifting (or solidifying) human understandings of the 'real', the 'thing', the 'fact', presence, embodiment and knowledge-making more generally. Given that archaeologists are understood as the experts on material culture and materiality, I argue that we are well-placed to dissect and anticipate conceptual and methodological discussions about the context of, continuities between, and technological changes to physical and digital artefacts overall.

LV12 EXPERIMENTAL ARCHAEOLOGY LAB: INCORPORATING EXPERIMENTAL ARCHAEOLOGY TECHNIQUES INTO TEXTILE STUDIES AND CURRICULUM

Barbara Klessig

HUMBOLDT STATE UNIVERSITY

The use of experimental archaeology has become an important practice in understanding the processes of textile production and the tools used in creating textiles from the past. In the fall of 2014, I conducted an experimental archaeology lab at Humboldt State University, which focused on introducing students to ancient textile tools and equipment, how these tools functioned and the time involved in the creation of textiles. Along with this hands-on component of the class, there were lectures on the pre-history of textiles, artifactual evidence of textiles and tools and demonstrations and videos of techniques used in the past, including spinning, weaving, and fiber preparation. A photographic journal was kept of the progress of the students and each student was required to keep their own journal for the duration of the term. This presentation looks at the progress made during the 16 week term and the project students worked on.

LV12 TEXTILE TEACHING BY "HANDS ON" METHOD

Krista Vajanto

UNIVERSITY OF HELSINKI, FINLAND

In the University of Helsinki, Finland there is annually a lecture series about the archaeological artefacts. This course is meant for the students who are making their second year's studies. However, textiles were accepted as part of archaeological record only 3 years ago, by my active work. This year the students will hear about textiles for 3 hours at a lecture and see the finds for 1 hour at the museum – this is very little when compared the hours spent with ceramics or lithic materials.

In my lectures I explain some basic textile archaeological terminology based on the Finnish materials with good pictures, like SEM images as teasers, but also emphasise the textile making and the huge time it needed. I wish that this gives the future archaeologist be able to see the textiles as items of value and effort, not just some organic rubbish.

I have microscopy exercises as part of my lectures, as well as small group works – it is important to give practical examples for the students. In the middle of my 3 hour lecture I have a small exam, and we check the results right after – so the students learn better and I can correct them, if needed. This all is a result of my former work as an explainer (guide) at the Finnish Science Centre, where I was working – the "hands on" method works well also at the university class room.

LV3 ARCHAEOLOGY IN HIGH NATURE VALUE LANDSCAPES - OPPORTUNITIES AND CHALLENGES

Christine Grant

DEPT. OF ARTS, HERITAGE AND THE GAELTACHT

There have been a number of changes in Irish agri-environment schemes in recent years that have resulted in a diminishing engagement with archaeology in the rural landscape. Early schemes included a number of options relating to the maintenance and conservation of archaeological monuments but the present scheme does not include any archaeological options. While we await a decision on the introduction of yet another agri-environment scheme this paper will look at new agricultural initiatives that are being introduced in some of Ireland's High Nature Value areas. In particular the paper will look at the potential future for archaeology within specialised farming schemes where they coincide with important archaeological landscapes. The most advanced of these High Nature Value farming schemes is on the Burren Uplands in County Clare. Here the introduction of the Burren Farming for Conservation Programme has seen a number of benefits for the archaeology of the uplands. The Burren is an internationally important archaeological landscape.

While the opportunities for maximising shared interests in protecting these special landscapes are all too obvious the mechanics of achieving cross-sectoral co-operation present a number of practical challenges. After 20 years of agri-environment schemes in Ireland what lessons have we learned and how can we apply these lessons to the current challenges? Does the new 'Draft National Landscape Strategy for Ireland 2014 to 2024' have the potential to address these challenges?

LV12 THE FLAX PROJECT AT UW-GREEN BAY: ENGAGING UNDERGRADUATE HUMANITIES STUDENTS WITH ARCHAEOLOGICAL TEXTILES AND ANCIENT FIBERS

Heidi Sherman

UNIVERSITY OF WISCONSIN GREEN BAY

At the University of Wisconsin Green Bay undergraduate students in History, the Humanities, and the Fiber Arts participate each year in the flax to linen process. By working hands-on with the plant and fiber, students have acquired a deeper understanding of the ancient medieval process. Student and administrative support has allowed us further to establish a medieval dye garden on campus and develop an experiential archaeology course for student History concentrators. History

students are now designing a "History Trunk Show" that they will use to teach children about the ancient/medieval world - and archaeological textiles is an important component of this student-led project. This presentation will discuss how we were able to mount our successful and ongoing project on a small college campus with a small budget.

My project co-leader, Alison Gates, will not be able to attend the conference.

LV12 ARCHAEOLOGICAL TEXTILES AND TEACHING. ESTONIAN EXPERIENCE.

Riina Rammo

UNIVERSITY OF TARTU

My first course at the university was ten years ago and as I am textile specialist the title was "Archaeological textiles". I have not done it anymore. It was not traumatic experience, but I was not content with the way the course was structured. The point is that whatever your theme is or how low respect it has among "mainstream archaeologists", the success of a course depends also on your pedagogical experience. After ten years and after passing through courses about pedagogics, I am more confident. Although I have not until now held a course only about archaeological textiles, I have used my experience as textile specialist often in other lectures (about research practices and preservation) and I believe textiles can be incorporated to other courses. More closely, in Glasgow I could introduce thoughts about new course of experimental archaeology in what I'll participate as textile researcher. Other thing is, of course, when external hindrances (e.g. university's policy) hamper holding courses on such themes. It is hard to change attitudes of older generations, but through teaching it is possible to influence growing generations.

LV1 PIXEL VS PIGMENT. THE GOAL OF VIRTUAL REALITY IN ARCHAEOLOGY

Laia Pujol-Tost

UNIVERSITAT POMPEU FABRA

Archaeology has a long tradition of visual reconstructions of the past. Initially done by hand and based on artistic skills and conventions, "paintings" were later almost substituted in the general context of Archaeology by three-dimensional digital models. Yet, it is interesting to note that virtual reconstructions tend to show architectural remains, usually "empty" of people and sometimes even objects; on the other hand, current depictions do show human figures, and seem to be associated with scenes of "daily life". After almost twenty years of technological improvements and theoretical debate, I wonder why virtual reality applications in Archaeology are (still) empty, especially in comparison with hand depictions. Do they have different goals? Are they subject to different perceptions or expectations by researchers and/or audiences? Is it due to different historical influences? Maybe due to technical capacities? Given that both pixel-based and pigment-based representations of the past are interpretations, I would like ultimately to make explicit, debate and potentially find consensus about the goal of Virtual Reality in Archaeology.

LV1 MIXED EXHIBITS. THE BEST OF BOTH WORLDS?

Laia Pujol-Tost

UNIVERSITAT POMPEU FABRA

Archaeology is mostly about materiality. It retrieves and analyses objects that are later displayed in museums to tell stories about the past. Yet, the advent of digital technologies, under the promise of increased accessibility and engagement, reduced archaeological heritage to image and visualization. On the other hand, evaluations in museums evidenced a conflict between the exhibition and the new media, while at the same time confirmed the validity of traditional hands-on approaches.

In parallel, the Human-Computer Interaction field developed the so-called "Tangible User Interfaces". And more recently, we have seen 3D printing become the hype. As a result, the first mixed exhibits have appeared in European museums, used either as mediators, as smart replicas, or as top tables for shared exploration or gaming.

Does this mean that after completing the circle, we have recuperated the object and accepted tangibility in the cultural heritage field? There is a big potential in this area and I would like to debate 1) about the specific advantages of smart replicas and tangible exhibits as mediators, and 2) about the strategies and threats for their adoption in museums.

LV23 SOLD, COLLECTED AND HIDDEN: THE BUYING AND SELLING OF HUMAN REMAINS

Heather Gill-Frerking¹, Christopher Frerking²

¹NTK SERVICES, ²UNIVERSITY OF NEW HAMPSHIRE SCHOOL OF LAW

All archaeological objects are vulnerable to illicit and illegal excavation, looting, and sale. Human remains from archaeological contexts and museums are also at risk. Owing to the special nature of human beings as archaeological specimens, they are highly collectable, and nearly always transferred through underground, hidden markets.

With the exception of major legislative policies, such as the Native American Graves Protection and Repatriation Act (NAGPRA) of the United States, which excludes non-Native American human remains, issues related to human remains as heritage are frequently lost within general heritage or cultural patrimony legislation or policy, and may be entirely absent from even these protective laws. Other local laws may assist in protecting human remains, but collectors are common throughout Europe and there are few legal strategies to protect skeletons, mummies and other human specimens.

We propose to provide some background in the laws surrounding the buying, selling, and collecting of human remains in Europe, and present possible legal and practical strategies for identifying participants in the trade and collection of archaeological human remains, with the long-term intention of recording human remains held in private collections.

The primary author is a specialist in the study of archaeological human remains and a UK law student with a special interest in heritage law as it relates to human remains. The co-author is a Professor of Law, practicing attorney, and specialist in property law who has an interest in the concept of personal property as it relates to the ancient human remains.

CELTIC CONNECTIONS PAPERS AND POSTERS

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CC3 UNDERGROUND, OVERGROUND, WAFFLING FREE? - THE LAST 50 YEARS OF SCOTTISH SOUTERRAIN RESEARCH

Derek Alexander

THE NATIONAL TRUST FOR SCOTLAND

This paper will provide a review of the evidence from excavations of souterrains in Scotland since the 1960s, after the work of F T Wainwright. The results of research excavations undertaken in the 1970s will be examined, as will the extensive contribution made by developer-funded excavations across Scotland. Aerial photography, largely undertaken by RCAHMS, has also greatly increased the numbers of known sites, some of which have been tested by excavation. The distribution of sites in Scotland is now known to extend from Unst in the north to Dumfries and Galloway in the south and from St Kilda in the west to Aberdeenshire in the east. Regional concentrations must surely also indicate a variety in both function and date. Outliers to the well-known areas include an excavated example on the island of Arran and it is to be wondered whether there is any connection on the west coast with the Irish examples? While stone was always thought of as the construction material of choice, some excavations have shown the use of timber or a combination of both. There are so many questions still to answer in regard to the interpretation of souterrains, their use and date. Have recent excavations provided a standard approach to their excavation and sampling in an attempt to answer these research questions? It is 15 years now since Ian Armit postulated a late 2nd century/ early 3rd century AD, 'souterrain abandonment horizon' for the eastern Scotland examples but do the results of recent work support this?

CC4 DEFINING THE ISSUE: THE CLASSIFICATION OF IRISH HILLFORTS

James O'Driscoll

UNIVERSITY COLLEGE CORK

This contribution will evaluate the recent Irish contribution to the Atlas of British and Irish hillforts, with particular reference to the amalgamation of data sets incorporating different definitions and terminology. The problems encountered, and subsequent solutions, have proved beneficial in restructuring the classification system for Irish hillforts and provide useful insight into the feasibility of a European based hillfort Atlas. In Ireland, hillforts are often recognised and defined by their large size and topographic positioning. Enclosures are termed 'hillforts' only when they are over one hectare in size and are positioned on prominent hilltops. This definition and terminology contrasts with the British material, where other forms such as coastal and inland promontory forts, as well as smaller enclosures with significant enclosing features and commanding topographic positions, are categorised as hillforts.

CC7 HEAD-HUNTING IN THE MARSHES - AN EXPLORATION OF THE INTERACTION BETWEEN ENVIRONMENT, CHRONOLOGY AND CULTURAL INFLUENCES AT GLASTONBURY LAKE VILLAGE, SOMERSET, UK

Richard Brunning

SOUTH WEST HERITAGE TRUST

Glastonbury Lake Village was a substantial Iron Age settlement created in a freshwater marsh a short distance from the contemporary coast but over 1km from the nearest dryland. Its original excavation between 1898 and 1907 proved it to be the best preserved prehistoric settlement ever discovered in England. The finds from those excavations showed both the productive character of the occupation and the extensive connections with the surrounding dryland. More recent work has clarified the chronological development of the site, the changing nature of the local marsh it was built in, the diet enjoyed by the people represented by the human remains and the construction methodologies of the buildings.

An overview of all this accumulated evidence allows us to explore the social detail of this unique settlement. It was created as a result of considerable effort, and sustained by continual rebuilding, in a location at an inconvenient distance from its supplies of food and raw materials and inhabited by people who chose not to eat the fish living on their doorstep. Functional interpretations struggle in the face of such evidence. Instead the answers behind the village must lie within the complex social interaction between different communities in the wider area. The inhabitants fulfilled their physical and spiritual needs with a mixture of peaceful acquisition and extreme violence. The unique setting and character of the site does not mean that it was isolated from its contemporary society. Instead it was the vibrant centre of an extensive communication network.

CC3 GALLO-ROMAN INTRUSIONS INTO BRETON SOUTERRAINS

Reena Perschke

MUSEUM LICHTENBERG

Ever since the 19th century the excavators of some Breton souterrains have been surprised by the amounts of Gallo-Roman figurines made of red and white clay, which had been intentionally deposited in the underground chambers. Apart from the chronological questions these discoveries raised, a discussion arose about whether these figurines and their combination with libation and other vessels as well as tegulae suggest a ritual or a profane reuse of these souterrains.

Furthermore, two natural caves and at least seven megalith graves of Brittany were showing similar inventories, containing the fragments of some hundred figurines, libation vessels and Terra Sigillata sherds, bronze coins from the 1st to 3rd century AD, masses of tegulae, and, each only once, small columns and a votive altar with inscriptions.

It is probable that these inventories in combination with their discovery contexts prove a regular reuse of souterrains and other underground structures as some kind of Gallo-Roman fanum. Potentially, the Gallo-Roman society of Brittany regarded these structures as ancient temples or ritual sites of their ancestors, which were thereupon adopted by the contemporary worshippers.

CC4 WHERE DO WE GO FROM HERE? IRON AGE HILLFORTS IN GERMANY - MORE THAN ICONIC PLACES?

Axel Posluschny

ROMAN-GERMANIC COMMISSION OF THE GERMAN ARCHAEOLOGICAL INSTITUTE

Hillforts from the Late Bronze Age, the Early and the Late Iron Age period have been in the focus of German archaeology for far more than 100 years now. In the beginning the fortification systems and in some cases - at least for the Early Iron Age (Hallstatt period) - their accompanying rich burial sites have been the main interest of the investigations. There have also been attempts to systematically catalogue hillforts of all kinds in some of the federal states like in Bavaria.

After these programs came to an end the focus again was on some of the iconic sites like the Latène period Dünsberg and Heidetränke Oppidum or the Early Iron Age Heuneburg or Glauberg.

The 2004-2010 research project about the 'Fürstensitze' ('Princely Sites'; <http://www.fuerstensitze.de>) tried to understand the phenomenon as such and brought together scholars either working on one of these 'Fürstensitze', dealing with environmental data from various sites or trying to compare different sites, their cultural end their environmental characteristics.

Meanwhile the availability of LiDAR data adds new sites to the list of known hillforts even in well investigated areas which makes the need for a systematic survey and a catalogue for all those sites in (mainly southern) Germany evident again.

The presentation will give an overview about the current state of information and data availability in the southern German federal states of Hesse, Rhineland-Palatine, Baden-Württemberg and Bavaria and will discuss the potential of these areas to be involved in a Europe-wide Hillfort Atlas Project.

CC3 TUNNELS ACROSS THE CHANNEL : NEW RESEARCH ON IRON AGE SOUTERRAINS IN BRITTANY AND NORMANDY (FRANCE)

Stanislas Bossard¹, Gadea Cabanillas de la Torre²

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The objectives of this paper are to review unpublished data on Iron Age souterrains in Brittany and Normandy, and to discuss new perspectives on these little known features. Recent discoveries in the last thirty years have provided valuable information about the context of subterranean structures and have allowed to renew our interpretation of their functions. Several hundreds of examples dated from the early La Tène period to the end of the Iron Age show that the use of the souterrains was a widespread and long-lasting phenomenon in coastal areas of northwestern France. The typology of structures proves a high degree of formal variability, concerning the number and size of chambers, their arrangement and the architectural solutions used. Despite the lack of direct evidence for the activities carried out inside the souterrains, stratigraphic observations allow to reconstruct recurring patterns in the fills. As a consequence of the deliberate sealing of the entrances, the large amounts of finds discovered in these structures provide dating grounds for their abandonment. New analyses of these pottery assemblages result in a more precise chronology of the process. The most relevant aspect revealed by recent excavations is the tight link between souterrains and Iron Age settlements. Indeed, the study of souterrains among domestic structures sheds considerable light on their role as storage facilities and the circumstances of their use. Thus, by putting Breton and Norman souterrains in a broader context, this contribution aims to lay new bases for comparisons with other Atlantic regions.

CC1 IMAGERY ON CELTIC COINS AS A REFLECTION OF SOCIAL AND POLITICAL DISORDER: THE EVIDENCE FROM ARMORICA

Philip de Jersey

GUERNSEY MUSEUM

The Iron Age coinage of Armorica (modern day Brittany, Normandy and the Channel Islands) appears to undergo a fundamental change at the time of the Roman conquest and in the two or three decades afterwards. Before the indigenous coinage ceases completely under the imposition of Roman rule, there appear to be multiple issues of tiny silver coins, produced

in very variable quality and often with fragmented designs. Drawing particularly on new evidence from the enormous hoard of c.70,000 Iron Age coins found in the island of Jersey in 2012, this paper considers whether the imagery on these coins reflects the social and political upheaval at the time.

CC1 WHEN IS A COPY NOT A COPY? QUESTIONING THE USEFULNESS OF IDENTIFYING 'ORIGINALS' AND 'COPIES' IN STUDIES OF CELTIC ART

Jody Joy

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In a recent consideration of originals and facsimiles, Latour & Lowe (2011) argue that the trajectories of originals and copies are interrelated and the success of the original (how much it is reproduced, how it is judged by an audience) is dependent upon the success and quality of its reproduction. When used in the examination of Celtic art the word 'copy' has often been applied pejoratively, referring to an object that attempts to re-create the original but does not quite manage it. The original, on the other hand, is ascribed an intangible 'aura' and is valued because of its perceived innovation or creativity or the (higher) level of skill employed to make it.

Using some of the arguments put forward by Latour and Lowe, in this paper I will argue that by favouring and attempting to identify the original, potentially interesting questions have been neglected such as, 'why copy or imitate?' and 'what are the relationships between the original' and the copy?' These questions will be addressed using various case studies including the decoration on the backs of British Iron Age mirrors.

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CC6 CELTS AND CARGO CULT SCIENCE

Oliver Nakoinz

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When the famous physicist and Nobel price winner Richard Feynman coined the term 'cargo cult science' in 1974, he observed a lack of integrity in superficially correct research. This paper will show, that the Celtic paradigm is some kind of cargo cult science.

Ethnicity as a paradigm in Iron Age research is seldom questioned. But does it possess the necessary integrity? It appears that ethnicity is woven into a system of key terms: ethnicity, nationalism, race and culture. These components supplied the air of significance, modern science, empiric evidence and historic identification, support each other and circumvent critique. But assumptions appear to be wrong. The danger is twofold: In the socio-political system ethnic knowledge can be used to suppress minorities and in the scholarly system dubious knowledge becomes established. The Celtic paradigm grew in an environment as described and persisted as knowledge, which is supposed to be valid.

Modern cultural theory and network theory will be addressed as alternative approaches for the ethnic paradigm. Some of the advantages of a formal analysis culture are, that it does not implicate ethnic or racial interpretations, that it is not restricted to spatially bounded cultures, allows to map nested structures and can represent fuzzy borders. The strength of network approaches is, that they focus on relationships and can map rather complex interaction structures. Although these approaches overcome some of the problems with the ethnic paradigm, we have to be aware, that they are also prone for wrong assumptions.

CC7 PUSHING BOUNDARIES: CRANNOGS OUTSIDE OF THE ISLAND-DWELLING HEARTLAND

Michael Stratigos

UNIVERSITY OF ABERDEEN

Research on Scottish crannogs has focused on several discreet regions where the phenomenon is considered most central to the settlement patterns of those areas. This has meant that examples of crannogs outside of these regions have seen very little modern investigation. Reasons for why focus has been placed on particular loci of the crannog phenomenon will be discussed, and interpretational issues stemming from the geographical focus of the current corpus of crannog literature will be reviewed. The paper will also outline a new programme of fieldwork that has been initiated by the author in an area that has seen no modern investigation. Results of this fieldwork (both terrestrial and submerged) will be presented, and the implications of understanding the artificial island dwelling phenomenon in Scotland in light of this work will be put forward. Work on drainage patterns suggest that crannogs may have been more numerous in this region than previously recognized. It will be argued that interpretations of crannogs should consider that they represent a near ubiquitous form of settlement in the later prehistoric, early historic and medieval periods across Scotland. On this basis the case will be made for a future research strategy for Scottish crannogs that casts a far wider geographical net, and that until such a strategy adds significant amounts of further data, functional, chronological and morphological interpretations of the crannog phenomena will remain preliminary.

CC6 FUNDAMENTALLY FLAWED LOGIC: THE QUESTION OF 'CELTIC ETHNICITY'

Raimund Karl

PRIFYSGOL BANGOR UNIVERSITY

Much of the debate about 'the Celts' has focussed on the question of 'Celtic ethnicity'. While the traditional 'culture-historical' view of 'the Celts' of the 'Celtomaniacs' perceived many of the inhabitants of 1st Millennium BC Europe and Asia Minor as belonging to one 'Celtic people', more recent 'New Celticist' (Collis 2009, 34-9) approaches have argued against this view. Yet, the 'New Celticists' have not abandoned the 'ethnic paradigm' either: where the old 'Celtomaniacs' argued for a unified, pan-European 'Celtic ethnos', the 'New Celticists' have argued that the term 'Celtic' can only be applied to those who either considered themselves to be 'Celts', or were considered to be 'Celts' by (roughly contemporary) others (James 1999, 67, 81; Collis 2003, 228). In this paper, it will be argued that both the 'Celtomaniac' and the 'New Celticist' adherence to an emic, ethnic, essentialist definition of 'the Celts' is based on fundamentally flawed logic. Instead of it, and to make any actual progress in improving our understanding of later prehistoric European communities, we need to adopt a purely nominalist, etic definition of the term.

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CC7 HUMAN ISLANDS - EXPLORING THE PALAEOECOLOGICAL RECORD OF CRANNOGS IN CO. FERMANAGH AND SW-SCOTLAND

Thierry Fonville, Tony Brown, Pete Langdon

UNIVERSITY OF SOUTHAMPTON

Crannog have been constructed for over 2,500 years and are ubiquitous on the North-Western fringes of the British Isles. However, the reason why these sites were built is still an ongoing discussion. This paper summarises some of the results and overarching conclusions of extensive analyses of five sediment cores from near crannogs, two collected from Co. Fermanagh, Northern Ireland, and three from Dumfries and Galloway, SW-Scotland. These cores had varying levels of human impact from the crannog, but were complicated by dating difficulties related to the in wash of old carbon and or age-reversals. The most promising sites from the study are discussed in this paper, which indicate extensive shifts in the lake ecological indicators (i.e. diatoms, XRF, LOI and MS), as well as dramatic changes to the lake and its catchment. This allows some conclusions on the occupation history of these sites, as the cores were analysed prior, during and following the occupation of the crannogs. Furthermore, pollen analyses are being applied to assess the timing and extend of deforestation in the catchment, to assess the utilization on the landscape around the time of the construction of the crannogs. Palaeoecological analyses allow a holistic approach to further the understanding of these enigmatic sites and the relationships between the lake, the landscape and the archaeology.

CC2 IS THE ORIGIN OF THE SCOTTISH BROCH PART OF 'CELTIC CONNECTIONS'?

Euan Mackie

DEPT. OF ARCHAEOLOGY, UNIVERSITY OF GLASGOW

The brochs are probably humanity's greatest achievement in drystone architecture but remain of relatively parochial interest because of their restricted distribution in Atlantic Scotland. Another problem is that until now discussion has been mainly concentrated on the architecture of the towers; explanations of the origins of the distinctive associated material culture have been almost entirely absent. The kind of society which produced these extraordinary structures is likewise rarely discussed. Detailed study of the towers suggests that they were for the chiefly families of a hierarchical tribal society and the associated material culture gives important clues to the origin of this social order. The evolution of Atlantic Iron Age pottery clearly points to a 'Celtic connection' of some sort with Brittany in the 7th century BC, perhaps even to a settlement of Bretons in Shetland. This is the only available explanation of the fine, decorated pottery characteristic of the Atlantic province of Scotland which contrasts so strikingly with the mainland wares. We now know also that the earliest known broch was built in Shetland in about 400 BC so the towers are probably a local product of an intrusive society up there. The later appearance of rotary querns in the Atlantic province suggests similar Atlantic coastal connections.

This scenario is not advanced as fact but as a working hypothesis which explains the broch phenomenon better than any other until now and which will, I hope, stimulate new research.

CC2 THE ELEGANCE OF DEATH BETWEEN NORTH AND SOUTH OF THE ALPS: AMBER AND CORAL FROM TENERO-CONTRA (TI-CH), MIDDLE LA TÈNE BURIALS

Francesca Romana Del Fattore

MATRIX 96 SOC. COOP.

Tenero, located in South-Western Swiss, not far from where the Ticino River flows into Lake Maggiore, was a natural crossing point along the route linking the North and South of the Alps, known in Medieval times as Via Francisca. In 1970, public works have identified a Celtic necropolis attributed to the La Tène *facies*. The excavation interested a restricted area along the western side of the Verzasca, a minor tributary of Lake Maggiore, where 23 burials have been documented, 11 of which dated between the II and the III Century B.C. (La Tène B2-La Tène C1-La Tène C2).

Four graves – all inhumations, referable to female individuals – can be distinguished from the others, in consideration of their richness and typology of the objects deposited as funerary offerings. The burial complex was composed of silver and bronze jewels, enriched with amber and coral imported from the Baltic area and from the Mediterranean basin, and by a set of ceramic vessels. The vases, generally placed close to the feet of the individual, allude to the consumption of beverage – as wine – and food.

Exotic materials – as indicators of high social status – proof how Tenero and its surrounding district have lively participated to the complex net of socio-economic and cultural exchanges connecting Central/Northern Europe and the Mediterranean between the III-II centuries. B.C. Furthermore, the bronze grave goods – primarily the *fibulae* – show the high level reached by local craftsmen in metal processing and manufacturing of valuable objects at the beginning of the Middle La Tène *facies*.

CC5 COULD FOLK STORIES ENCODE MEMORIES OF COASTAL INUNDATION FROM MILLENNIA AGO?

Erin Kavanagh¹, Patrick Nunn²

¹UNIVERSITY OF WALES TRINITY SAINT DAVID, ²UNIVERSITY OF THE SUNSHINE COAST

Around the world we find stories of land lost beneath the waves, often in places of particular value such as castles, temples and prized hunting grounds. The key detail in all of these is that the water did not subsequently recede, suggesting that perhaps they are recollections of sea level rise through floods or extreme-wave events. Superimposed upon a baseline of rising sea-levels such flooding would have a cumulative and irreversible impact upon the landscape. Could it be that it was only when such extreme change occurred that sufficient attention was given to sea level rise, causing stories of inundation to emerge and endure?

Examples are given from the Celtic seaboard, India and Australia. Whilst the Celtic stories of Ireland and Wales have largely survived in literary form those of India and Australia belong solely to an oral tradition. In Australia almost all appear to recall a time when sizeable areas of the continental shelf were dry land. It is argued that Aboriginal culture, which emphasizes transgenerational instruction, was able to sustain such oral traditions far longer than elsewhere, so could it be that such stories recall the effects of postglacial sea-level rise that occurred millennia ago? In the case of Australia most seem to be more than 7000 years old, far older than many scholars would usually allow for oral traditions to survive. If correct, it would underscore the importance of looking anew at story traditions elsewhere to see whether they too might contain information about the distant past.

CC5 RECONSTRUCTING THE SUBMERGED LANDSCAPE OF ORKNEY

Richard Bates¹, Martin Bates², Caroline Wickham Jones³, Sue Dawson⁴

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The Neolithic record of Orkney, Scotland is extensive and of international importance, however much less is known about the Mesolithic ancestors. Partly this is because a significant portion of the most useful Mesolithic landscape is now submerged due to sea level rise following last glacial maximum. Since 2005 the Rising Tide's Project has combined research including physical sediment analysis, sediment DNA, microfossil investigation, remote geophysical sensing, diving, aerial photography, GIS modelling and oral history to reveal the nature and extent of the submerged landscape. While the nature of the Mesolithic record is hard to identify on the seabed the Neolithic record in Orkney comprises stone built remains that should be more likely to survive marine inundation, but in practice it has proved difficult to distinguish anthropogenic material on the seabed from natural stonework. For these reasons, the project has adopted a total landscape approach to the archaeology in which the basic unit of research is the landscape at the scale of the drainage basin. This approach enables extant sites and monuments to be fully contextualised, the nature and distribution of changing resources through time to be identified and models developed to facilitate targeting suitable niches in the landscape for evidence of past human behaviour. This presentation will present the research and discuss both the methodology and the inferences of the project for future analysis, interpretation and management.

CC3 A MATERIALITY OF SOUTERRAINS: EXPLORING USE, FUNCTION AND RITUAL

Paul Murtagh

INDEPENDENT RESEARCHER

Ideas surrounding the use and function of souterrains have long been debated within archaeological literature. However, these debates have often been divorced from debates associated with the form of souterrains and how they were built. While

debates surrounding the form and topology of souterrains have tended to focus on specific aspects of these monuments, such as their shape and size, little critical attention has been paid to the actual materials that souterrains were constructed from, other than simply identifying them as wooden or stone examples. In this paper, it is argued that by examining the types of stone, wood and other organic materials that were used by the builders of these monuments a new interpretation of these sites can be advanced. Moreover, by examining the materiality of souterrains, wider issues associated with later prehistoric ritual, social structure, identity and regionality can be explored. Finally, I propose that, by examining the ways in which souterrains were abandoned, and by examining the artefacts that were associated with these closures, we can gain a better understanding of the changing nature of later prehistoric society and culture.

CC1 MAKING ANIMALS IN NORTHERN EUROPE: ZOOMORPHIC IMAGE, SOCIAL STRUCTURE, AND IDENTITIES

Wendy Morrison

UNIVERSITY OF OXFORD

The role of animals in the creation and alteration of human cultures and societies has long been acknowledged by scholars in cultural geography, ethology, and anthropology yet for many archaeologists this recognition has been slow in coming. Animals are routinely side-lined in our discussions of the past, their silent bones rationalized and relegated to discussions of economy, subsistence, and the practices of procurement and production. The appearance of animals as decorative motifs in the artefactual assemblages of pre-modern populations cannot and should not be considered solely in terms of 'art'; rather, as Ingold (2000) has suggested, their production is a manifestation of people becoming more entangled in their natural environments. That is to say, by 'making' animals, people become more deeply knowledgeable about their world and, by extension, themselves.

Human representations of animals, both real and fantastic, are not merely reflections of animal-human interactions in daily life, or of the position of animals in a human world; these images also have the ability to protect, empower, mystify and transform. How far can we see the influence of zoomorphic images and artefacts in the development and transformations of human society? A newly proposed project will examine the role of animal image on portable objects from the Late Bronze Age and the development of 'Celtic art', continuing through to the Viking period, offering a new exploration of how different interpretations and uses of the animal image in northern Europe have shaped and been shaped by the varying worldviews of diverse communities.

CC1 THE ORIGIN OF THE TERM 'CELTIC ART'.

John Collis

UNIVERSITY OF SHEFFIELD (RETIRED)

Contrary to what is usually assumed the term Celtic Art was not based upon what we now refer to as Iron Age 'La Tène' Art; in the first publication of the finds from La Tène Keller says these objects are not 'Celtic' (the Celts were considered a Bronze Age phenomenon in most of western Europe). The first article and definition of 'Celtic Art' was written by John Obadiah Westwood in 1856, based on medieval manuscripts and sculpture, and it was only in 1857 that its prehistoric origin was demonstrated by John Kemble and called 'Late Keltic Art' (published posthumously by Augustus Wollaston Franks in 1863 in the *Horae feriales*). At this stage the art was considered to be largely insular (Britain and Ireland) and only rarely to be found in the rest of Europe. The dating and location of its origin is perhaps largely due to Sir Arthur Evans, but his work is not well documented. Only with the publication of the books by J. Romilly Allen in 1904 and by Reginald Smith in the 1905 British Museum Guide to Iron Age Antiquities do we for the first time have direct comparison between the motifs in Classical and La Tène Art. Joseph Déchelette is the first continental scholar to accept this concept of 'Celtic Art' in 1914, and to link it with the 'origin' and 'migrations' of the historical Celts. By the time Paul Jacobsthal published his seminal book in 1944, Late Keltic Art had become 'Early Celtic Art'.

CC6 RETHINKING THE CELTS: INTRODUCTION

John Collis

UNIVERSITY OF SHEFFIELD (RETIRED)

Studies of Iron Age Europe have largely been dominated by interpretations based on usually patchy historical sources or on ethnic origins based on linguistic models (the 'Culture Historical' paradigm). From the 1960s in archaeology there has been a shift in the dominant paradigm to anthropological and geographical models, the so-called 'New' or 'Processual' Archaeology, but under the term 'Post-Processual' a range of different approaches has been developed. In Celtic Studies (and other language based disciplines) and in Medieval Archaeology the new approaches ('Celtoscepticism') have been slow to be adopted, and even the definition of the Celts is still strongly disputed (linguistic, or archaeological, or an ethnic usage in the Ancient World based on unknown criteria). In this session we will be considering to what extent we can still use terms like 'Celtic', and what approaches are replacing the ethnic interpretations of the European Iron Age in understanding the spread of ideas in aspects of the material culture, including 'Celtic Art'.

CC2 THE WESTERN AND SOUTHERN PARTS OF THE BALTIC SEA REGION UNDER DIFFERENT LA TÈNE CULTURE INFLUENCES: THE CASE OF METAL SCABBARDS OF DOUBLE-EDGED SWORDS.

Przemysław Harasim

INSTITUTE OF ARCHAEOLOGY, UNIVERSITY OF RZESZÓW

In the sets of the armament of the late Pre-Roman Period societies of the Central and Northern Europe we can find specimens, which were imported from the Celtic area or were strongly influenced by the Celtic weapon patterns. This statement fits very well to metal scabbards and double-edged swords - one of the most characteristic type of weapon of the late Pre-Roman Period.

Metal scabbards found on territories from the western coast to southern coast of Baltic Sea create a very diversified group. But, on the concrete regions we can notice the concentrations of metal scabbards of homogenic types. The varying levels of distribution of individual types of metal scabbards on the western and southern parts of the Baltic Sea Region are to be attributed to different relationships between Celtic and Germanic worlds; they also reflect different ways of so-called "Laténiesierung" or Celtisation process in mentioned area, which is confirmed by other finds with Celtic connections (e.g. dress accessories or jewellery). The outcome of analysis and interpretation would shed light on the dynamism, directions and variety of the La Tène influences in western and southern parts of the Baltic Sea Region.

CC7 NEW INVESTIGATIONS ON IRON AGE WETLAND SETTLEMENTS IN THE NORTHERN AQUITAINE (FRANCE)

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The Northern Aquitaine has a great diversity of wetlands that have undergone profound changes since the Iron Age: river shores, marshes, lakes. It raises the question of the settlements nature and their adaptation to the environment. We have developed two diachronic and interdisciplinary programs, one on the banks of the Garonne, around Isle-Saint-Georges, the other on the coast of northern Médoc.

The settlement of Isle-Saint-Georges is located in the floodplains of the lower Garonne River valley. The archaeological evidence shows that during Iron Age, its size has varied a lot. This may be correlated with regional historical dynamics ; therefore, the role of environmental constraints cannot be excluded, as its position makes it very vulnerable to flooding.

On the Atlantic coast of Northern Médoc, many evidences of occupation have been identified thanks to coastal erosion, on the beach or under the current dunes. They are found in clay and peat paleosols showing former wetlands between estuary and coastline. The density of archaeological discoveries raises issues about the nature of these settlements and their relationship with their environment.

The first results show that these societies were subject to environmental constraints they have adapted to, finding in these areas advantages in terms of resources and integration into the road network.

CC3 LIVING SOUTERRAINS FROM IRELAND'S NATIONAL ROADS PROGRAMME

Niall Roycroft

NATIONAL ROADS AUTHORITY, IRELAND

Ireland has the richest early medieval landscape in Europe. Along the new 1,800km road network, trial work and excavations recorded 26 souterrains on 21 different sites across seven different counties. A meticulous dating programme has shown the majority of these souterrains were built long before the Vikings arrived in AD795. But when the 9th century dawned, this seems to be when some of the most extraordinary souterrains were built. These exceptional new souterrains are almost wholly found around rich but ravaged Dundalk in north County Louth.

So most of the 5,000 or so Irish souterrains appear to have been built over a 300 year period. Their forms are regionally diverse and they are radically distributed. However, always note that a souterrain seems to go with a building. Can this help confirm rural, non-ringfort settlement?

Do objects such as pottery, jewellery, megalithic art, bones, a plough, and quern stones hint at souterrain uses? The art stones can be purposefully displayed or simply building material and many megalithic monuments were cut up for souterrain construction. Placed or stored quern stones might be significant: but it is now apparent that quern stones are deliberately placed in many early medieval 'closure' locations. So why are large souterrains clusters found and why are some areas of Ireland virtually souterrain-free? If we accept the souterrain correlation with Viking era unrest at Dundalk, then we can suggest that souterrains imply conflict. Before the Vikings, this means inter-Irish conflict and history appears surprisingly helpful here.

CC7 TRAVELING OUT TO IMAGINARY AND REAL ISLANDS: EARLY HISTORICAL AND ARCHAEOLOGICAL PERSPECTIVES ON THE SOCIAL AND IDEOLOGICAL ROLES OF CRANNOGS

Aidan O'Sullivan

UCD SCHOOL OF ARCHAEOLOGY

How did people imagine islands in the landscape, and what did they think they were doing when they built crannogs, occupied them, and abandoned them? This paper adopts a multidisciplinary perspective to these fascinating and intriguing, made and imagined places. It explores the insights offered by early medieval Irish narrative literature (e.g. voyage, and adventure tales), hagiographies (saints' Lives) and annalistic references to reconstruct the 'mentalities' of early medieval communities, in an Irish,

Scottish and Welsh context, and how they may have perceived crannogs as islands. It offers some potential models for thinking about crannogs; firstly as distant and remote islets acting as theatrical stages in a landscape for the performance of distinctive social identities of power and community, and secondly as places requiring a special boat journey, from a particular place on the mainland, while being under the watchful eyes of the island's inhabitants. The paper will also sketch out some scenarios based on some known Irish and Scottish crannogs as archaeological sites in past landscapes. We can never really understand exactly what people were trying to do when they built crannogs, but we can approach that understanding if we adopt an anthropological perspective as distant observers, trying to imagine past and present journeys to islands.

CC1 THE UNTOLD TALE – ASSESSING MEANING IN EARLY CELTIC ART

Holger Wendling

SALZBURG MUSEUM / KELTENMUSEUM HALLEIN

The aesthetics of prehistoric and traditional art considerably influenced and fostered modern artistic creativity. In the same way, it promoted scholarly archaeological creativity in interpreting and reconstructing ancient life and cosmologies. Due to its vast ornamental and figurative diversity and quality, Early Celtic art has been thoroughly studied from the beginning of systematic archaeological research. Detailed depictions of men, beasts and demons seemed to reveal an authentic image of Early Iron Age spirituality and knowledge. Thus, Early La Tène art has frequently been regarded as a medium which directly conveys cosmological information and tells tales of a vanished past. Following a notion of 'art as text', the figures on fibulae, vessels and other items were interpreted as descriptive imagery of mythological and religious tales which would otherwise not have been transmitted in the archaeological record. Even Paul Jacobsthal in his fundamental work on Early Celtic Art initially identified some elements that apparently formed part of a mythological 'story'. However, he raised substantial concerns about the expressiveness and epistemic value of those miniature sculptures when divested of their original context. A semiotic study will critically assess the perspectives of hermeneutical approaches to Iron Age art and explore whether a certain frequent picture in figurative art will disclose its meaning or will rather remain an untold tale.

CC6 BEYOND CELTS: NESTED IDENTITIES IN IRON AGE EUROPE

Manuel Fernandez-Gotz

UNIVERSITY OF EDINBURGH

A central problem with approaches to Iron Age ethnicity is that, traditionally, researchers have mainly focused their interest on macro-concepts such as 'Celts' or 'Germans'. However, these categories were, to a large extent, constructs from 'outsiders' and had little or no significance for past groups and individuals. But there were also smaller groupings which functioned as emic categories, and which often overlapped with political units. Starting with a distinction between ethnic categories, ethnic networks and ethnic communities, this paper argues that we should go beyond the dichotomy between views that only focus on macro-categories without explaining how these came about or, at the other extreme, approaches that restrict themselves solely to the level of households but ignore their integration into broader entities. Thus different nested socio-political and identity levels can be distinguished within and between Iron Age communities, constituting a practical example of the multidimensional and situational character of identities. Moreover, it is shown that the autonomy in the social, economic and ritual realm does not mean that higher levels of integration did not exist, just as membership of the same group does not invalidate the existence of different experiences of being-in-the-world.

CC1 'NOVELTY AND INNOVATION': WHAT MOTIVATED THE DESIGNERS OF EARLY CELTIC ART?

Helen Chittock

UNIVERSITY OF SOUTHAMPTON/ BRITISH MUSEUM

A recent radiocarbon dating programme on Early Celtic Art objects from Britain (Garrow et al 2009) has made great leaps forward in clarifying the chronology of this varied assemblage and testing the accuracy of the successive series of sub-categories (e.g. Stead's stages) to which narratives of Iron Age Europe are frequently harnessed. The paper ends with the suggestion that the design and production of Early Celtic Art objects may be derived from a concern with quality, as opposed to the importance of quantity that governed the production of metal objects during the Late Bronze Age. Support for this assertion comes from a lack of standardised forms during the Iron Age, the 'complex histories' of some objects and a 'marked emphasis on novelty and innovation' (Garrow et al 2009, 111).

This paper will further investigate this argument at a higher resolution, focussing on East Yorkshire. Data on material culture dating to between 400BC and AD100 has been compiled from the British Museum, Portable Antiquities Scheme, Archaeology Data Service and published volumes. Avoiding the complications of vague terminology such as 'style' and 'decoration', analysis has focussed on the presence and absence of 'pattern' on these objects (after Fox 1958).

By looking at the patterns present on *all* metalwork items within this dataset and by contextualising these objects among those of other materials, the argument that the motivations behind designing and producing Early Celtic Art objects were, in fact, multiple, varied and complex will be put forward.

CC1 ART, ANIMISM AND POWER

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This paper introduces a new Leverhulme Trust-funded project on European Celtic art and its possible connections with Eurasia to the east. Around 500 BC two art styles arose in Europe. So-called Celtic art develops relatively suddenly c 475 BC, composed of ornamentations often in ambiguous forms. In Greece around 500 BC so-called realistic art in painting and sculpture begins, feeding later into the Classical art of Rome. Art can be seen as a proxy for broader changes in philosophy, science and production, which in the Classical world brings about a slow purging of spiritual or human influences on the material world, seeing the emergence of the notion of the mechanistic universe. Celtic art, by contrast, is religious or animistic: one in which spirits inhabit the material world. Both art forms derive from two continental streams of interaction, with Celtic art the western-most expression of shape-shifting arts found across the steppes to the borders of China.

At the methodological heart of this project is the construction of a database of European material, collating information on form, motif and archaeological context, placing Celtic art in its broader context. A similar database of material from the former Soviet Union areas related to the so-called Scythians will be created, allowing systematic comparison and contrast. The connections across ancient Eurasia were vast and long-lasting and still poorly understood. Together the databases will allow us to look at ancient art from Ireland to the borders of China, looking seriously at eastern links for the first time.

CC2 THE CELTS AS THE RESULT OF ATLANTIC CONNECTIONS AT THE END OF PREHISTORY: AN ANALYSIS OF THIRTY FIVE YEARS OF PROPOSALS

Juan Latorre

UNIVERSITY OF OXFORD

Recently in the UK, It has been proposed that the Celts are the result of the Atlantic connections at the end of Prehistory. However, other European archaeologists have been arguing about the same since the 1990s. John Waddell (Ireland), Almagro-Gorbea (Spain) and Patrice Brun (France) have also related the genesis of the Celts with the Bell-Beaker culture and the Atlantic Bronze Age. Furthermore, the origin of these proposals goes back to 1979 when Stuart Piggott suggested this idea in the 6th Congress of Celtic Studies. The aim of this paper is to show how the idea that the Celts are the result of contacts between western European populations at the end of Prehistory is much older than we usually think. With that objective, a summary and analysis of the different approaches to the Western origin of the Celts, including the most recent ones, is provided. Moreover, the context of these theories in their national academies and the understanding of "Celt" in each of them are also briefly presented. At the end, the different proposals about the connections that originated the Celts are discussed together and their points in common and their differences are highlighted.

CC1 CELTIC ART IN FABULA: WHO IS WATCHING ?

Nathalie Ginoux

PARIS-SORBONNE UNIVERSITY

In what way did Celtic Art act as a common language for La Tène culture societies that were pre-literate, non-unified and stratified?

How did images served as interactive agents for social practices - including beliefs, mental concepts, technologic knowledge and ideas - between the visible earthly world of the people making up the various social groups and their identities, and the invisible enduring communities of gods and goddesses, heroes, or even ancestral beings as images convey the long-lasting record of collective memory?

Through examples particularly relevant related to the warlike iconography from 5th to 2nd century BC in its comprehensive context, this paper aims to examine the complex issue of the control and mobility of images, ornaments and their supports, from a dual perspective: the horizontal plane including both the La Tène European culture area and the field for interactions between the social groups and their identities, and the vertical axis of social stratification, taking into account the control of images and power they confer by *elites* (orders, concept and production, circulation).

Dealing with the concept of "intentionalities" encapsulated within ornamented pieces, the wide range of functions and identities (including gender), sometimes as they apply to a single person, will be examined with a focus on choices observed in iconographic repertoires, technology and visual processing.

CC4 COMPILING AN ATLAS OF BRITISH AND IRISH HILLFORTS: SOME ISSUES

Gary Lock

EMERITUS UNIVERSITY OF OXFORD

The Atlas of Hillforts of Britain and Ireland is a four year project funded by the Arts and Humanities Research Council and based at the Universities of Oxford and Edinburgh, in collaboration with University College Cork. The aim is to integrate and enhance a whole range of existing sets of information including regional and national monuments records, grey literature and publications to produce a single searchable online resource that includes mapping. Another outcome will be a published atlas that offers a new overview and synthesis of hillforts, something that has never been possible at this international scale before.

This paper will offer a consideration of some of the issues encountered during the first two and a half years of data structuring and collection. These include questions of definition for what is called a 'hillfort' in one area may not be in another. If enclosed sites are a continuum in terms of size and scale, when does an enclosure become a hillfort? Other issues become central when trying to encode data within a database and develop suitable terminology for a range of existing recording schema. Related to this is the relationship between the questions to be asked and the structuring of data within the database. Encapsulating all of these issues is the understanding that archaeological data are inherently 'fuzzy', often in quality and usually in their interpretation, requiring assessments of 'reliability'.

CC5 BATHYMETRY, COASTLINES AND ENDORHEIC BASINS: PIECING TOGETHER MARINE TRANSGRESSION IN THE ARABIAN/PERSIAN GULF

Richard Cuttler, Peter Spencer

UNIVERSITY OF BIRMINGHAM

It has been nearly 20 years since Kurt Lambeck proposed that three large lakes fed by the confluence of the Tigris/Euphrates Rivers dominated the former sub-aerial landscape of the Arabian/Persian Gulf. We can be fairly certain this landscape was markedly different to the environment that dominated much of the remainder of the hyper-arid Arabian Peninsula, particularly given the presence of a guaranteed source of fresh water, and most likely extensive resources of flora and fauna. More recently researchers have postulated that during MIS 2, the Gulf very likely provided some form of environmental refugia for early human groups, principally during periods when the climate across much of the rest of the Arabian Peninsula was particularly inhospitable.

Over the past seven years the Qatar National Historic Environment Record project has adopted an holistic 'land to sea' approach, through the collection of high-resolution marine geophysics data and high-resolution bathymetric data sets, to the excavation and dating of relic coastlines associated with periods of sea level high stands between 6,000 and 4,000 years ago. This paper provides an overview of the results of this work in the context of the regional geomorphology, hydrology and early Neolithic archaeology.

CC6 BEYOND ETHNICITY, BEYOND DACIANS. GROUP IDENTITY AND STATEHOOD IN THE LATE IRON AGE OF THE CARPATHIAN BASIN.

Catalin Popa

FREIE UNIVERSITÄT BERLIN

This paper illustrates that renouncing the traditional view of ethnic groups in the Late Iron Age of the Carpathian Basin can reveal a much more complex picture than previously thought. It is argued that the analysis of the funerary record does not support the existence of large, unitary ethnic units, such as Dacians or Celts. By employing an innovative method which combines current theoretical ideas on identity construction with statistical methods, it is shown that status and regional identities, strongly entangled with each other, played a significant role for the Iron Age inhabitants of the region.

The analysis results to do not clash with our previous knowledge regarding the political development of the area. Instead, they serve to underline the importance that regional and status differences had, in the period from the 2nd century BC to the 1st century AD, for the political organisation of the Carpathian Basin. The results suggest that the so-called Dacian kingdoms were far from representing the political materialization of an ethnically unitary population. Instead, I propose that the political entities were characterised by a strong identity division between a ruling social strata and the rest of the population. This differentiation manifested itself in numerous areas of life as well as in death and may have its origins in pre-existing regional differences.

CC5 THE BARROW ISLAND ARCHAEOLOGY PROJECT

Alistair Paterson¹, Peter Veth²

¹ARCHAEOLOGY, UNIVERSITY OF WESTERN AUSTRALIA, ²UNIVERSITY OF WESTERN AUSTRALIA

The Australian coast provided a first home for modern humans entering into the continent over 50,000 years ago. Indeed these were maritime peoples having traversed a significant island chain with an increasing body of archaeological evidence speaking to early competencies such as shell fish hooks and complex projectiles. The coast remained significant for forager societies during the changes since that time, including periods of greater aridity when deserts swelled to extend seamlessly from the Indian Ocean to the eastern seaboard. Barrow Island is one of the largest islands off the Australian coast, a remnant Pleistocene landmass of the once vast North- West Shelf. The Barrow Island Archaeology Project (BIAP) provides rare archaeological insight into patterns of human mobility across vast coastal and inland regions now accessible as submerged seabed, islands and modern coast. Environmental information of radically different biomes is suggested through archaeological deposits. The very nature of maritime deserts is unpacked from these island assemblages - now covering 41,000 years of shelf prehistory. Predictions for submerged sites lying off these arid coastlines in Western Australia are offered in this paper.

CC1 IRON AGE ART IN LIFE: THE ROLE OF ANIMAL DEPICTIONS IN DOLENJSKA HALLSTATT SOCIETY

Adrienne Frie

UNIVERSITY OF WISCONSIN-MILWAUKEE

This paper will discuss the intersection between humans, animals, and materials by investigating the role of Iron Age Art in mediating the construction and maintenance of human-animal relationships in the Hallstatt period of southeastern Slovenia. The preliminary results presented here are part of a larger project examining animal depiction on artifacts and comparing trends in iconography to faunal remains from contemporary sites. Juxtaposing animal images and zooarchaeological remains from mortuary contexts to these materials in settlement contexts reveals key areas where ideal or ritualized conceptions and uses of animals overlap with and diverge from day-to-day interactions. The zoomorphic representations used to facilitate and represent interactions between humans and animals were likely highly significant based on the evidence for an agro-pastoral subsistence system in the continental Iron Age. The Dolenjska Hallstatt culture of southeastern Slovenia had a rich artistic repertoire, and images of animals are frequent, most notably in the form of situla art, but also in the round on portable objects made of ceramic, amber, metal, and glass. These depictions of animals were not solely decorative materials for display and consumption, but were also involved in the materialization of concepts, ideologies, identities, and relationships. This paper moves beyond a discussion of art as simply decorative or reflective of the culture producing it, but focuses on the importance of artistic expression in producing, maintaining, or even challenging social relationships in this period, both human-animal relationships, as well as human-human relationships.

CC3 NEW DATA ON SOUTERRAINS OF THE ARMORICAN PENINSULA : STRUCTURES FOR STORAGE OR MORE COMPLEX FUNCTIONS? PRESENTATION OF THE FIRST RESULTS OF ORGANIC ANALYSES OF CONTENTS.

Anne-Françoise Cherel¹, Nicolas Garnier²

¹INRAP, ²LABORATOIRE NICOLAS GARNIER

In western Brittany corresponding to the present Departments of Finistère, Morbihan and Côtes-d'Armor, there are several hundred Iron Age souterrains. These were often discovered by chance when modern agricultural machinery caused the underground chamber to collapse, revealing a large hole ; these holes were often left open with a resultant loss of archaeological evidence in their immediate environment. Nevertheless, domestic deposits have indicated the probable presence of buildings above ground. Souterrains and rare chambers on the Armorican peninsula have long raised difficulties of interpretation. If the theory of storage is favoured then there are problems in that there are few artefacts, and little archaeobotanical and archaeozoological evidence. But archaeological knowledge is based on the scientific investigation of the archaeological evidence. The development of archaeology and archaeological survey operations in the last twenty years, and also with the improvement in new chemical processes, have given us a more detailed knowledge of these structures. New information on these structures has been provided by biochemical analysis of pottery from a souterrain in Morbihan and from a chamber in Finistère, providing further information on these underground structures so numerous in the settlements of western Armorica between the VIth and the early IIInd centuries BC. This new evidence allows for the proposal of various hypotheses concerning their functions.

CC7 RISING DAMP; CHALLENGING PERCEPTIONS OF WETLAND SETTLEMENT IN SW SCOTLAND

Anne Crone

AOC ARCHAEOLOGY GROUP

The work of the Scottish Wetland Archaeology Programme is revealing great variation in the types of wetland site used during the Iron Age in SW Scotland. Black Loch of Myrton had been labelled a crannog since its discovery in the 19th century but excavations in 2013 have revealed that it was actually an Iron Age loch-village, the Scottish equivalent of the iconic Glastonbury Lake Village in Somerset. This discovery has prompted many questions, not least of which is whether any or many of the other sites identified as crannogs in the 19th century were also loch-villages. Are these Iron Age villages translated into a wetland setting, an interim stage between the roundhouse settlements of the terrestrial record and the man-made island dwelling? As a hitherto undistinguished site-type is the loch-village indicative of social and/or economic differences amongst the populace or simply evidence of the diversity of the people/place relationship in the densely occupied territory? Were the occupants a separate social group with a distinct identity or are they part of a larger economic and social unit within which they have a distinct role which required them to live out on the peat? To address these questions the site will be presented within its physical context and that of its Iron Age landscape, and the evidence from Black Loch of Myrton will be interrogated for clues as to why its occupants built and lived on the peaty margins of a small loch.

CC5 PATTERNS AND PROCESS IN HOLOCENE FLOODING: UNDERSTANDING CHANGE ACROSS THE TRANSGRESSIVE SURFACE

Martin Bates

UNIVERSITY OF WALES TRINITY SAINT DAVID

The rising sea levels of the late Pleistocene and Holocene resulted in the loss of large areas of dry ground around our coasts and the destruction, or landward migration, of many important ecological niches utilised by Prehistoric populations. These transgressions are now well documented and for certain areas, such as the southern North Sea, large scale paleogeography change can now be mapped across space. However, the nature and timing of this flooding remains uncertain in almost all cases. This is because of the sparsity of samples from seabed drill cores, a lack of dates and little information on the ecological changes associated with transgression. This is particularly acute at the local to regional level, i.e. those scales at which

humans are most likely to be playing out response to change. Consequently there is currently a mismatch between the regional scale of palaeogeographic investigation routinely carried out by archaeologists and geologists and the local scale relevant to a Prehistoric human presence in these landscapes.

In an attempt to bridge the gap between the landscape and site we present a series of scenarios for flooding at a variety of scales. These range from gradual inundation of palaeotopographies resulting from slow sea level rise to sudden flooding from beach barrier breakdown or tsunamis. We then attempt to test these models against dated sequences from estuaries within S E England where we examine ecological change as documented by changing microfossil assemblages (Foraminifera and ostracods) associated with transgression.

CC7 CRANNOG CONSTRUCTION IN EARLY IRON AGE SCOTLAND: EXPLORING DURATION AND MOTIVATION

Graeme Cavers

AOC ARCHAEOLOGY GROUP

The last decade has seen dramatic advances in our understanding of the origins and development of the lake settlement tradition in Scotland. The concerted efforts of the SWAP programme in south west Scotland have meant that for the first time, secure dating can be associated with structural and material cultural evidence from Iron Age crannogs and other wetland settlements. Coupled with the landscape approach taken to the study of Iron Age settlement at Cults Loch, a much more refined view of the role of crannogs is emerging, in which the occupation of wetland locations appears fleetingly but repeatedly in the context of a landscape organised around highly stable 'nodal' settlements. While the form of domestic architecture was very consistent, the 'mentality' of settlement location varied dramatically.

Taking this evidence in the light of the most recent analyses of early Iron Age settlement in Scotland more widely, there is justification for viewing the fifth/fourth centuries BC as a period of considerable instability, when settlements were embellished, fortified and placed in new locations in the landscape. This paper will explore these themes in the light of the SWAP programme research in SW Scotland, and consider the implications for our understanding of the motivations for crannog construction.

CC2 'CELTIC COMBATS' IN EUROPE IRON AGE: ARCHAEOLOGICAL DATA, LITERATURE, HISTORY AND ETHNOGRAPHY.

Pedro R. Moya-Maleno

UNIVERSIDAD COMPLUTENSE OF MADRID

Strabo (Geog. III 3, 7) noted in one of his most famous passages that mountaineers of the North of the Iberian Peninsula performed gymnastic competitions and horse, boxing, hoplite, with career, skirmish and battle formation." Their study in Celtic Hispania from archaeological methodology is limited to the iconography of riders and armed in ceramics and metals duels.

However, through medieval sources and ethnographic evidence is aware of a kind of tactical exercises and fights immersed in rural societies of the Iberian Peninsula whose characteristics demonstrate the importance of these acts in the popular system. Traditional struggles in the North and Central Iberian Peninsula hardly been investigated despite having internal rules and being, among others, a mechanism prestigious coordination between community members. Also they were a rite of passage for youth.

This type of contact is parallel fights throughout Eurasia and in what regards the European context, there are similar exercises in Cornwall, Scotland, Britain and Switzerland (*back-hold*, *gouren*, *lutte à la culotte*, etc). The nineteenth-century romantic trends impregnated these struggles and they were called under the name "Celtic struggles."

The apparent relationship between combat practices throughout the Celtic Europe and the social importance of development for local communities can investigate through their survivals an organizational system and fundamental to the understanding of the Iron Age hierarchies.

CC2 CROSSING INTO THE CIRCLE: RATHS, FAIRIES, AND LIMINALITY IN IRISH ARCHAEOLOGY

Jennifer Shaffer Foster

MEDAILLE COLLEGE

Archaeological understanding of Irish raths, enclosed, circular domestic sites, was once entwined with the idea of a mythical, glorious, Celtic past. Previously thought to date to the Iron Age, excavation and carbon dating over the last several decades has situated raths largely in the Early Medieval period (AD 400-1200). However, the connection between raths and Celtic lore endures in the island-wide moniker and understanding of these sites as "fairy forts." Fairy forts have featured prominently in popular imagination for at least the last hundred and fifty years, from the work of Yeats and other Celtic Revival authors, to websites and tourism promoting fairy folklore today. In Irish tradition, the fairies were otherworldly creatures, sometimes fallen angels, sometimes ancestors, who could move between this world and the supernatural. Their abodes were liminal places, forbidden ground for the mortals who sought to work, farm, and travel the land around them. While archaeological research on raths does not commonly delve into association with the fairies, a number of studies as well as anecdotal evidence suggest that the folklore surrounding these sites has helped protect them into the present. In this paper, I take an idea

common during the Celtic Revival—that raths were liminal places—and re-examine the archaeological evidence for this interpretation. The physical nature of these sites and the artifacts uncovered during excavation suggest that liminality may have been an important component of their meaning in the landscape during the Early Medieval period, as well as in recent history.

CC3 DEEP HISTORIES, A TALE OF TWO ORCADIAN SOUTERRAINS

Martin Carruthers

ARCHAEOLOGY INSTITUTE: UNIVERSITY OF THE HIGHLANDS & ISLANDS

The volume of literature specifically written about Orkney's Iron Age souterrains is relatively small and the majority of works are conventionally concerned with offering interpretations of these enigmatic subterranean structures that posit a single, functional purpose. Usually these polarised options have ranged between 'storage' on the one hand, and 'ritual' on the other. These interpretations have been made within a fairly unsophisticated discourse that makes little realistic allowance for the complexity of either: human social life, or that of the remarkable subterranean structures themselves, and their fascinating contexts.

In this paper, I would like to discuss the detailed biographical features of two souterrains: Windwick and The Cairns (Structure F), that I have recently excavated on the Orcadian island of South Ronaldsay. I wish to tell a tale of two souterrains that lay beneath working prehistoric landscapes of houses, fields and paddocks closely tended by large and energetic Iron Age farming communities. I hope to tease out a narrative of the acts, performances and interventions that were involved in the construction, use and dissolution of specific souterrains and also what that entailed in terms of practical, embodied engagement with places and features that were already millennia old, as well as more recent ruins, and the contemporary working landscape. In so doing the variety and complexity of social action witnessed reveals the dubiety of insisting that the underground structures were constituted in one purpose/meaning only.

CC5 EFFICIENCY OF ACOUSTIC TECHNIQUES FOR THE ARCHAEOLOGICAL PROSPECTION IN SUBTIDAL AND INTERTIDAL AREAS IN THE SOUTHERN NORTH SEA

Tine Missiaen

GHEENT UNIVERSITY

Very high resolution seismic imaging of buried palaeolandscapes in the southern North Sea to assess their archaeological potential poses a number of problems. The often sandy sea floor induces strong multiples that may obscure the data, especially in shallow water (<10-15 m); detailed imaging below sand banks is difficult because the short wavelength sound waves are quickly absorbed in the heterogeneous sandy sediments; the widespread presence of shallow (biogenic) gas seriously limits the acoustic penetration. Moreover, the intertidal area adds additional challenges due to the extremely shallow water depth, strong waves and currents, and a large tidal range. Within the framework of the SeArch project (www.sea-arch.be) we develop an efficient survey methodology for archaeological prospection to tackle the subtidal and intertidal area. This is done through the comparison of a range of seismic sources (covering a wide range of the frequency spectrum) and receiver combinations, including different multichannel configurations. Different sources and receivers were used simultaneously in 'one-sweep' surveys. First results show that multichannel recording significantly improves the image resolution, even at relatively shallow depths. Special attention is being paid to a set-up that will allow maximum imaging in gassy areas, both involving conventional P-waves as well as non-conventional application of Scholte and S-waves. In the intertidal area a combination of land and marine investigations (acoustic and non-acoustic) has proven to be highly effective, and recently allowed the identification of shallow trench systems and peat exploitation patterns.

CC3 STRETCHING THE SOUTERRAIN: LONGEVITY OF USE AND REUSE IN FIVE LOCATIONS

Kirsty Dingwall

HEADLAND ARCHAEOLOGY LTD

Working in the commercial sphere gives the opportunity to investigate souterrains in a different light; rather than targeting the most well-known examples, they are more usually unexpected discoveries on sites with multi-phase activity. Whilst this means the examples found might not be the best preserved, they can not only be invaluable in adding to the corpus of known sites, but potentially in representing more unusual or non-typical examples.

Headland Archaeology has had the opportunity to excavate a handful of largely previously unknown souterrains. These comprise three examples from Ireland and three from 'southern Pictland'. The examples are comparable with many other known souterrains and fit well within the corpus. Where they have more potential for study is in showing evidence of reuse, in some cases up to 1000 years after their original construction. In examining this sequence of reuse it can be possible to reconstruct more about the original construction and circumstances of abandonment. Additionally, the recent discovery of two souterrain-like structures dating to c1000 BC may point to the origin of the souterrain. These remains are fragmentary and also pose an interesting question of how heavily truncated examples are recognised in the field. The paper aims to provide a summary of these recent discoveries, to focus on the concept of reuse and what it can tell us and to briefly look at how recognition of fragmentary examples during excavation allows the site type to be expanded.

CC2 THE EARLY MEDIEVAL ATLANTIC CONNECTIONS OF GALICIA. AN INTERDISCIPLINARY APPROACH

José Carlos Sánchez-Pardo

UNIVERSITY OF SANTIAGO DE COMPOSTELA

It is well known that Northwest Spain has several geographical, cultural and historical links with the rest of the Atlantic arc, especially with the so-called "Atlantic Lands' End" (Ireland, Southwest Britain and Brittany). Archaeological studies on these connections have mainly focused on the prehistoric relations across the atlantic façade, but little has been done regarding the early medieval period. This presentation will explore the archaeological, textual and cultural data available on the Atlantic relations of early medieval Galicia and will integrate them into wider historical frameworks. For doing this, two approaches will be combined. First, a critical review of all the "direct" and "indirect" evidence on these contacts will be carried out. This includes recent advances on imported ceramics and other materials from atlantic origin, the discussion on the "celtic" influences in early medieval galician ecclesiastical organization and shared west-atlantic literary and cultural traditions. The hypothesis of an independent system of maritime contacts across the atlantic seafloor of Western Europe between the 6th and 8th centuries will also be discussed here. Second, a brief comparative approach to the landscape transformations of Galicia and other west-atlantic areas like Southwest Britain will be performed in order to detect both similar and different responses to social changes in these parallel "peripheral" european contexts. Given its role of "stepping stones" in the routes between the Mediterranean and the Atlantic regions, the case of Galicia can provide new light on the extent and significance of these early medieval atlantic connections.

CC6 CULTURE OR SOCIAL RANK ? THE « CELTIC » AFFINITIES OF THE NORTHERN IBERIANS.

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When dealing with South-West European Late Prehistory, it is usual to observe a mix between a linguistic taxonomy and an archaeological one. Celtiberians are for instance people from the "Indo-European" *Hispania*, while Iberians belong to a non Indo-European "substrate". Relying on this paradigm, archaeologists have for a long time looked for the archaeological markers of continental "celticity" in areas where people were supposed to speak a Celtic language, i. e. in the central part of nowadays Spain, while they seem to be more numerous in Eastern Catalonia. In this area, where epigraphy refers only to the use of the Iberian language, swords of La Tène type are for instance to be found, along with shields similar to those known all over Central and Western Europe. Some of these weapons can be displayed together with skull fragments according to a scenography reminding observations made in various parts of Gaul. These elements are often interpreted as the proof of a cultural proximity between northern Iberians and Gauls, sharing the same symbolic practices.

In this paper, we will offer another interpretation of these discoveries. In our opinion, the "international" artefacts –as well as the symbolic practices- have in common to be associated with social elites. They can be thus interpreted as markers of rank, more than as markers of ethnicity or cultural identity. We will then raise a question: why did they choose these specific markers, and not those more usual in the remaining part of the Iberian world?

CC2 THE LATE LATÈNE-SETTLEMENT AT BRUCKNEUDORF/BURGENLAND (EASTERN AUSTRIA)

Gerit Schwenzer

UNIVERSITY OF VIENNA

The scientific results of the excavation of Bruckneudorf will be presented with this paper. A summary of the history of Late Iron Age archaeology in eastern Austria and the analysis of dendrochronological records, animal bones, coins, aerial photography and a few examples of features will be introduced. Focus here will be the excavated material culture and the features in context. Time focus will be the 1st century BC - 2nd century AD, where a transfer from the Celtic native population via Romanization to being Roman citizens in Roman provinces generally can be traced.

In this particular case, so far no traces of such a transfer in this region, which would have been populated by peoples of the Boii (eastern Austria and borders to Hungary and Slovakian Republic), have been found. There was always a time gap between the pre-roman native Boii and the romanized population. This settlement site might be the first sign of such a transfer in the entire area.

CC6 HERODOTUS'S PEOPLES: RELATIONS OF DEPENDENCE

Timothy Taylor

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This paper examines the ethnic concepts of the fifth century BC observer and analyst Herodotus and looks at the way that these have been profoundly oversimplified in the modern application to archaeological cases (typically distorted by modern nationalist agendas). Reading Herodotus carefully reveals a highly nuanced account of identity issues, and evidence for a complex chain of vertical and lateral relationships between on-going communities and humans as material items (including slaves). Understanding the range of identity types, defined by custom, language, location, appearance, social status, economic role and so on requires us to move both up and down scale. Upscale, we have what can be termed the Eurasian network, integrating the Old World Iron Age technocomplex at the broadest level, downscale we deal with Limited Interest Groups (LIGs) of varying status and kind that articulated with it. It becomes clear that Herodotus, in attempting to construe a complex

diachronic account of Black Sea social formations, used ethnonyms as semiotic markers in a remarkably flexible and context-sensitive manner. It is important to understand what he is discussing before we can understand these terms, even when these appear recurrent. Due to Herodotus's subsequent authorial influence, implicitly considered the exemplar for all ethnographic descriptors, the issues raised in the case of the use of terms Scythian and Thracian (which Herodotus applied to socio-cultural phenomena about which he had first-hand knowledge) are also relevant in the Celtic case (despite the fact that that impinges only tangentially on his narrative).

CC5 FROM COAST TO COAST: CARRYING OUT INVESTIGATIONS OF SUBMERGED FORESTS ACROSS ORKNEY, THE SEVERN ESTUARY AND THE PETT LEVEL, SUSSEX

Scott Timpany

ARCHAEOLOGY INSTITUTE UHI

Thanks to recent winter storms across the UK, submerged forests have once again been thrust into the media spotlight and are capturing people's imaginations of a land familiar yet much different to what we see today. From the late eighteenth to the late nineteenth centuries these remnant woodlands, exposed at low tides in coastal locations around the British Isles have been a source of wonder and fascination often associated with mythical lost lands and subsidence of areas of land into the sea. Since these times we now know more about the loss of land from rising tides thanks to advancements in sea-level studies; however, it can be argued that the advancement of our understanding of these woodlands has stuttered somewhat since these initial studies.

This paper seeks to highlight the importance of submerged forests and intertidal peats to both our understanding of palaeolandscapes and the interactions of people and fauna with these woodlands in the past. The paper will take a whistle-stop tour of recent and not so recent multi-proxy investigations of submerged forests in Orkney, the Severn Estuary and at the Pett Level. It will discuss the use of palaeoecological techniques to reconstruct the canopy and ground flora elements of these woodlands, what this tells us about their openness and how these woodlands in different locations of the British Isles compare against each other. The paper will also discuss how running such investigations as community archaeological projects can be an all round benefit.

CC6 THE LAST DAYS OF CELTS ON MIDDLE DANUBE – NEW EVIDENCES

Milan Hornak, Andrej Zitnan

VIA MAGNA S.R.O.

Traditionally, the end of Celtic being in Central Europe and on Middle Danube was connected with power struggle between Celts and Dacians led by king Burebista from south-east and gradual influx of old Germans from the north-west. During the 20th century, archaeologists formed detailed concept of 1st century BCE that was marked by the profound changes in the Celtic society. It seemed there can't be anything to challenge traditional views.

New excavations conducted between years 2008-2010 and 2013-2014 on Bratislava castle, former acropolis of mighty Celtic oppidum on Middle Danube, brought us new evidences of unprecedented level of interaction between local Celts and Mediterranean civilization. Well preserved remains of Celto-Roman stone architecture, mosaics, poured floors and evidences of direct imports e.g. amphorae, Roman Republican coins or glass – these complex archaeological situations made us reconsider traditional theories.

We are offering a new vision where we see Celts as a flexible society which is constantly changing in order to adopt to new geopolitical and economic realities. We think that Celts were not passive constituents watching from the periphery and blindly following and mimicking Roman culture but we see them as active participants, selecting certain cultural patterns from Roman world while keeping enough of their own cultural traditions. This attitude explains their non-problematic integration into future Roman Empire, which expended its borders to Middle Danube in first century AD.

CC5 INVESTIGATING THE WHITE RIBBON: DEVELOPING SOURCE-TO-SEA PALAEOGEOGRAPHIES FOR EARLY PREHISTORY

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¹WESSEX ARCHAEOLOGY, COASTAL & MARINE, ²WESSEX ARCHAEOLOGY

Substantial advances in the mapping, interpreting and prospecting for submerged palaeolandscapes and early prehistoric archaeology in UK waters have been made over the last 15 years; mainly in association with industry datasets and driven by marine development. Much of this work has been undertaken in the southern and central North Sea and East English Channel, in areas of thick Quaternary sediments which are rich in palaeolandscape features, faunal remains and archaeological finds; and is relatively well-understood.

However, in shallower coastal waters, there is a notable data gap of both geophysical and geotechnical datasets, colloquially known as the *White Ribbon*; a zone of primary interest for investigating submerged prehistory. As freely-available geophysical datasets become available through Government and industry sources this gap is diminishing, however in key areas of archaeological interest for early prehistory data is scarce and preservation of Quaternary sediments sporadic. One such area is the coastline of northeast England which saw the early colonisation of Mesolithic people from Doggerland around the 8th

millennium BC. A number of early house structures have been located between the Humber and Forth valleys. The primary context of their palaeolandscapes is now underwater and located within the White Ribbon. A recent collaborative project with the BGS, Dr Claire Mellett has sought to integrate bespoke geophysical survey in the White Ribbon in order to approach seamless source-to-sea palaeolandscapes scenarios which facilitate cultural heritage management and drive future prospection for submerged prehistoric resources.

CC5 PROGRESS IN PLEISTOCENE PALAEOLANDSCAPES OF NW EUROPE

Louise Tizzard, Andrew Bicket

WESSEX ARCHAEOLOGY

Recent synthesis of European submerged prehistoric research by the European Marine Board highlights the dominance of post-glacial and Holocene archaeological material and palaeolandscapes in the records of known sites and artefacts. Due to a relatively short period of inundation, lack of glaciation other processes of erosion, and ease of access to shallowly or unburied stratigraphy this is not unsurprising. However, earlier Palaeolithic sites, artefacts and contemporary palaeolandscapes survive extensively in NW Europe, particularly in the southern North Sea representing Lower Palaeolithic, Early Middle Palaeolithic and more recent Palaeolithic periods. Known Pleistocene palaeolandscapes comprise a very long time period with stratigraphy coeval with the known terrestrial early prehistoric record known from offshore locations, i.e. the last 1 million years in the North Sea basin at Happisburgh 3, East Anglia, UK. The important Neanderthal lithic assemblage from the palaeo-Yare catchment 11km off the coast of East Anglia is showcased. Further palaeolandscapes features date to MIS 3 a critically important period where Neanderthals and modern Humans were colonising Britain but the offshore geological record is poorly understood in terms of palaeogeography. New assessments from the Brown Bank Formation are presented which highlights the contribution of inundated Pleistocene stratigraphy to guiding our hypotheses on pathways and timing of colonisation across the North Sea basin during the Quaternary.

CC3 NEW LIGHT AT THE END OF AN OLD TUNNEL

Richard Strachan

HISTORIC SCOTLAND

On behalf of Scottish Ministers, Historic Environment Scotland is responsible for the conservation and presentation of 7 souterrains held under guardianship since the early 20th Century. From Shetland to the southern Scotland these iconic sites have fed much of the debate on form, function and regional variation. This paper outlines the background to these sites, their coming into state care and the on-going challenges of conservation and interpretation of unstaffed visitor attractions.

CC7 ISLANDS OF THE DEAD

Christina Fredengren

DEPARTMENT OF ARCHAEOLOGY AND CLASSICAL STUDIES

Crannogs are normally seen as settlements for the living. However, a significant amount of human and animal remains have been found on or adjacent to these man-made islands, but also in nearby lakes, and rivers. Hence, many of these sites transgress the traditional archaeological division into dwellings and burials.

This paper will explore how these selection, use and depositions of these remains change over time and analyse what relationships between human and non-human others that were brought into play through these depositions and link these to questions of sacrifice and killability. Against this background Early Irish literature is investigated in order to understand how various landscape imaginaries deals with the relationship between human and non-human actors such as waters, human remains and artefacts, building up time-specific nature:cultures. The paper mainly draw on examples from Ireland, making use of research carried out for the Discovery Programme. It will also contribute with parallels from Scandinavia, where depositions of human and animal remains associated with wetland platforms dates to the Iron Age.

CC7 LIVING IN THE WETLANDS – A DANISH PERSPECTIVE.

Pernille Pantmann

MUSEUM OF NORTHERN ZEALAND

In Denmark most of the wetland archaeology has concentrated on the ritual finds such as bog bodies, weapon sacrifices and prestige objects. The ordinary people and ordinary life in connection with wetlands have been somewhat neglected.

Recent years' excavations in northern Zealand, Denmark have revealed that the former theory of the miserable Iron Age single-farms in the woods may need a facelift. Kettle holes characterize the landscape of this part of the country, which has resulted in a large number of fens and bogs. Though severe drainage in modern times dramatically has changed the landscape, it is evident that rather than considering the wetlands as a hindrance, it offered several possibilities for prehistoric settlement and life in general. Traditionally people living in wetlands in historic times have been considered poor and disadvantaged, which may have influenced the general idea of the prehistoric life and settlement pattern in the wetlands.

In some cases, the Iron Age people appear to have chosen the life in wetland areas prior to the dryland areas; it often seems to have been a privileged life. The relation between the fens and the settlements were close in many ways, both profane and ritually. One of the main issues is therefore to discuss the distinct connection between everyday life and cult, especially the

question if one can divide the two, or if the cult, just like the wetlands, is far more integrated in the settlement pattern than we tend to believe.

CC6 URBANISATION DYNAMICS IN CELTIC EUROPE: FROM SITES TO NETWORKS

Clara Filet

PARIS 1 - PANTHÉON-SORBONNE

Over a relatively short period between the 3rd and the 1st century BC, an unprecedented phenomenon of complexification of modality of habitation developed in non-Mediterranean Europe. This was the emergence of large agglomerations which had urban characteristics. This important landmark of the end of the Celtic period on the continent is here considered in the light of a new element: organisation of the sites networks. We no longer consider the town as a simple dot in a map, but as the articulation between different networks (contacts and interactions) of settlements, from the local to inter-cultural scale.

The presented project works to precise the organisation of connections between settlements inside a given territory. To reconstruct past connections, the distribution of exogenous products or material and the structure of the settlement hierarchy are examined and confronted to spatial interactions models, in particular retailer models (ex. Bevan and Wilson 2012). First conceived by physicists and urban geographers, those applications allow us to identify the relative (economic, political, in size...) importance of each node depending on its position in the network. Their more recent use for archaeological dataset offers promising prospects in the study of complex processes with connected actors.

Studying this system, its implementation and its evolution will help us to better highlight how the first towns' networks established themselves in relation to each other, and to perceive how far these new agglomerations had a role to play in the territory structuration and the emergence of the first archaic states north of the Alps.

CC6 TRACING CELTIC IDENTITY: A GEOSTATISTICAL APPROACH IN MULTI-ETHNIC SOCIETIES OF LATE IRON AGE EMILIA-ROMAGNA (ITALY).

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The ethnic identity of the bearers of La Tène Culture in Italy is a recurrent subject in late Iron Age archaeology, with opinions ranging from the acceptance of the presence of Celtic groups, as outlined in the ancient sources, up to its negation.

The case of Emilia-Romagna between the 4th and the 2nd centuries BC is well known in the history of research: here, the combined analysis of literary sources, material culture and the contribution of Strontium Isotope Analysis, have been used to reconstruct the ethnicity and social configuration of the local population. The resulting picture reflects a heterogeneous landscape where Celtic groups, identified with the tribe of the Boii, interact in different ways with the local (Etruscan, Ligurian, Umbrian) substratum.

In order to understand the processes of interaction, we focus our attention on sites with La Tène artefacts, or in association with objects of local provenance/imports. A statistical approach allows us to examine the intra-site objects distribution, while a geostatistical analysis, on a regional level, is used to identify those sites with similar/different patterns. By confronting sites with homogeneous/heterogeneous artefact distributions we are able to present a diachronic analysis of the interaction patterns in Emilia-Romagna, mainly based on the material culture data. To conclude, we will discuss to what extent the results can or cannot be seen as indicators for cultural or even ethnic identity.

CC5 MESOLITHIC ADAPTATION TO A NEW EUROPE

Garry Momber

MARITIME ARCHAEOLOGY TRUST

Following the Last Glacial Maximum sea level has risen giving new shape to the European Continental shelf. Around 7,500 years ago, Great Britain was finally becoming an island. This presented a period of great change causing the people of the Upper Palaeolithic and the Mesolithic to adapt to survive and flourish. The need for adaptation reached its zenith around 8,000 years ago when a growing population was overwhelmed by floods and tsunamis that drowned large tracts of land, disrupted subsistence patterns and severed social networks. Other challenges included the northward migration of forests while the ingress of the sea isolated communities on islands. But on a positive note, the changes presented new opportunities that facilitated adaptation and sowed the seeds of modern European cultures. The increasingly temperate climate supported the expansion of farming from the south-east to the north-west regions of Europe while the ingress of the sea necessitated technological advances that helped exploit the resource rich estuarine environments. Information on the interplay between the cultures that were lost below the coastal seas around Britain have been hard to extract from the archaeological record on land. However, recent discoveries from the well preserved submerged deposits dating to this crucial time of change are raising new questions about prehistoric human networks. This paper reports on the results of DNA analysis from the drowned Mesolithic site of Bouldnor Cliff, UK, along with a reappraisal of the archaeological evidence from this land under water, to question our perceived understanding of European cultural connections.

CC1 HUMAN FACES IN EARLY CELTIC ART

Marina Hess

IAW FREIBURG

The poster focusses on the human faces in early Celtic art and their role within this art. A postdoc project of the author pursues the goal of decoding the messages of pictures of early Celtic art concluding the motive combination: human being, animal and plant. This will hopefully offer new insights into the mythological conceptions of early Celtic period.

Basic thesis of the project is that the contents of mythological-cosmological conceptions are transported by picture codes. Messages hidden behind them were understood by viewers of that time. But which role do the faces play and how can we understand them, that is subject on the poster.

CC1 THE IDEA OF A SOUL AND THE GENESIS OF THE LA TÈNE CULTURE ART

Tomasz Gralak

INSTITUTE OF ARCHAEOLOGY OF WROCLAW UNIVERSITY

Researchers trying to explain causes of changes in material culture, usually point out that they resulted from rapid political, climatic and social transformations. Not excluding these factors, it should be emphasized, however, that material culture is actually the realization of spiritual culture and ideology of individual societies. Before any feature or item is made, there is always a project, which is then implemented. Thus change of material culture reflects deep ideological change also. In Hallstatt period dominated the belief that everything consisted of many, usually very similar, elements. Geometric ornaments (mostly rectangular or triangular) on pottery were designed that way, in this manner human and animal figures were presented as well. The population of the La Tène culture breaks this paradigm. In the material culture representation of sphere, circle, spiral or wavy line begin to dominate. They are the main ornamental motifs on everyday items. Also in the case of construction, based on research in Manching, it can be concluded that in order to plan buildings many circles were drawn. The manner of human beings' perception also changed. A recurring ornamental motif is human head, often with large hemispherical eyes. In both cases, these representations may be regarded as specific images of sphere. The explanation of this fascination with circle and sphere can be found in the writings of Greek philosophers. According to some of them (e.g. Aristotle, On the soul) it is the shape of human soul and, in broader sense, the inner structure of the world.

CC6 THE CELTS EAST OF THE CARPATHIANS.

Larissa Vorotinskaya, Larissa Vorotinskaya

THE STATE HERMITAGE MUSEUM

The problem of the Celts' footprint in the eastern lands is insufficiently explored in the Russian archaeological literature. Even worse is the situation with search of archaeological sites. Only a few Celtic settlements in the lands east of the Carpathians are known. Nevertheless, it is much likely that some of the Celtic population lived for a certain time in the eastern lands to the Dnieper and had a significant impact on the culture and politics of the local population. Some names of places and rivers are indicative of this. The presence of the Galatians is repeatedly mentioned in written sources; for instance, the decree in honour of Protogenius from the Greek town of Olbia tells that the Galatians (Celts) posed threat to Olbia. Quite a lot of Celtic objects were found during the excavations throughout the area of the Northern Black Sea region, including weapons - helmets, swords, shields, which is reflective of military contacts of the nomads of Eastern European steppes with the Celts.

Lately, Celtic objects have been found on the territory of the Ukraine in the course of illicit excavations. The number of items (fibulae, pendants, torcs) dating to the period B-D of the La Tène culture, on the territory east of the Carpathians, count thousands. Specifically noteworthy are the items of the period B of La Tène culture, that is, the time preceding the appearance of Zarubintsy and Poianesti-Lukashevka cultures in the Dnieper and Dniester areas, with the monuments adorned with numerous middle La Tène fibulae.

CC1 ICENIAN COINAGE AND ITS IMAGERY

John Talbot

OXFORD UNIVERSITY

The paper comprises some of the findings of an ongoing DPhil research project entitled "What is Icenian Coinage" at Oxford University. The project has included a die study of 10,000 "Icenian" coins which were produced in East Anglia during approximately the second half of the 1st century BC and the first half of the 1st century AD.

The study has included an analysis of imagery, scale of production, weight and metal content, hoards and distribution.

The paper will concentrate upon the imagery borne by the coinage and will show:

- Numismatic imagery should be considered as a part of the mainstream of LIA art and not as a separate art form subject to different rules.

- How Greco-Roman prototypes were adapted to local aesthetic. The East Anglian images are less naturalistic than the prototypes but had complex forms of hidden imagery, some of which have not been previously identified.
- Some symbols and devices on the coinage were used to create hidden imagery whilst others appear to have had other functions. The die study has given a relative chronology which reveals how certain symbols were adopted and abandoned in a synchronised way during the production of the unscripted coinage. Certain of these changes correlate to periods of hoarding and to changes in production parameters.
- The increasing importance of stability of imagery during the period of coinage production.

CC1 THE HIGH CROSSES OF IONA AND KILDALTON - MELTING POT OF AND CONTRIBUTORS TO "LATE CELTIC" ART

Petra Hanauska

ARCHAEOLOGY

The monastery of Iona was founded by Saint Columba in 563 and soon became one of the centres of western Christendom. It was situated within the sphere of influence of four cultural areas. In the sixth century AD, today's Scotland was divided into four kingdoms. The western part of the country had been occupied in the fifth century by an Irish tribe, who founded the kingdom of Dál Riata and stayed in close contact with Ireland. In the eastern part, behind the mountains of Druim Alban, there was the kingdom of the native Picts. South of Pictland lay the Anglo-Saxon kingdom of Northumbria and to the West of Northumbria there was the British kingdom of Strathclyde. Formally belonging to Dál Riata, Iona had intensive political contacts to all four cultures, the strongest being those to Dál Riata respectively Ireland, then to Pictland and Northumbria. Apart from political contacts there was an active cultural exchange, which had a strong impact on all artistic media and which can be seen on the crosses of Iona and Kildalton. On these you can trace elements which are also part of Irish, Anglo-Saxon and Pictish art, whilst the artistic exchange with Strathclyde is almost negligible. But the masons of Iona did not only borrow these elements, they also found their very own ways of artistic expression. The opinion presented here is that St Columba's abbey on Iona did not only hold a geographical mid-position between Northumbria, Pictland and Ireland, but also an artistic one.

CC1 IMAGINING DRAGONS. STATUS AND IDENTITY MARKERS IN THE LATE IRON AGE CARPATHIAN BASIN. THE CASE OF THE ZOOMORPHIC RING BRONZE BROOCHES.

Andrei Georgescu

"BABEȘ-BOLYAI" UNIVERSITY OF CLUJ NAPOCA

Archaeology is a science that generally works with images whose origins and meaning are hard to completely understand. Concerning the nature of Celtic art, throughout history there have been two ways of interpreting. The first one considers Celtic art as having a religious meaning, while the second one regards it as purely decorative.

One of the ways in which the Late Iron Age art manifests itself is garment assemblages. These archaeological small finds have often been discussed only from a typological and chronological point of view. The role of the traditional costume as a marker of status and identity has rarely been taken into consideration. This is owed to the fact that very few costume components have survived to this day.

This study will try to analyze a set of brooches, decorated with the dragon or zoomorphic lyre motif, that have circulated in the second half of the 4th century BC in the Carpathian Basin. By providing a contextual and functional analysis of these adornments we will try to prove the role these objects had in expressing the individual's status and identity in the Transdanubian region. Another goal of this study is to understand how these fibulas spread throughout the eastern Carpathian Basin and northern Balkans and how the fashion of decorating brooches with this motif is adopted by the Thracian-Illyrian tribes.

CC1 DRUIDS, MASKS AND HERMAPHRODITES. LA TÈNE BRONZE FIGURINES FROM SOUTHERN PANNONIA

Ivan Drnić

ARCHAEOLOGICAL MUSEUM IN ZAGREB

Although the region of central and eastern Croatia is considered the south-eastern border of the La Tène culture, it was fully integrated into the larger La Tène complex. Apart from the usual artifacts like pottery, costumery, tools, and weapons, a small number of art-like objects are known, confirming the existence of networks used in the transmission of ideas, iconographic concepts, and ideologies. Of this group, three objects, small bronze figurines, stand out. Similar artifacts are known from central European contexts, but as a group they are actually quite rare, less than twenty known examples.

The first figurine was found at Kuzelin, a hilltop settlement near Zagreb. It represents a nude male figure with a characteristic "band" haircut, a style known from several stone sculptures, including that from Mšecké Žehrovice which N. Venclová convincingly linked with the social class of druids.

Two other figurines from the sites of Osijek and Dalj in eastern Croatia represent iconographically complex images, one with a dual-gender representation and the other with male sex attributes. Both wear masks, objects usually connected with transformations and transitions. Hermaphroditism and masking could reflect fluidity and the changing nature of identities, concepts common in Celtic art. Furthermore, the distinctive position of the arms, recorded for other small plastics, large stone

statues, and funerary contexts within La Tène culture could also communicate certain social messages. The Osijek figurine has arms placed on the belly and waist, while the Dalj object rests its arms on its waist and head.

CC5 INTEGRATED GEOPHYSICAL AND GEOTECHNICAL APPROACH FOR ARCHAEOLOGICAL PROSPECTION OF BURIED PREHISTORIC LANDSCAPES IN WETLAND AREAS (SCHELDT POLDERS, BELGIUM)

Jeroen Verhegge, Tine Missiaen

GHENT UNIVERSITY

Geoarchaeological mapping in wetlands through conventional coring can be very difficult and time-consuming. A more effective approach combining near surface geophysical and geotechnical techniques is proposed and tested in the Scheldt polders. The site contains a number of well-preserved prehistoric settlements located on the tops and flanks of Late Glacial sand ridges that are now covered by peat, organic clays and marine clayey to sandy sediments. The results indicate that CPT and EMI are the best alternatives for augering in the case of deeply buried prehistoric palaeolandscapes. The main advantage of CPTs is the high depth control and the high contrast between the peat and the under- and overlying sediments. Single coil spaced EMI offers a higher horizontal resolution of the peat thickness/depth but also includes other sources of variations which can be desirable (e.g. (post-)medieval landscape divisions) or undesirable (e.g. saltwater intrusion). In view of the required effort, electrical resistance imaging and land seismics were judged inefficient. Depending on the specificities of the study area, either gridded CPTs or a combination of EMI calibrated and validated by CPTs seem to provide the best approach for mapping the palaeolandscape variability, but this needs to be backed up by geological coring to identify the degree of preservation of archaeologically interesting landscape locations. Subsequent archaeological coring of a small dune at the test site allowed to retrieve several burnt bone and flint fragments indicating prehistoric occupation.

CC1 THE EARLY LATÈNE HILL-FORT IN HORNÉ OREŠANY

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The hill-fort with an area of 2 ha was discovered in 2002 and partially excavated in 2008. The great majority of the finds belongs to the Early Latène period (LT A), i.e. to its older and younger phases equally. These two horizons were also documented stratigraphically. From the interior area of the hill-fort we have ample evidence of blacksmith activities and jewellery production, such as pieces of raw stock, semi-products and a large amount of blacksmiths' and jewellers' tools. They come from craftsmen's workshops concentrated on terraces along the ramparts. 11 brooches with animal and human heads, 10 brooches with bird heads and some dozens of box-shaped belt hooks were also found. Iron processing was probably connected with the ancient mining of iron ore, of which there was evidence on the hill slop. Remains of workshops, fortifications destroyed by fire, hoards and pits containing human bones were found during the excavations. Some of the features, together with deliberately deformed weapons, may reflect cultic practices (*tropaia*?). Within and also outside the ramparts at least 5 deposits of iron artefacts and bronze ornaments were found. Weapons were also found frequently. According to reliable information at least 8 swords and 60-80 spearheads were found here in the past. Among specific artefacts there are axes decorated with linear patterns and masks that had been hammered from one piece of iron. They probably served ritual and prestigious purposes.

INTERPRETING THE ARCHAEOLOGICAL RECORD PAPERS AND POSTERS

AR15 THE ARCHAEOLOGICAL ARCHIVE AS ARCHAEOLOGICAL RECORD: A REFLECTION ON OUR ETHICAL RESPONSIBILITIES

Irene Garcia Rovira

UNIVERSITY OF MANCHESTER

In all its definitions – the fossil, the textual record and the record of past practice – the notion of the archaeological record has focused on the remains of the past as represented by the materiality that we unearth. However, in a lengthy consideration of the subject, Lucas (2012) has recently challenged traditional definitions, noting that the past emerges amid a range of practices carried out by archaeologists. This examination has led to an acknowledgement that the archaeological archive is not just a representation of the archaeological record, but has to be understood as being part of the archaeological record itself.

Following this line of thought, this paper discusses the ethical responsibilities inherent in the production of archaeological archives, pointing to the fact that primary sources and grey literature are often the most common resource used by researchers in their examinations of the past. What are the challenges that this definition brings to the ways in which we produce and store archaeological archives?

AR4 MEDIEVAL SHIRTS FROM THE ARCHAEOLOGICAL EXCAVATIONS IN THE MOSCOW NOVOSPASSKY MONASTERY

Irina Elkina

INSTITUTION OF ARCHAEOLOGY RAS

During the archaeological researches of tombs of the Romanov Boyars in the Moscow Novospassky monastery textile remains were found in white stone sarcophagi XVI-XVII centuries. This textile remains were identified as decorative elements of shirts. Remains of eight shirts of varying degrees of preservation have been identified during excavations in of 1997-1999. Another four shirts were discovered during excavations in 2014. Comprehensive studies of found textile fragments were conducted in the laboratory. The studies included materials science, structural, process analysis, dye and others.

Shirt is a key element of the male Russian traditional medieval costume. Shirt was sewed from linen or silk and was had a tunic cut. Shirt was decorated with silk ribbons, embroidery and weaving. Location of ornamental elements was stable pretty on the medieval shirts. Decorative elements placed on the collar, sleeves, on the hem. The richness of decoration shirt prosperity depended on the owner.

Shirts, that was found in the tombs of the Novospassky Monastery is a magnificent example of arts and crafts Late Middle Ages and point to the high status of their respective owners. Decorative elements of shirts were made in the technique of weaving and embroidery in gold and colored silk threads. Quality of the gold embroidery and braiding indicates a high level of professionalism of the masters.

On the basis of a comprehensive study of textile residues the colored graphic reconstruction of the original form of the shirts were produced, as well as the reconstruction of their decorative elements.

AR4 BIN THERE! DONE THAT! NEOLITHIC PEOPLE WITH SCIENTIFIC/TECHNOLOGICAL APTITUDES WORKED WITH ARTISTS/STONECRAFTERS TO REALISE PROJECTS AT ENGLAND'S AVEBURY COMPLEX. HAS THEIR WORK ANYTHING TO TEACH US AND GUIDE OUR OWN INTERDISCIPLINARY INITIATIVES?

Diana Pattison

INDEPENDENT RESEARCHER

Avebury is well-understood as a centre of scientific learning in the Neolithic. It was also a centre of artistic excellence. Over c1600 years Avebury's artists developed skills, technologies and knowledge to produce sophisticated three-dimensional megalithic sculptures like none other in Western Europe. In her discovery since 2002 of 170 carvings and additional shaped/dressed stones the author finds evidence to address this question. Using illustrated examples the paper reveals how artists/stonemasons applied scientific/technical knowledge of other emergent disciplines to their work including

- measurement, geometry and ratio the comparative proportions of the human body, and how to scale them up to produce colossal sculptures
- the determination, in advance of a stone's erection, of which part would be visible in an architectural setting from a specific viewpoint, to create an image occupying only that space on the recumbent boulder
- how megaliths balance best, and thus how masonry would facilitate this, and could sometimes help reduce the labour of erection
- ensuring that the sun, rising at a given festival-time, would illuminate imagery at particular heights on raised stones, when the art process required that the stone be worked flat.

A surprisingly modern-seeming Neolithic site-specific artistic intervention made at a thousand-year-old monument and a museum-like interior assemblage of worked stones are then presented.

The paper closes by discussing

- Avebury as a gathering-place
- the changing status of artists/stonecrafters valuing and understanding different work-methods and abilities
- envisioning the benefits of collaboration
- training successive generations and building the knowledge/skills-base
- art-archaeology projects in the context of contemporary art-science developments.

AR4 PIT-GRAVE AND THE OTHERS: A PERSPECTIVE ON THE ABSOLUTE CHRONOLOGY OF THE LOWER DANUBE AREA (LATE IVTH- FIRST HALF OF THE IIIIRD MILLENNIA BC)

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¹MUZEUL JUDEȚEAN DE ISTORIE ȘI ARHEOLOGIE PRAHOVA, ²MUZEUL JUDEȚEAN BUZĂU

During the late IVth millenium BC at the Lower Danube Eurasian steppe cultural elements appeared that became common on a wide area stretching to the Pannonian Plain. These were barrow burials, known as Pit-Grave, defined by rectangular pits, ochre deposition, precious metals ornaments, clay pots, wooden carts.

The main issue in understanding phenomena occurring at the Lower Danube during the studied period is that of defining the existing local cultural background and the impact of its interaction with Pit-Grave communities. Thus, complex research was carried out in Northern Muntenia, including 11 barrows, several partly contemporary sites and old excavations turned to good account. 26 radiocarbon dates were performed, along with anthropological determinations, metallographic analyses, geophysical investigations. The achieved results revealed a much more complex picture of the approached time frame and space.

While for the early stage of barrow-burials their interaction with local communities is suggested indirectly, by grave-goods (Coțofeni and Baden pots and items), research highlighted contemporary settlements starting with 2800 BC, assigned to the Glina culture, placed both north and south of the area covered by mounds. Research on the first half of the IIIrd millenium BC suggests that Pit-Grave communities were contemporary with the local Coțofeni and Glina communities and indicates the subsequent coexistence of the Catacomb and Glina cultures[1].

[1] Research funded by the "MINERVA - Cooperare pentru cariera de elită în cercetarea doctorală și post-doctorală" Project, Contract Code: POSDRU/159/1.5/S/137832, project financed from the European Social Fund through the Sectoral Operational Programme Human Resources Development 2007-2013.

AR11 FISHING WITH STATIONARY WOODEN DEVICES IN DANISH WATERS THROUGHOUT 8000 YEARS

lisbeth Pedersen

MUSEUM LOLLAND-FALSTER

For millennia, coastal fishing structures made of wood apparently provided the inhabitants of Denmark with a significant part of their diet.

This paper examines the use of wooden fish weirs in the period 6400 BC – c. AD 1950, based on a combination of archaeological, historical and ethnological records.

The story begins with archaeological investigations of Mesolithic and Neolithic fishing structures located in 1988, on the basis of landscape models, in the drained and reclaimed Halsskov Fjord leading out to the Great Belt. The results from here have inspired investigations of corresponding prehistoric structures in coastal areas of Denmark and diachronous studies of fishery involving wooden structures.

Comparisons of wooden fish weirs from the Stone Age with their counterparts from the late 19th/early 20th century have revealed how several basic principles and numerous details remained remarkably unchanged for almost 8000 years with respect to design, weaving techniques and materials used.

The speech emphasises how people in Denmark have, from Mesolithic times until the advent of industrialisation in the second half of 19th century, been dependent on wood as a basis resource. It also explains how stationary fishing devices contain substantial information on human exploitation of marine and woodland resources. The aim is to put Danish evidence relating to human relationships with these resources over time into a wider European context.

AR16 HOW SPACE TALKS

Markus Spring

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When we occasionally would look up from our smart phones, we may get hold of stimuli in our built environment. The towering colons of a cathedral can bring us at awe or the glossy prospectus of a new housing development may tease us as potential

buyers. But also prehistoric built environments are likely to have conveyed a message about inhabitants and their social structure to a visitor from outside.

The proposed paper is an experiment into combining prehistoric archaeology with aspects of environmental psychology. It draws its inspiration from critics Daniel Montello, an American Geographer and Psychologist, expressed on the role *Space Syntax Analysis* played in environmental psychology and how this could be improved. He outlined, how people experience a built environment and how they may react to it. The proposed paper turns the wheel of time back into Early Bronze Age Europe. It cannot reconstruct people's reactions. However, it explores how a contemporary first-time visitor walking through a selection of fortified lakeside settlements would have experienced this for him new environment.

Although this approach is still rather crude and sample numbers limited, the paper reveals that built space during Early Bronze Age also left impressions on a contemporary visitor. He may e.g. have realised how close people lived together and drew his own conclusions about their social organisation. And through the eyes of a contemporary person, rather than from our own perspective as researchers, we may be able to better understand built space in the past.

AR9 BETWEENAN DÆRE STRÆTE AND DÆRE MÆDWE 'BETWEEN THE STREET AND THE MEADOW': PLACE-NAMES, ARCHAEOLOGY, AND TRAVEL AND COMMUNICATION IN ANGLO-SAXON ENGLAND

Eleanor Rye

UNIVERSITY OF NOTTINGHAM

Despite its importance for understanding several aspects of Anglo-Saxon society, there has to date been only limited study of the Anglo-Saxon routeway network. However, a three-year collaborative project between University College London and the University of Nottingham, 'Travel and Communication in Anglo-Saxon England', is now investigating the subject at a national level using archaeological, place-name and textual evidence. This paper, based on research undertaken for the project, will explore how travel and communication in the Anglo-Saxon period can be investigated using a combination of place-names and archaeological evidence. The paper will focus on areas with surviving Anglo-Saxon charters (records of land grants) with boundary clauses describing features along the edges of the land units they define. The first part of the paper will outline how these boundary clauses, which are predominantly written in the vernacular, can supplement place-name evidence for routeways. This will entail consideration of the variation in the terminology used to describe routeways and its implications in terms of chronology and routeway hierarchy. The potential for using finds recorded in the Portable Antiquities Scheme (PAS) database to supplement our knowledge of Anglo-Saxon routeways will then be explored. Finds associated with routeways could inform us about the periods when routeways were used and the travellers using them, so the paper will consider whether there are any significant associations of artefacts in the PAS database with routeways in the study areas (taking localised circumstances affecting the quantities and types of finds recorded into account).

AR2 PANARCHY AND CASCADES OF REGIME CHANGE ON THE PREHISTORIC TEXAS COASTAL PLAIN: A HYPOTHESIS FOR THE COLLAPSE OF A 6000 YEAR OLD HUNTER-GATHERER RITUAL AND MORTUARY COMPLEX

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We either learn from our ancestors, or we face the challenges of a globalizing planet undergoing rapid population growth and climate change hamstrung by our ignorance of the past. In this paper, we combine our knowledge of the prehistory of the Texas Coastal Plain (TCP), mathematical modeling, and the concept of panarchy to study why human societies successfully cope with the interrelated forces of globalization, population growth, and climate change, and, sometimes, why societies fail to cope with these interrelated forces. Our hypothesis is that, in response to population growth, hunter-gatherers on the TCP created increasingly dense social networks that allowed individuals to maintain residual access to important sources of food. While this was a good strategy for individuals to maintain a reliable supply of food in a variable environment, increasingly elaborate social networks created a panarchy of forager-resource systems. A panarchy occurs when nested systems that operate at different scales of space and time become increasingly connected by flows of resources. The panarchy of forager-resource systems on the TCP created a hidden fragility: The potential for the failure of resources in one system to cascade from system-to-system across the entire TCP. We propose this is exactly what happened at 700 years BP, causing a 6000 year old ritual and mortuary complex to suddenly collapse. Our study illustrates how the concept of panarchy can guide archaeological research, but, at the same time, also points out the ultimate limitation of the concept.

AR20 DIFFERENT APPROACHES TO NEOLITHIC TRANSITION BETWEEN THE EASTERN AND WESTERN ADRIATIC SEABOARDS

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The Neolithic migrants and autochthonous hunter-gatherers were unwitting actors in an adaptive process which lasted over half a millennium in the Adriatic. Whilst the final outcome was the same, how this occurred on the eastern and western seaboard is fundamentally different. We will review the geography, the time spans and the archaeological evidence to try to determine how the Mesolithic hunter-gatherers adapted to the new life-way and/or influenced the incoming Neolithic migrants.

AR4 ARTISTIC RECONSTRUCTION OF THE CROWN OF ST. VLADIMIR

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The crown of Russian prince Vladimir Svyatoslavich, who accepted Christianity in 988 and reigned until 1015, is schematically depicted on his coins. Byzantine scheme is recognizable: a diadem with a system of perpendicular hoops, cross and decorative pendants.

Sources for further reconstruction are Western European works of art and the items with images of crowned kings, which reflect the development of forms of Byzantine regalia in Europe. The crown of Otto III on the bull of 998 is chronologically and typologically closest – it has teeth in the form of shamrocks. By the 10th century, pyramidal structure is known (the crown of Charlemagne in the 10th century manuscript miniature). The highest possible forms of Vladimir's crown development may be seen in the crown of Conrad II (1024–1039) and the crown of Herod in the relief on Hildesheim bronze doors (1015).

Delineations of Vladimir in the Christian art of the 13th–17th centuries depended on contemporary iconographic tradition. Those reconstructions are useful, where the artists try to recreate headdress of studied time and present the crown worn by the person.

On the fresco by Victor Vasnetsov (1890-s) for Vladimir Cathedral in Kiev Vladimir's crown is painted as a strip made of rectangular plates. In the planar projection the crown looks like a pyramid image on coins. This allows to choose the diadem with hoops as the original form for science reconstruction. But we can assume that Vladimir's crown has changed over time and could get quadrangular pyramidal structure and teeth.

AR3 BRONZE AGE FIELDS: THE DATING AND USE-HISTORIES OF CELTIC FIELDS IN THE NETHERLANDS

Stijn Arnoldussen

GRONINGEN UNIVERSITY / GIA

Recent fieldwork into the dating, age and use-histories of Dutch Celtic fields has yielded important information on the genesis and durability of later prehistoric field systems. Through combined application of OSL dating, soil geochemistry, palaeobotanical analyses and archaeological observations, the use-histories of Celtic fields can be unravelled. Starting from the later Middle Bronze Age, they seem to span well into the Roman period.

AR9 COMING TOGETHER IN THE OPEN AIR: THE PLACE NAMES AND ARCHAEOLOGY OF OUTDOOR ASSEMBLY PLACES

Stuart Brookes¹, Stuart Brookes²

¹UCL, ²UCL INSTITUTE OF ARCHAEOLOGY

The venues of outdoor assembly are an important class of archaeological site, but ones which are very difficult to identify through archaeological methods alone. Whilst archaeology can on occasion refine our understanding of the location at which assemblies took place and furnish important evidence about the character of a site, it is often not the starting point for such research. Knowledge of gatherings is more likely to come to us through written sources (e.g., legal and manorial documents, narrative texts, folklore) or place names. Their study, therefore, requires a multidisciplinary approach. This paper outlines some of the methods employed by the Leverhulme Trust *Landscapes of Governance* project to identify and characterize early Medieval (Anglo-Saxon) meeting-places in England, emphasizing the complementarity of place-name and archaeological research in addressing this question.

AR19 WHAT'S COOKING?

Derek Hall

STIRLING UNIVERSITY

Derek Hall (Independent Archaeologist) – What's cooking? New evidence for mid 11th century trade around the North Sea

This paper will use as its focus a new group of 35 C14 dates that result from the dating of carbonised sherds of London Shelly –Sandy Ware pottery from the Perth High Street Excavations (Scotland), The Bryggen excavations, Bergen (Norway) and excavations at Billingsgate in London. These new dates are all suggesting that this pottery was in use around the North Sea from the mid 11th century AD, 100 years earlier than the accepted London chronology for this fabric type.

The paper will aim to assess the validity of the new dates, the historical background into which they might fit, the implications for the development of the settlements at Perth and Bergen and consider how important new evidence for the date of the fish trade in the North Sea matches these new dates.

AR9 FROM PATTERNS TO MEANING: USING PLACE-NAMES TO IDENTIFY FOCAL AREAS AND NEW SITE-TYPES IN THE EARLY MEDIEVAL WELSH LANDSCAPE

Rhiannon Comeau

UNIVERSITY COLLEGE LONDON INSTITUTE OF ARCHAEOLOGY

This paper will look at how the use of place-names within multidisciplinary research can significantly enhance the interpretation of the early medieval landscape and, through accessing broader frames of reference, allow potentially fruitful comparisons

between early medieval landscape patterns in the local-level region and those in other European regions. It will consider the use of multidisciplinary micro-level studies in Wales, where the effectiveness of conventional archaeological approaches is constrained by the limited availability of archaeological material culture. This is an area where early written records are virtually non-existent and later medieval records supported the needs of a conquering elite, and place-names often act as a repository of social memory. Some have references to specific pre-Conquest site functions and social structures that have the capacity to considerably enhance the generalised conclusions that can be deduced from extant archaeological evidence. The research examined in this paper identifies sites and landscape patterns by a GIS-based contextualisation of place-names against available archaeological and written records, and comparisons with research in other areas of north-west Europe. Its results indicate early medieval site-types and toponymic types known from other areas of north-west Europe but previously unknown in the regional (Welsh) record.

AR20 A MIXED-METHOD APPROACH TO RECONSTRUCTING THE LIFE-HISTORY OF A NEOLITHIC SETTLEMENT IN THE KÖRÖS BASIN, HUNGARY

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This paper presents the methods and recent results of an approach combining geoarchaeology and archaeological survey to reconstruct the life history of a Neolithic settlement in a lacustrine environment. The site dates to the Neolithic Tisza culture that occupied the Hungarian Plain ca. 5000 BC. It is one of several sites located in a micro-region set along palaeomeanders of the Körös River in Békés County, Hungary that are being investigated as part of the Neolithic Archaeology and Soilscales Körös Area (NASKA) project.

During the course of the Neolithic, this region saw complex developments in social and settlement organization, including the nucleation of populations in large settlements and the continued reoccupation of living space, changes in settlement structure and environmental impacts. By employing a suite of methods including soil chemistry, sedimentology, geophysics, palynology and archaeobotany, we have gained a better understanding of the distribution of houses and activity zones, the relationships between changing groundwater levels and cultural developments, and human impacts on the environment during later prehistory in the Körös region. Fieldwork in 2014 and 2015 show a structured distribution of houses along an oxbow lake, and artifact distributions associated with these houses. New soil phosphate and macrobotanical data will also be introduced, as we grapple with variability in settlement organization and human-environmental interactions.

AR4 SWEAT IS POURING, WHEN MUSCLES CRY ABOUT THE HORSE REPRESENTING WITH HALLMARKING ON THE BRONZEVESSELS OF THE HALLSTATTTIME

Anna Bauer

PRIVATE

The way of showing sweat in form of hallmarking is an important way of the pictorial representation. The horse sweat starts at different places, angst or light work causes it behind the ears. When the horse starts to draught, the forehead is wet, when the horse is working harder or longer the whole horse body is wet. By the chariot race the hallmarking makes the presentation more dramatic. The horses are running fast and are sweating as on the situla from Kuffarn. That's why the harness is just marginal showed. The scene, always called the procession scene, shows the confederate coming from far away, as you can see on the different hallmarked horsebodies. The number and quantity of hallmarked horses shows how far away the contacts of the owner of the situla are. By the investigations it comes out, that the way of showing sweat is not bounded in time or place.

AR9 ARCHAEOLOGY OF MEDIEVAL VILLAGES AND PLACE NAME ANALYSIS IN THE BASQUE COUNTRY, SPAIN

Juan Antonio Quiros

UNIVERSITY OF THE BASQUE COUNTRY

Place names analysis allows the connection between landscape archaeology, documentary evidence and the perception of spaces by local communities. When written record is dense enough in diachronic terms it is possible to identify changes in the structuration of rural occupations. However, most of place names studies carried out in the Basque Country are more focused on linguistic topics and the euskera evolution than their historical and archaeological implications.

In this paper some studies conducted on medieval deserted settlements and current villages in the Basque Country will be presented. The three topics discussed will be (1) the use of place names in the study of medieval settlement patterns (formation of villages, transformation of village plans, palaeoecological use of the spaces); (2) the use of place names in the identification of deserted villages (location, delimitation); (3) the use of place names in the analysis of social use of the village space.

AR10 CRUCKS ON THE CONTINENT? A RECONSTRUCTION MODEL FOR EARLY MEDIEVAL FARM BUILDINGS IN THE NORTH OF THE NETHERLANDS.

Daniël Postma

UNIVERSITY OF GRONINGEN

The former salt marshes along the northern coast of the Netherlands are widely known for their unique and well-preserved cultural heritage. The exceptional preservation of building remains in artificially raised settlement mounds (called *terpen*) may foster a better understanding of ancient building traditions. The Terpen Research Group of the University of Groningen currently researches the practicalities of the region's early medieval rural (vernacular) architecture, in order to establish its general concepts.

Part of the research involved the experimental reconstruction of a building with load-bearing clay turf walls. Because of this 'builder's point of view', farm buildings from different periods and throughout the north of the Netherlands could be studied from a new perspective. It appeared that despite some clear regional differences, these buildings belonged to the same, widely shared building tradition. Collectively they produced sufficient evidence to set up new reconstruction models for medieval farm buildings from the Northern Netherlands (ca. AD 400-1400).

The timber (roof) structures presented in this paper differ markedly from those in previous reconstruction models. It is argued that Bruce Walker's theory on Scottish crucks, or rather cuppills, forms a good basis for the interpretation of the Dutch ground plans. His model respects the shape of (naturally) available timber and produces stable buildings without the need for diagonal bracing. It is concluded that early medieval farm buildings in the north of the Netherlands, were built with cruck-like, arch-shaped trusses. Historically known truss types evolved from these 'cuppills' from the late 9th Century onwards.

AR3 AN UNDISCOVERED COUNTY? EXPLORING THE NEW FIELD SYSTEMS OF THE SOUTH DOWNS

Stuart Eve

L - P : ARCHAEOLOGY

This paper will discuss in detail the latest findings from a programme of LiDAR analysis undertaken within the dense woodland of the South Downs, West Sussex. UK. Archaeological features in woodland are often pristine, preserved from destructive subsequent land use such as ploughing, building, or other intrusive activities. However, dense tree and ground cover make it virtually impossible to survey, or sometimes even to see the archaeological features in the landscape using traditional archaeological techniques. LiDAR data therefore has an enormously important role to play in archaeological analysis of woodland: because many of the LiDAR shots are able to pass through the canopy, it is possible to interpolate an elevation model of the landscape despite the tree cover. Effectively, it enables us to see through the leaves to the bare earth below.

In terms of results, and even knowing something of its efficiency, preliminary analysis of the LiDAR data for the woodlands of the South Downs is genuinely startling. Within an area of c. 150 square km, my analysis reveals a mass of previously unknown features: banks and ditches marking field systems, as well as enclosures, burial mounds, settlements, and other monuments. Within this paper I present these results and discuss their importance in understanding the prehistoric landscape and the role they have to play in completely reassessing our picture of the demographic, economic and cultural impact this scale of farming would have played in the South Downs during the Late Bronze and Early Iron Age.

AR17 ARCHAEOLOGY AND THE BIBLE: INTERPRETATIONS IN GERMAN BIBLICAL ARCHAEOLOGY

Gabriella Rodrigues

UNIVERSITY OF HEIDELBERG

Along the history of archaeology, the archaeological record has been interpreted in many different ways. This is particularly evident in the study of the material culture related to the Biblical text. In this paper, I intend to analyse how those interpretations have changed throughout the history of Biblical Archaeology, according to religious and political interests. As a case study, I am going to present the development of the discipline in Germany during its first developments under Kaiser Wilhelm, through the Weimar Republic, until its reconfiguration during the NS regime. Germany is usually presented as a supporting actor in the history of western archaeological interest in Palestine, while Great Britain and the US play the main characters. However, many peculiarities make the German contribution to the field of particular interest. It should be stressed here how those peculiarities could trigger different interpretations of the archaeological record.

AR3 GROWTH AND CHANGE IN THE PREHISTORIC LANDSCAPE: THE MYCENAEAN TERRACES OF KALAMIANOS

Lynne Kvapil

BUTLER UNIVERSITY

This paper examines how Late Mycenaean agricultural terraces in southern Greece can be used as evidence for changes in agricultural regimes and as an indication of socio-political connections between settlements and political centers. A systematic macroscopic examination of field systems conducted in and around the harbor settlement of Kalamianos, located on the Saronic Gulf in the Korinthia region of Greece, revealed three phases of agricultural terraces. Terrace morphology together with regional survey data indicate that the earliest phase of terraces dates to the Late Bronze Age (1400-1200 BCE), when Kalamianos flourished and the nearby palace-center of Mycenae was at the height of its power. The location and arrangement of the earliest terraces of Kalamianos indicate changes to the natural landscape were intended to vary cultivars and increase overall production. Terraces within the boundaries of the settlement may have been devoted to high status aromatics and condiments, while those on rocky hills outside the settlement could have been used for subsistence crops. The presence of a threshing floor on the edge of the settlement suggests that, even though a hierarchy within the types of cultivated crops may

have developed, there was also a communal quality to the production process. Terrace construction, however, would have required a significant investment of resources. Thus, it is suggested here that Mycenae contributed resources for terrace construction at Kalamianos in exchange for a share of the agricultural goods and for use of the harbor for access to the Saronic Gulf.

AR5 ABANDONMENT AND NEW STRATEGIES IN MARGINAL AREAS DURING THE LATE-MEDIEVAL CRISIS: NEW EVIDENCE FROM THE SOUTH-SWEDISH UPLANDS

Per Lagerås

NATIONAL HISTORICAL MUSEUMS

The uplands of southern Sweden are today to a large degree covered by coniferous forest but have been more widely used for agriculture in the past. Like many marginal areas the uplands reveal a rather dynamic and even dramatic land-use and settlement history, characterized by alternating periods of expansion and abandonment. Periods of major abandonment were the 6th, late 14th-15th, and 20th centuries. In the project 'The archaeology and ecology of collapse – social and agricultural change following the Black Death in Sweden', pollen and dendrochronological data have shed new light on land-use changes and survival strategies in the uplands during the late-medieval crisis. New methods and modelling have been used to compile and interpret large data sets. The results show that in particular crop growing declined after 1350, with an approximate halving of arable land in the uplands. Also pastures were abandoned and overgrown by woodland, but only on the poorest soils and in the highest parts of the uplands. In other parts the forest was held back by extensive grazing, even when arable fields and settlement were abandoned. The much smaller decrease in pastures and landscape openness than in arable fields indicates that animal husbandry gained in importance during the crisis. It appears to have been a strategic adaptation to shortage of labour and excess of land. To keep the land open by extensive grazing may also have been an intended strategy to facilitate re-expansion when population eventually recovered.

AR7 SHIFTING SETTLEMENTS IN MEDIEVAL CENTRAL EUROPE AND THEIR SOCIAL AND ECOLOGICAL BACKGROUND – CONTRASTING WRITTEN RECORD AND ARCHAEOLOGICAL EVIDENCE

Rainer Schreg

RÖMISCH-GERMANISCHES ZENTRALMUSEUM

Prehistoric archaeology is well aware of the phenomenon of shifting settlement locations and there is a huge variety of possible explanations. Interpretations refer to economic backgrounds as shifting cultivation or they refer to historical processes of troubling times. The phenomenon is for example known in the Neolithic as well as the Roman Iron Age and the Viking period in the North.

However, according to geographical and archaeological evidence shifting settlement locations are also quite common during the Middle Ages in Central Europe. In many landscapes still existing villages are the final stage of formerly fluctuating settlement systems. In most cases they became only fixed during the time period between the 10th and 13th century. But the hope to learn more about the character and background of shifting settlement by written sources is disappointed: In fact, there is a striking silence about this phenomenon. Quite the contrary the presence of existing place names in early medieval sources as well as some ideas about the conservative life of peasants brought historians and archaeologists to the interpretation of rather constant settlements since the migration period.

For understanding the shifting settlements of the Middle Ages it is necessary to contrast archaeological and geographical evidence with the record of written sources as well as with geoarchaeological approaches. Furthermore an ecological long-term perspective, including the later development of villages up to the early modern period, raises interesting questions on the sustainability of a fluctuating settlement system. This paper intends to review the current state of research.

AR9 SIMONETTA MENCHELLI-ELEONORA IACOPINI, THE PISA SOUTH PICENUM SURVEY PROJECT: A TOPONYMY CONTRIBUTION TO INTER-DISCIPLINARY RESEARCH

Simonetta Menchelli, Eleonora Iacopini

UNIVERSITY OF PISA. DEPARTMENT DEPARTMENT OF CIVILIZATIONS AND FORMS OF KNOWLEDGE

The Pisa South Picenum Project aims at defining the changing landscapes in the Southern district of The Marches region, in Central Eastern Italy. An inter-disciplinary approach is being utilized which includes all the categories of available sources (naturalistic, literary, epigraphic, archaeological, archival, toponymy data). Intensive survey campaigns are being run in districts particularly representative of different landscape units both as regards physical (mountainous, hilly, plain areas) and/or historical (*suburbia*, the countryside object of *centuriatio*, and so on) points of view. The perspective is diachronic, that is from Prehistory to the modern age, and the data are processed in a WebGis system.

In this project the contribution of toponymy, closely integrated with the other sources, is very important. The place-names have been derived from documents in historical archives, historical and modern cartography

The recording of the place-names in a Gis system has permitted the spatial-temporal processing and visualization of the information, the integration of the toponymy with other disciplines, and the observation of the linguistic and topographic changes in the data through time

In the studied area many place-names derived from Latin have been identified. This fits in very well with the other sources which document the Roman occupation of the territory from the mid-3rd cent. BC.

Toponymy permits the identification of the cultural change which took place in the 6th

cent. AD, following the Lombard conquest, resulting in German place-names (such as Gualdo = wood) and churches and sites dedicated to the Saints particularly venerated by the Lombards.

AR11 FISHY BUSINESS – ESTUARY FISHING WITH STATIONARY STRUCTURES IN COASTAL NORTHERN OSTROBOTHNIA, FINLAND C 3000 BC

Satu Koivisto

UNIVERSITY OF HELSINKI

We still lack the basic knowledge of the intensity and character of fishing as subsistence among the prehistoric populations occupying the NE shores of the Baltic Sea. In locations where direct evidence of the utilisation of fish is insufficient, various forms of indirect evidence are essential. Generalisations about the importance of this livelihood are mainly based on the shore-bound site location, fish remains and fishing-related artefacts recovered at archaeological sites. Virtually as a rule settlement sites inhabited by the hunter-gatherer populations of Subneolithic Finland, c 5100-2000 BC, are located by the shores of advantageous fishing waters. The site location can be seen as reflecting an optimal use of nearby resources, and the site composition and settlement pattern can as well be understood as being related to logistical and foraging forms of subsistence organisation.

Stationary, wooden fishing structures preserved in wetland conditions have not been properly utilised in Finnish archaeology concerning prehistoric subsistence practices and diet. The interplay between the ethnographical and archaeological materials is well grounded, because similar wooden traps and weirs have proven to have been used for several millennia. My paper combines the archaeological evidence and ethnographic analogy based on environmental and climatic considerations for examining the fishing methods and subsistence practices among the Middle Subneolithic populations of coastal Ostrobothnia. The site location, woodworking skill, quantity of the wooden artefacts and labour contribution allocated to fishing all underline the high significance of aquatic resources for the hunter-fisher-gatherer populations occupying the mouth and the banks of the Iijoki river.

AR18 CLEANING ACTIVITIES AND WASTE DISPOSAL IN ROMAN TOWNS: THEIR IMPACT ON THE RECORD AND ON OUR WAY TO INTERPRET IT

Guido Furlan

UNIVERSITÀ DI PADOVA

Urban maintenance, cleaning and waste disposal are topics which are finally being more and more discussed by scholars of Roman archaeology, epigraphy and history. Nonetheless the impact of these phenomena on the archaeological record is still by far understudied.

The existence of more or less efficient systems of cleaning and waste disposal in many Roman towns implies, among other things, that large part of what was discarded was then periodically removed from the urban area. This in turn leads to the existence of 'ghost phases', *i.e.* whole historical periods which are underrepresented by the archaeological record within the city. This aspect was well perceived during the post-excavation analyses of the so called House of *Titus Macer*, Aquileia; most of the evidence collected was to be ascribed to the early building activities (late republican/early imperial period) and to the last stages of the development of the area, when dumping activities occurred within the structure (5th century AD). The mid-imperial age, during which the house was undoubtedly inhabited and regularly maintained, was poorly represented by both strata and materials.

What has been observed should impose some caution when using the data collected within urban sites to draw conclusions on ancient economic trends; in synthesis, in this case spatial patterning produces temporal patterning, leading to the underestimation of the presence of goods in some periods which may have actually witnessed economic stability or growth. Eventually, to tackle this problem, large urban dumps should be targeted more often by our research agendas.

AR15 MODELLING THE PAST; A “SEQUENCE OF EVENTS” APPROACH AT TELL SABI ABYAD.

Victor Klinkenberg

LEIDEN UNIVERSITY

Excavations at Tell Sabi Abyad, Syria, have uncovered the well preserved remains of a Late Bronze Age settlement, or *dunnu*. This Assyrian stronghold has been occupied for only 80 years, as cuneiform tablets from the site indicate. Within this short period of time, numerous changes have occurred to the architecture and its function, which has led to a chronological subdivision into three main phases. As for many other excavated settlements, subdividing the remains in distinct chronological phases is an appropriate method to make sense of a complex history. Unfortunately it also misleads into thinking that life in the past was also indeed constructed of these discrete phases.

Recent investigation into the depositional processes at the site of Tell Sabi Abyad has revealed that the chronology is made up of various separate events which could be recorded in greater detail. Using three-dimensional spatial analysis, a formalized model of deposition processes and the creation of so called "Sequence of Events"- models, a high resolution chronology could be constructed. These short chronologies go beyond the simplified subdivision of the past in separate distinct phases and defines every past event on its own. The result is a complex Sequence of Events which does justice to the intricate structure of activities in the past.

AR7 TETHERED MOBILITES. NORSE HOUSE SEQUENCES IN THE HEBRIDES

Niall Sharples

UNIVERSITY OF CARDIFF

This paper will examine the house construction sequences of Viking settlements at two sites on the island of South Uist in the Outer Hebrides, Scotland. A distinctive characteristic of these sequences is the creation of an architectural linkage between successive houses which indicates an attempt to create geneological links, sometimes after substantial periods of abandonment. A detailed chronology is provided by a suite of radiocarbon dates and a rich material culture and it is possible to talk of generational change in the settlement sequence. The quality of the settlement sequence is considerably enhanced by the blown sand environment of the settlement which preserves stratigraphic sequences that are simply not available on most archaeological sites.

AR3 FARMING ON THE EDGE: TOWARDS AN UNDERSTANDING OF THE FIRST FARMING SOCIETIES OF SHETLAND.

Claire Christie

UNIVERSITY OF ABERDEEN

The transition to agriculture is one of the fundamental transformations in human society, but the evolution, organisation and character of early farming landscapes of the Neolithic and Bronze Age in many regions is poorly understood. The rarely paralleled preservation of extensive prehistoric houses, field systems and burial monuments in the West Mainland of Shetland affords unique opportunities for understanding prehistoric societies. Despite their impressive preservation the remains on Shetland have recieved comparatively little archaeological attention since investigations by Charles Calder in the 1940s. Subsequent work has focused upon single sites and locations with little analysis of the broader landscape perspectives. This paper will present the results of a programme of mapping, using high-resolution aerial photographs, that explores the extent and spatial distribution of these enigmatic remains within the landscape of the West Mainland. The programme of mapping has revealed both extensive field systems and foci of activity providing insights into the organisation of prehistoric settlement and land-use. The value of this approach in creating a comprehensive base line dataset which can be compared to other more fragmentary examples of settlement systems in the Britain and Ireland will also be discussed. The broad scale mapping of the remains has allowed for the extent and spatial distribution of the houses, fields, monuments and the relationships between settlements and the wider landscape boundaries to be understood and interpreted.

AR15 BIO-ARCHAEOLOGICAL INTERPRETATION: WHY THE HOLISTIC APPROACH IS MUCH MORE THAN THE SUM OF PARTS

Jennifer Miller, Sharon Carson

YORK ARCHAEOLOGICAL TRUST

The umbrella term 'Bio-Archaeology' encompasses a number of environmental specialist areas, each of which plays an invaluable part in the analysis and interpretation of materials within particular specialist fields. Yet such informative and invaluable reports are generally presented individually within published works as a series of separate contributions. Specialist reports are often then discussed in the text primarily in terms of what conclusions can be drawn from each dataset, rather than what the collective of results tells us about snapshots in time that help explain the subtleties of site formation processes or anthropogenic change. It is widely accepted that preservation is key to understanding what evidence can be recovered in any situation. However, to recognise the processes ongoing in specific features or phases that ultimately affect site formation, it is important to consider all aspects of evidence holistically, interpreting what they mean collectively and what answers they can give. York Archaeological Trust's Dickson Laboratory for Bio-Archaeology adopts a holistic 'cradle to grave' approach to sample processing and environmental interpretation of results. This presentation will draw upon results obtained from Trust-wide excavations including especially Lenton Priory in Nottingham and the Hungate and Haymarket in York to reveal how cross referencing the soils processing results with the botanical, zoological, shell, invertebrate and sorted artefact records can explain how features formed and why sites changed over time. Ultimately this can help to explain why communities made decisions that they did.

AR11 RECENT DISCOVERIES OF STONE AGE FISHERY CONSTRUCTIONS ON THE TERRITORY OF EUROPEAN RUSSIA

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During recent two decades extensive field works brought to light a number new fishery constructions found in European Russia: Okhta 1, Zamostje 2, Sakhtysh 2a, Serteya 1, Stanovoye 4. The majority of these constructions were found on inner lakes and rivers except Okta 1 site which represent coastal settlement. All these objects covers Mesolithic and Neolithic periods from 9600 till 4200 years uncall BP. The analysis of available materials shows that almost all the constructions were built from split wooden (pine, willow) planks with a length from 0,5 to 4,0 m. The only one exception is site Stanovoye 4 – here simple willow branches were used for basket making.

Generally, all the fishery constructions can be divided into two types: the first – conical shaped basket (mobile fish-traps) made from splinters with a length up to 2,5 m (Zamostje 2, Sakhtysh 1, 2a sites). Their use supposed horizontal position on the bottom of the river or lake. The second type is represented by the finds of long screens made from split wood planks as well (Zamostje 2, Serteya 1 sites). Ethnographic resources demonstrate their use as mobile fish-fences, vertically mounted on the river or lake bottom to separate a special zone in the water basin. A special interest represent finds of fishery construction from Okta 1 site where a large zone consisted from fish-fences made from long massive pine planks were found. This site has a unique position among the others because due its position on the coastal part of ancient sea-shore.

AR17 THE PROBLEMS OF THE KURA-ARAXES CULTURE AGAINST THE BACKGROUND OF NAKHCHIVAN (AZERBAIJAN) MONUMENTS

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Monuments characterized by the Nakhchivan type of the ceramics differ for the thickness of their cultural layers. Despite the brazier-type hearths are found in every circular house at such site as Kultepe I and II, Makhta I, Ashaghi Dasharkh, but at Ovchular Tepesi they are not found. This fact proves that among the tribes of the Kura-Araxes culture characterized by the Nakhchivan type of ceramics besides the sedentary agricultural cattle-breeder tribes, there were semi-nomadic cattle-breeder tribes as well.

Presence of different archaeological materials within each house proves that in residential areas existed buildings with the specific function, and public and social stratification within the societies of the Kura-Araxes culture.

Hemisphere handles encountered on the ceramic ware, characteristic for the Kura-Araxes culture discovered at Ovchular Tepesi site and attributed to the early late Chalcolithic period and on the contrary, the presence of pottery samples reminiscent late Chalcolithic materials for the clay composition, shape and pattern motifs related to the early stage of the Kura-Araxes culture is the evidence to the relationship between the two periods.

Radiocarbon analyses prove the belonging of the bottom layer of 6.80 m cultural layer at Kultepe II to the 3335-3093 years BC, layer at a depth of 2 m at Makhta I to the 3316-2931 years BC. On the other hand, toxins obtained from Makhta I confirm this date.

AR19 SURROUNDED BY THE SEDIMENTS: EARLY MEDIEVAL SETTLEMENT IN THE FLOODPLAIN

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The floodplain of the Morava and Dyje Rivers has been settled and used from the Mesolithic period until today. Excavations and surveys yielded evidence of settlement and funerary activities mainly on sandy elevations – dunes. The space between these elevations has been considered uninhabitable and unusable, above all due to clayey and loamy fluvial sediments, which have until recently been periodically flooded. This recent experience has strongly influenced the perception of the character of 9th century environment, which gave rise to several fortified centres of the Great Moravia. These were inhabited by thousands of people living in hierarchized areas. Some of these areas are situated in places, which according to older opinions were absolutely unsuitable for settlement. We do not find typical Slavic dwellings sunk into the ground – pit houses, but only remnants of aboveground log houses. The ground surface of that time was either humified or it was an older fluvial sediment. Ruined buildings were subsequently overlaid by another fluvial sediment. This and other examples show that the early medieval and maybe also later floodplain has functioned under entirely different conditions and was used by people more intensively than the archaeologists originally supposed. Fluvial processes at the end of the Middle Ages and in Modern Times have levelled the landscape and covered the traces of human activities to such an extent that the perception of significance and use of this specific part of the landscape is limited and underestimated if an extensive trial trenching and geophysical survey are not involved.

AR11 AN EXPERIMENT OF THE EARLY NEOLITHIC FISHING TRAP EXTRACTION AT ZAMOSTJE 2 PEATBOG SITE

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Site Zamostje 2 is situated in the northern part of the Moscow district on the Dubna River (Central Russia). The site has yielded cultural layers of the Late Mesolithic and the Early Neolithic Paleoeological reconstructions show that the site was situated on the shore of the lake in conditions of periodical changes in water level and lake size. Two wooden fish traps were discovered in

the lower part of the cultural layer. Fish traps represent conic shaped baskets made from pine splinters. In the first year of excavations (1989) their length was 2 and 2.5m. The fish traps were situated in water sediments with a slight decline to inflow. This shows that they were left in "working" position. Re-excavations of fish traps taken place in the years 2010-2011.

Extraordinary good preservation of such a unique find was considered as a great opportunity for demonstration of the prehistoric fish-trap for the general public, as well as for continuing the laboratory study. That was rather challenging project: The trap laid in tilting position in the wet bog sediment below the Dubna river water level. A frame of wooden boards was put on the bulk, and the empty space inside the frame was filled with mounting foam. Then construction was horizontally cut from the underplayed peat by iron shield and moved on the wooden pallet. Finally it was lifted by crane truck and established on a truck, and delivered to the State Hermitage Museum (St.-Petersburg) for further conservation.

AR8 WAS THEBES NECESSARY? CONTINGENCY IN MODELLING

Ray Rivers, Tim Evans

IMPERIAL COLLEGE LONDON

When data is poor we resort to theory modelling. This is a two-step process. We have first to identify the appropriate type of model for the system under consideration and then to tailor it to the specifics of the case. To understand settlement formation, which is the interest of this talk, this not only involves choosing input parameter values such as site separations but also input *functions* e.g. the 'deterrence' function which characterises the ease of travel between sites. Although their generic behaviour is understood, the details of the functions are not. Different functional choices will necessarily lead to different outputs (for identical inputs). We can only proceed if choices that are 'close' give outputs that are themselves 'close', by which we mean that the general outcomes are similar. Where there are local differences it suggests that there was no compelling reason for one outcome rather than the other. If these differences are important for the historic record we may interpret this as sensitivity to contingency.

We re-examine the rise of city states in Late Geometric/Archaic Greek city states as first formulated by Rihl and Wilson in 1979, initially using the same 'retail' gravity model. We suggest that, whereas cities like Athens owe their position to a combination of geography and proximity to other sites, the rise of Thebes is the most contingent, whose success reflects social forces outside the grasp of simple network modelling.

CA22 JUST ANOTHER WWW DATABASE? ARTEFACTS ONLINE

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¹ARKÉO TOPIA, ²CNRS

After 5 years of existence, Artefacts slowly grows up to offer its users a wide approach on archaeological small finds of Europe, all periods (vessels and coins excluded), 304 599 objects at the 11th february 2015.

The project was born to put an end to the endless work of copying data and parallels in previously published studies, while so many new finds keep on emerging from rescue excavations as well as from older museum collections. While the huge amount of knowledge about small finds is scattered in uncountable publications printed in several european countries, it seems unreasonable for a single scholar to have them all in mind. Yet this ambition can be adopted by a community, if specialists from various countries succeed in sharing a common tool. Artefacts would like to be this tool, a space of shared knowledge and a link between specialists from all countries.

Now available in 5 languages, Artefacts offers a classification system organized with typological codes and periods; individual type pages can also be found through site name, museum or bibliography. Most of the processed data comes from publications, but the database also welcomes lists and images from museums, as well as from recent unpublished excavations. Links are given, when available, towards online publications, museum pages or other databases, such as the British PAS (Portable Antiquities Scheme). The wish to arouse a specialists community is now achieved by an interactive forum, where all sorts of questions can be discussed within connected users.

AR11 STATIONARY FISHING STRUCTURES - USE OF JOINT FACILITIES BY FISHING COMMUNITIES.

INTRODUCTION TALK.

Harald Lübke¹, Stefanie Kloß², Lisbeth Pedersen³, Satu Koivisto⁴

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New research on European wetland, bog or underwater sites with well-preserved organics expands our understanding of the importance of aquatic resources in the economy of prehistoric Hunter-Fisher-Gatherer groups in Europe. The excellent preservation led not only to the discovery of active fishing gear like hooks, spears, leisters or tridents but also of larger equipment or structures like nets, traps or fishing fences. Better excavation methods led to the recovery of large quantities of small-sized faunal remains, which contradicts earlier investigations about the importance of fish as food. Finally, cutting-edge isotopic research on questions about human diet gives further evidence for the significance of this food resource.

Fishing could attain such importance for human consumption only because an appropriate technology was developed, with which substantial quantities of fish were captured. These were especially stationary fishing structures that are recorded in different coastal and inland regions since the Mesolithic. They were constructed from wood, stone and other materials, and are constructed in different ways, shapes and sizes. Predominantly the fishing structures are rather large, and it has to be supposed that prehistoric fishing communities organized the building and use, as well the processing of the catch, as a joint effort. Thus, the traditional manners of building and use have certainly established a kind of collective identity of the communities.

AR16 PROPERTIES OF ARCHAEOLOGICAL SPATIAL DATA AND THEIR IMPACT ON INTERPRETATION OF ARCHAEOLOGICAL RECORD

Tsoni Tsonev

NATIONAL INSTITUTE OF ARCHAEOLOGY AND MUSEUM

So far archaeological interpretation is exclusively based on the presence of particular artefact categories in archaeological contexts. However, when working with spatial distributions of archaeological data there are vast regions where these data occur rarely or are absent. The question is whether the combined use of all these data (present, rarely occurred and absent) can help improving the explanatory power of archaeological interpretations. A reasonable approach to these kinds of data is to study the properties of their spatial distribution. An example will be provided of the stability and invariance of subsistence practices of a sample of Neolithic sites in Bulgaria. Another example will show the ability of early farming populations to change their settlement pattern. For this purpose a sample of the earliest Neolithic sites will be examined in terms of how well they form a group where each constituent site has similar characteristics (high degree of self-similarity) of a central place. On this background it will be shown that within this network some sites lose their centrality over time. Further I will argue that the cause that stays behind this change lies in the change of the symbolic system that characterizes the centrality of these early Neolithic sites. This picture shows a complex way of evolution which puts it in contrast to traditional archaeological interpretations that take the form of positive evolutionary models.

AR15 APPLYING THE CONCEPT OF PERFORMATIVITY FOR INTERPRETING MATERIAL CULTURE

Tuuli Kurisoo

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In the present paper I aim to introduce performativity, a widely used concept in sociology and other humanities, to archaeology. Prestige, social status or specific identities were undoubtedly important themes within stratified prehistoric societies and were expressed through material culture. To expand the current scope of interpretations in archaeology I will exploit the multi-level sociological approach to performance proposed by Jeffery Alexander (2011). For applying the concept of performativity to material culture certain elements such as the actor, collective representation, means of symbolic production, *mis-en-scene*, social power and audience have to be taken into account. With the examples from Late Iron Age Estonia I will discuss the importance of adornments from the viewpoint of (re)manifestation of status and social power. Additionally ideas about the presentation of artefacts and different levels of perception are elaborated.

References: Alexander, J. 2011. Performance and Power. Cambridge: Polity.

AR1 DIRT AS THE LANDSCAPE OF THE POWERLESS. CONFLICT AND CHAOS AT AN EARLY MEDIEVAL CRAFTSMAN'S WORKSHOP AS SEEN THROUGH A STUDY OF DIRT

Jette Linaa

MOESGAARD MUSEUM

The excavation of an Early Medieval silver-smith- and combmaker's workshop dated to 1020-1023 at the proto-urban site of Viborg Søndersø has provided detailed insight into the dirt disposal in and around the workshop area. Through multi-disciplinary archaeology, the Viborg Søndersø-project provided detailed insight into the nature of the activities and movements on site. Among traces of the craft production itself this site provides detailed information on the craftsman's movements between workshop, fences, latrine and waste disposal area. The patterns of waste disposal here is interpreted as traces of attitudes to different classes of dirt; waste, refuse and latrine. This paper will address different perceptions of dirt seen through the movements on site, and as it will be argued lead to conclusions on some transformative powers of dirt on this place, linked to purity and impurity, power struggles and loss of control.

AR7 SWAMP LIFE. PERSISTENCE THROUGH MOBILITY DURING THE TRANSITION TO AGRICULTURE IN THE WETLANDS OF THE LOWER RHINE AREA (5500-2500 CAL BC)

Luc Amkreutz

NATIONAL MUSEUM OF ANTIQUITIES

The wetlands and wetland margins of the Lower Rhine Area saw the introduction of a Neolithic way-of-life between 5500 and 2500 cal BC. The communities living in this area gradually adopted ceramics, domesticated animals, crop cultivation and sedentism over a period of 3000 years. All this time new elements were added to an existing lifestyle based on the exploitation of wild resources. Remarkably these developments took place in a wetland environment that was at times considerably dynamic. In this contribution it is demonstrated that the stability and permanence of this way of life is supported by a

settlement system that at least partly remains mobile and by a type of vernacular architecture that befits the particularities of the environment. By a comparison of different sites an idea emerges of a very flexible wetland settlement system and architecture, geared towards dealing with a dynamic wetland environment. This does not appear to change even in view of an increased reliance on domesticates and cultigens and evidence for sedentism from 3700 cal BC onwards. As such the LRA case-study also distinctly points out the dangers in using wetland evidence for the interpretation of dryland or upland sites.

AR16 INTERPRETING THE ARCHAEOLOGICAL RECORD BY THE AID OF GIS – THE INSULA 30 OF AUGUSTA RAURICA (CH)

Sven Straumann

AUGUSTA RAURICA / UNIVERSITY OF BASEL

In a PhD-project at the University of Basel (CH) the completely excavated *Insula 30* of the roman city *Augusta Raurica* (Augst/Kaiseraugst, CH) is in the focus of an archaeological interpretation. For the first time in *Augusta Raurica* this work is achieved by the aid of a geographical information system (GIS). GIS is already established in different application fields of archaeology. In *Augusta Raurica* it is used since 2005. The introduced pilot project shows the method and procedure how archaeological records can be efficiently extrapolated as a source with the aid of GIS. Within the many advantages and possibilities of this interpretation method the sustainability has to be emphasized. The digitally extrapolated sources and the Data in the GIS are comprehensively available to the scientific community for their own research.

https://forschdb2.unibas.ch/inf2/rm_projects/object_view.php?r=303585

AR14 VALUES WITHIN A WORLD HERITAGE AREA

Christina Toreld

BOHUSLÄNS MUSEUM / VÄSTARVET

In the county of Bohuslän on the west coast of Sweden, wedged between the sea and the mountains, is one of Sweden's World Heritage sites situated. In 1994, an area of 45 square kilometers around the Tanum plain was inscribed on the UNESCO World Heritage List. The area consist of a large concentration of rock carvings from the Bronze Age and a cultural landscape that spans over 8000 years, something worth preserving for future generations.

Within the World Heritage area there is a Visitors Centre, a newly improved highway and a newly constructed resting/information point along the highway. Due to the construction of the highway a series of archeological excavations have taken place in the World Heritage area.

I would like to discuss values and compensatory actions within a World Heritage area, taking my point of departure in the construction of a new highway and the resting/information point Skräddö. Is it possible to compensate increasing traffic pressure within a World Heritage area with a highway resting point? Which values have been lost? Which values have been compensated? Which values are more important: cultural heritage values, educational values or values measured in numbers of visitors?

AR11 LIVING BY THE SEA, FISHING AT THE LAKE. THE FIRST RESULTS OF FISH BONE ANALYSIS FOR THE ŠVENTOJI 4 SITE, SE BALTIC, 3000-2700 CAL BC

Giedrė Piličiauskienė¹, Gytis Piličiauskas², Lembi Lõugas³

¹VILNIUS UNIVERSITY, ²LITHUANIAN INSTITUTE OF HISTORY, ³INSTITUTE OF HISTORY, UNIVERSITY OF TALLINN

The Šventoji 4 site, in coastal Lithuania, SE Baltic, is known for excellent preservation as well as stratified Subneolithic and Neolithic cultural layers. It's also known for large amounts of fish bones found within lake gyttja in two isolated horizons dated from 3000 to 2700 cal BC. According to the latest research, the bones were deposited as human refuse rather than forming a natural death assemblage. There are remains of a mass, highly elaborated fishing industry, fish weirs made of pine laths being the main constructional element. The aim of this presentation is to discuss the first results of fish bones analysis. What can they tell us about the subsistence of the coastal people? Can we see continuity or a shift in strategy of exploiting aquatic resources during the Subneolithic-Neolithic transition? How do they appear in the context of stable isotope research on human bones and 'foodcrusts'? Is it really true that the sea was of great importance as food resource? What was the fishing strategy of the Šventoji people and where were their dwelling sites? Some answers to these and other questions can already be proposed.

AR2 ADAPTIVE CYCLES AND RESILIENCE IN WESTERN CENTRAL EUROPEAN NEOLITHIC SOCIETIES

Detlef Gronenborn

ROEMISCH-GERMANISCHES ZENTRALMUSEUM

Population dynamics of western Central European Neolithic societies (5500-3500 cal BC) may well be explained with concepts of resilience within adaptive cycles. Channelled by shifting threshold levels societies underwent periods of population increase, interpreted as periods of prosperity, and periods of population decline, interpreted as periods of demise. Typically the latter are also periods of climatic unrest, indicating that both internal and external parameters mutually determine the shape and outline of these fluctuations.

Resilience dynamics concepts, while still ill-defined for non-text-documented societies, are nevertheless better suited than previous linear and deterministic concepts for understanding why simple to complex farming communities underwent cyclical fluctuations in population rates and probably also in socio-political complexity.

AR5 REMOTE-SENSING AND SURVEY IN A MARGINAL LANDSCAPE: PREHISTORIC UPLAND REMAINS NEAR GRASSINGTON, YORKSHIRE DALES NATIONAL PARK, UK.

Mary Saunders

UNIVERSITY OF BRADFORD

What constitutes a marginal landscape? Our answer is significantly influenced by our modern perception of aspects such as ease of access, terrain and climate, however, very different attitudes to these same things would have led to a contrasting understanding in prehistory. Recent work on an area of 'marginal' upland north of Grassington, in the Yorkshire Dales National Park, has highlighted both the extent and significant complexity of the extant and subsurface prehistoric remains present. Construction of this built landscape required a high level of social organisation, cooperation, and prodigious effort; indicating that this area, although seen as 'peripheral' now, was the focus of significant social activity and held substantial value to the prehistoric communities who inhabited it.

This paper will present results from fieldwork undertaken in 2015, utilising magnetic susceptibility and magnetic survey. In conjunction with the interrogation of aerial photographic transcriptions, LiDAR data and low level aerial imagery, the work aimed to expand upon ideas developed during a pilot study. The new research tested the primary hypothesis that zones of specific activity and in particular, areas of more intensive farming, can be identified within the field systems observable all across this area. As our understanding of how the function and exploitation of this prehistoric landscape improves, we can also begin to draw out ideas relating to identity and society, addressing how the occupants of this region organised, perceived and presented themselves through their curation of the area and the activities that they undertook within it.

AR15 WHY ARE WE SELECTIVE IN ACCEPTING INNOVATIONS? (THE NETWORK APPROACH)

Aleksandr Diachenko¹, Benjamin Jennings², Francesco Menotti², Valentyn Pankovsky¹

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Application of network analysis techniques (or Network Science) to archaeological data in our study focuses on the flow of innovations. A striking analogy can be found between the spread of an epidemic and the diffusion of innovations; this similarity is based upon a number of variables (Brughmans 2013; Cavalli-Sforza and Feldman 1981; de Nooy et al. 2005; Doran and Hodson 1975).

This presentation addresses the following questions:

- Why are groups of people selective in accepting innovations?
- What is the mechanics of introducing innovations to contact networks?

The (unexpected) answers to these issues are made possible by application of the epidemiological network models of Newman (2002) and Meyers (2007).

AR4 LYNGBY AXES IN LITHUANIA. A TECHNOLOGICAL STUDY OF REINDEER ANTLER ARTEFACTS

Linus Daugnora¹, Algirdas Girininkas²

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In 2014 two Lyngby type implements made out of reindeer antler were found within territory of Lithuania. First one was found in North Lithuania, the second one in Western Lithuania. Both of them are dated in Younger Dryas period and can be assigned to the Ahrensburgian cultural article. Archeological excavation as well as pollen and radiocarbon analysis was carried out in North Lithuania location where the first one was found, which enabled us to date the article to late Allerød – early Younger Dryas period as well as to determine environmental peculiarities of the time when these articles were used by hunters in Eastern Baltic Sea areas. Trasologic, experimental archaeology and bioarchiological examination on the implements carried out in Klaipeda University laboratories tells us that the first one (found in North Lithuania) was made out of adult reindeer antler and was used as an axe. Wear marks indicate their use as a working tip. The second one (found in West Lithuania) was made of young reindeer and was used as a socketed axe. At this point in time there are in total 8 Lyngby type artefacts found in the East-Southeast Baltic Sea region (2 in Lithuania, 1 in Latvia and 5 in former Prussia territory) and all of these belong to the same socketed axe, axe, adze typology as the Lyngby implements found in Denmark, South Sweden and North Germany.

AR10 SETTLEMENT-MOUNDS AND TURF HOUSES IN NORTHERN JUTLAND, DENMARK - THE INTRODUCTION OF THE TURF LONGHOUSES IN NORTHERN EUROPE. THE ARCHITECTURE AND CONSTRUCTION.

Niels Haue

HISTORICAL MUSEUM OF NORTHERN JUTLAND

In the northern parts of Jutland, Denmark, some of the settlements of the Early Iron Age (500 BC – 200 AD) are characterized by thick cultural layers which are interpreted as the result of a long settlement continuity combined with the use of turf as

building-material. Some of the settlement mounds have a height of up to two meter and the cultural layers have protected the prehistoric houses from later agricultural destruction. The mounds can thereby be compared to the *Tells* in the near-east or the *Terps* in the Frisian region. The excavated houses within the mounds are some of the best preserved houses in Northern Europe of the period, which allows detailed analyses of the architecture and the construction of the houses.

This paper will present some of the recent excavations in Northern Jutland, with a focus on the differences and similarities between wattle daubed houses and the turf houses. The introduction of the turf longhouses in northern Jutland can be dated to the Pre Roman Iron Age, and is normally explained by the lack of useable timber. Due to the latest excavations this interpretation can be questioned, and an alternative interpretation will be presented.

AR3 FILLING IN THE LANDSCAPE: LATE PREHISTORIC LANDSCAPE DIVISION IN NORTHERN JUTLAND

Mette Løvschal¹, Michael Vinter²

¹AARHUS UNIVERSITY, ²MOESGAARD MUSEUM

'Celtic fields' are discovered throughout large parts of northwestern Europe displaying obvious similarities but also significant differences in size and morphology. For example the extensively parceled up landscapes of southern Britain, spanning several thousands of hectares, contrast the field systems in the lowland area which are often registered for no more than a couple of hundred hectares. This poses a significant explanatory challenge to the areal distribution and nature of these phenomena. Some differences are undoubtedly ascribed to essentially different use patterns, topological application principles and contexts; others originate from significant differences in registration practices.

This paper presents a number of studies of micro-regions in Northern Jutland based on a systematic combination of aerial photos, including ORTO-photos and digital archives with historical vertical photographs, and LiDAR data. This provides an opportunity to piece together a more detailed and complex landscape reconstruction than normally possible. The paper demonstrates how Celtic fields in later prehistory covered up to 90% of the available surface in the landscapes. This forms a basis for discussing the extent of the Celtic fields, their deep temporal affects on the landscape and society, as well as cross-regional patterns in their application.

AR10 MAN IS THE MEASURE OF ALL THINGS? SOME THOUGHTS ABOUT BUILDING TECHNIQUES AND IMPLEMENTS AT THE OPPIDUM OF MANCHING

Katja Winger

FREIE UNIVERSITÄT BERLIN

The paper considers the relationship between finds and house plans from the settlement of Manching (Germany, Upper Bavaria) said to be the best-investigated oppidum in Middle Europe. The thousands of excavated wooden buildings dating to the middle and late La-Tène period show an enormous diversity of types but mostly follow the two construction patterns identified/proposed by F. Schubert about twenty years ago. Schubert also established a measurement system he called "Celtic Foot" that he had inferred from a find he interpreted as an Iron Age measuring rod. His proposed measurement system will be critically re-examined and other possibilities of taking measurements and construing house layouts will be explored. Using the most important house types at Manching as examples, I will discuss their forms, functions and present possible graphic reconstructions. At the end of the talk some observations concerning the question who constructed the buildings will be made.

AR5 HIDDEN BARROW LANDSCAPES

Arjan Louwen

LEIDEN UNIVERSITY, FACULTY OF ARCHAEOLOGY

Most of the archaeological fieldwork in the Netherlands is prompted by building activities or road construction. Especially the rapid growing cities in the western and southern parts of the country have seen many archaeological excavations since World War II. Because the Netherlands are so densely populated the few "natural" environments that still exist have all been turned into nature reserves. These forests and heathlands have only sparsely been investigated and are therefore often regarded as marginal areas from an archaeological point of view. But are these designated peripheral landscapes really that marginal? It is exactly in these nature reserves that the Faculty of Archeology, Leiden University has gained many new insights in the nature and development of late prehistoric barrow landscapes.

This paper will provide an overview of 8 years of archaeological research in the forests and heathlands of the Dutch Crown Estate. Within the scope of the *Ancestral Mounds* project the prehistoric burial mounds in this landscape were studied from an environmental point of view. What role did barrows play in their environments and in what regard did the landscape influence the choice for barrow locations? By using a combination of LIDAR imaging and digging test trenches in the surroundings of barrows these forests and heathlands brought many new but also very vulnerable archaeological features to light. Palynological research on its turn proved that especially heathlands have played an important role in the creation of prehistoric barrow landscapes.

Key words: Barrows, heathlands, new techniques, vulnerable archaeological record

AR8 CENTRALISED AND SELF-ORGANISING NETWORK OF GOODS DISTRIBUTION DURING THE ROMAN EMPIRE

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The Roman Empire trade system is generally considered to be the first complex European trade network in human history. It formed an integrated system of interactions and interdependences between the Mediterranean basin and northern Europe.

Over the last couple of centuries, scholars have developed a variety of theories to explain the organisation of the Roman Empire trade system.

However, due to the lack of suitable sources and formal frameworks for the analysis of the available data, these theories continue to be speculative and difficult to falsify.

The EPNet Project aims at re-examining the structure and dynamics of the Roman economic organisation by analysing existing archaeological data through network analysis, model building, and computer simulation technologies.

Trade between companies, or banks, or even countries have been the subject of intense research in the last years. We plan to extend the characterisation of trade networks for current economic data to the ancient trade network of some of the most basic products of Mediterranean diet (wine, oil, and fish).

Historically, wine and oil network distributions co-existed under extremely different conditions: oil was a strongly controlled good, mainly produced in a single region, and then transported to the most distant corners of the Empire. On the other hand, wine production partly escaped from state control, and was hence distributed from many different sources all across the Empire.

We will exploit the inherent differences of these two networks to obtain a more comprehensive image of food distribution throughout the whole Empire.

AR17 PERI FORTRESS IN AZERBAIJAN

Mikayil Mustafayev, Mikayil Mustafayev

AZERBAIJAN NATIONAL ACADEMY OF SCIENCES

Peri fortress which refers to the III-XVII centuries, is located on the left bank of Hunbul river in Gerekli village of Balaken district. It was built at 1000-1500 m height from the ground level very skilfully in the local architectural style. The fortress was built on the small fortresses. The fortress is encircled with walls by three sides and while looking down from height you can see a river flowing along the mountains. The surviving facilities include houses inside the fortress its walls, water reservoirs and others.

The width of the fortification walls is approximately 1 m, the interfortress towers lengthens from 3 m to 10 m, its height is from 2 m to 10 m, generally, the encircled with 7 towers.

On the upper direction of the fortress in the water reservoirs formed by the flooding, big pitchers and other pottery findings drew our attention. Due to these findings and the structure of the building, we came to the conclusion that in early Middle Ages the location was used by the local inhabitants as a place to hide, shelter to attack, dwelling and place of worship. The location covers more than 2 ha of territory, a part of the fortress is visible. Archaeological excavations were conducted. Results have been published in the scientific literature. Nevertheless, on the upper part of the fortress the archaeological researches may yield positive results.

AR2 CULTURAL CYCLES IN THE CENTRAL EUROPEAN NEOLITHIC

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Various scholars have observed cyclic phenomena in the Central European Neolithic. In this paper the concept of "adaptive cycles", derived from the socio-ecological Resilience Theory, is employed to describe this boom-and-bust trajectory of archaeological cultures. The study aims at investigating the relationship between population dynamics and change in the material culture. We believe, that the "growth phase" of archaeological entities is characterized by a marked homogeneity in material culture and large exchange networks. During the "conservation phase" a regionalization and small scale networks can be observed. Following a distortion or collapse in the "reorganisation phase" external influences again become visible. Two case studies the development of the Linearbandkeramik Culture in the Rhine-Basin (5.300 - 4.950 BC) and of the Pfyn Culture at Lake Constance (3.900 - 3.300 BC) are presented. The results are compared with the observation of other cycles in the Central European Neolithic and we discuss further applications of Resilience Theory.

AR2 ADAPTIVE CYCLES IN HUMAN-ENVIRONMENT INTERACTION DURING THE LATE PLEISTOCENE IN CENTRAL PORTUGAL

Jonathan Haws

UNIVERSITY OF LOUISVILLE

Throughout the Pleistocene climatic shifts repeatedly impacted the environments in which people lived. In response to these perturbations, the Mediterranean bioclimatic zones evolved as some of the most diverse, dynamic and resilient in the world. Humans were part of this world from early on in the Pleistocene. The archaeological record shows an increasing visibility of human presence through time. Successive human species adapted in different ways to environmental change. The extinction of Neanderthals and appearance of modern humans in western Iberia after 40,000 years ago co-occurred with important environmental changes caused by climatic instability. Cycles of Dansgaard-Oeschger and Heinrich events created episodic changes punctuated by ecosystem release and reorganization. In this presentation, I examine the multi-scale paleoenvironmental and archaeological evidence for late MIS 3 and 2 landscapes using the adaptive cycle framework to understand human ecodynamics of the late Middle and Upper Paleolithic.

AR19 A GARRISON CEMETERY IN GOTHENBURG ON THE WEST COAST OF SWEDEN CAROLINE AHLSTRÖM ARCINI, CARINA BRAMSTÅNG PLURA AND PETRA NORDIN (SWEDISH STATE HISTORICAL MUSEUMS)

Petra Nordin¹, Carina Bramstång Plura¹, Caroline Ahlström Arcini²

¹SHMM AU MÖLNDAL, ²SHMM AU LUND

Between the years 2007 and 2015, rescue excavations were conducted at the Gothenburg Garrison Cemetery. The garrison parish graveyard was consecrated in 1731 on pastureland outside the fortress of Gothenburg. However, a historical map of 1697 indicates that the site already was in use as a burial ground. Skeletal remains of more than 600 individuals have been excavated. This paper deals with new perspectives on the garrison, its cemetery and the contribution of osteological analysis to the interpretation of everyday life among garrison soldiers and their families.

The Swedish trade intensified its involvement in the world sea commerce in the seventeenth century. Western European countries dominated the world trade; Gothenburg became an important trade port on the west coast of Sweden. The Dutch influence is evident in the fortification of Gothenburg, which secured the trade. The city garrison varied in size; in times of war up to 5000 soldiers were stationed in the city.

The results of the osteological analysis so far have revealed that the recruited soldiers had problems with both housing and livelihood. Recurrent wars and epidemics undermined health and there was a shortage of tall men. Dental health was better than expected, which may be due to their social status; they could not afford to buy sugar. Marks on teeth from pipe smoking, however, did indicate an intensive use of tobacco.

AR8 ROADS, RIVERS AND SETTLEMENTS. A NETWORK SCIENCE APPROACH TO URBANIZATION IN CENTRAL ITALY (1175/1150-500 BC CA)

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Urbanism is generally considered the most radical development in human history since the transition to agriculture. In Latium vetus and Etruria (Central Italy), the formation of competing city-states, grouped into wider regional entities, between the Late Bronze Age and the Archaic Period, has long been investigated. However, the focus has usually been on the local scale and short-range interactions among settlements.

We adopt a different perspective. Taking up the approach of complexity science, we consider settlements as the fundamental units of a larger system and urbanism as an emerging system-level property. It is through the interactions among its parts (settlements) that the overall organization of the system (macro-region) evolves from an initial state (pre-urban) to a final one (urban). Specifically, we map settlements, terrestrial and fluvial routes onto a network, where the former are nodes and a link between two of them indicates that there is a road and/or a river connecting them.

We are currently elaborating a model of the evolution of this system. Our aim is to differentiate general mechanisms underlying the urbanization process from specificities derived from the particular socio-economic context where it took place.

Moreover, by studying the two regions of interest, both separately and as a whole, we will better understand the role of links between Latium vetus and Etruria for the success of the Latins over the Etruscans, and the subsequent emergence of Rome as a global metropolis.

AR20 EARLY NEOLITHIC SITES ON THE SWEDISH WEST COAST

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During the last ten years, several developer-funded excavations have been conducted along the West Coast and discoveries of new early Neolithic sites have been made. Two areas of special interest in this respect are Veddige in County Halland and Björlanda on Hisingen Island in County Bohuslän. This paper deals with early Neolithic finds and their contexts.

On the riverbanks of Viskan in Veddige two early Neolithic vessels were found. The vessels were interpreted as a votive deposit. One of the vessels contained club wheat which has been dated to 4000 BC. The find could be seen as a proof of early cultivation in this part of Sweden. At the same time, the shape and the ornamentation of the vessels raises questions about the ceramic typology established for early Neolithic in Scandinavia. On Hisingen Island in Gothenburg, four archaeological sites in

valleys facing south have revealed new information about local Neolithic livelihood. Combining an old excavation technique with interdisciplinary cooperation involving specialists has turned out to be a successful method. In all, over fourteen house constructions were documented, dating from 4300 BC to 2000 BC. Analysis of macro and wooden charcoal samples from postholes, hearths and pits have been performed, as well as studies of funnel beakers.

The dates from Veddige and Björlanda indicate that some of the funnel beakers may be older than shown by previous investigations of this kind of pottery. The result of these early dates will be discussed in a wider perspective.

AR11 MATERIAL AND MANUFACTURING TECHNIQUE OF ERTEBØLLE FISH TRAP BASKETS

Stefanie Klooss

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Fragments of fish trap baskets were occasionally found on Ertebølle sites with good preservation conditions for organic material, although these finds are thin and fragile. Furthermore, fish trap baskets are known from several Mesolithic sites and also from later periods in Europe at lakes, rivers, and on the coast. But by comparison, the Ertebølle fish trap baskets are special in the used wooden material and manufacturing technique. Long, parallel bars were bound together using the so-called *Zwirnbindung* technique. The parallel bars were made from red dogwood (*Cornus sanguinea*) and guelder rose (*Viburnum opulus*) branches, that were split lengthwise and worked to thin sticks of oval or rounded triangular cross-sections. For the bindings, split roots of alder (*Alnus glutinosa*) and also roots of pine (*Pinus* sp.) were used. Consolidating rings made of turned branches stabilise the baskets. This very uniform material for the Ertebølle fish trap baskets is unique and characteristic for the terminal Mesolithic at the south-western Baltic sea coast.

AR15 THE DUAL DESCARTES – ON RECENT USES OF ‘CARTESIAN DUALISM’

Christian Horn

CHRISTIAN-ALBRECHTS-UNIVERSITÄT KIEL

This paper tackles the question of how the legacies of historical ideals promote conservatism or the development of new ideas by looking at how such legacies are treated. In particular, a closer look will be given to how “Cartesian dualism” is portrayed in recent articles and what it is used for. I will argue that its main use is as a straw-man argument and a shortcut to claiming the theoretical high ground. Students and followers of particular branches of theory endlessly repeat this trope and twist the chimera of “Cartesian dualism” into increasingly distorted shapes, however, this shows little understanding of René Descartes’ sophisticated philosophy based in formal logics. On the contrary, instead of condemning Descartes, archaeologists should carefully consider his argument. I will indicate that his use of dualism contains a very practical tool which does not describe reality, but discerns its ambiguities logically and enables their investigation.

AR7 ON THE HOOF – A REVIEW OF ANIMAL RESOURCE MANAGEMENT AND MOBILITY IN PREHISTORIC SCOTLAND AND FUTURE RESEARCH PERSPECTIVES.

Rosalind Gillis

MUSÉUM NATIONAL D’HISTOIRE NATURELLE - CNRS

Animal husbandry is an important cornerstone to human subsistence strategies, which can be adapted in response to cultural and environmental pressures. The original Neolithic settlers arrived during the 4th millennium BC and appear to have arrived from the continent probably France, adapting their food production modes to the new Scottish environments. After this initial expansion, Scotland witnessed a series of climatic crises, which may have led to the evolution in human social structure and settlement patterns. The presentation will review previous stable isotopic and archaeozoological analysis from Scottish sites, to provide a window on domesticated animal resource management and mobility during prehistory. We will focus on two periods: the Neolithic and the Iron Age. The first witnessed the initial development of the permanent settlements and the second because the evolution of prehistoric societies coupled with changes in land use and settlement patterns. The presentation will provide perspectives so as to engage a dialogue between all sectors of this Nation’s heritage public and commercial bodies encouraging development of a research agenda on the animal resource management and mobility during Scottish prehistory.

AR14 THE ROLE OF SENSE OF PLACE IN HISTORIC URBAN LANDSCAPE

Hiba Alkhalaf

UNIVERSITY OF EDINBURGH

Historic cities and places of cultural significance are continuously under pressure of economic development and social change that threaten their natural and cultural environment. The challenge here is to find a balance between preserving local character while ensuring the economic gains and continuity of uniqueness, therefore any social-cultural compensation needs to be sensitive to local contexts. This paper argues that sustaining the sense of place throughout conservation/development process as an approach that intends to protect as well as enhance the use, character, meaning and social interaction associated with the place. The main argument here is what we attempt to conserve is the cultural physical and non-physical dimensions of the historic landscape. It is based on the proposition that what give the character is its strong sense of place- whether it is historic or current. When properly identified, its various dimensions would help determine what to sustain and what not by making the development meaningfully related to uniqueness of the historic place.

This paper, thus, explores the various perspectives of the role of sense of place within the historic city and its connection to cultural heritage. It also reviews urban conservation practice through sense of place as a response to the demand of change. It shows the need for a more integrated approach towards historic landscape management, combining policies and practices of conservation with those of urban development. It concludes that change is managed best when there is a shared understanding of what sense of place is for a historic landscape.

AR3 ASSESSMENT OF CHRONOLOGY FOR FIELD SYSTEMS IN ENGLAND

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Field systems have shaped the landscape of England as we see it today, and continue to do so. Fieldscapes cover at least 70% of the country and many of these agrarian landscapes are deeply embedded in the public consciousness and are intimately intertwined with the development of people, places and society. The creation of field systems has been driven by a diverse set of circumstances, the earliest elements of which are not at all well understood, but the economic and social well-being of the country was, and is, contingent upon them. Recently, there have been a number of major projects that have investigated field systems, and in tandem with this, there has been a national programme of large-area historic landscape characterisation work funded by English Heritage. The rapid escalation in the volume of information has allowed broad trend data to be established: bounded field systems are everywhere, common in both the modern and the archaeological landscape, but it is clear that questions remain about their chronology - when were they first used? Can we date subsequent abandonment and re-use? Can we see any emergent patterning at a local, regional, or national level? Historic England are currently working with colleagues at the University of Sheffield and ArcHeritage on a project that will go a long way to answer some of these basic questions, as well as help frame future research, and this presentation will reveal the first results of the work.

AR14 RECONSTRUCTING QATARI HERITAGE

Mariam Al-Mulla

ARTS & HUMANITIES

In Qatar the revolution started with a change in the demographic structure with a view to achieving economic advantage. The population in Qatar had grown sharply, this occurred when the government allowed the investment of foreign capital and encouraged immigration.

Demographic and economic changes, are interconnected with other political and social aspects that have ensured numerous changes to Qatari life. The social revolution has led to evolution with all its consequences for heritage and culture.

Qatari Government formed planes, which are attempting to link the cultural and economic sectors. This is one reason why Qatar today focuses so much on reconstructing its cultural heritage. The mass use of heritage and the implementation of Western museum culture, however, might be viewed by some as the importation of a culture rather than the preservation of it. This nostalgia for the past is a fiction that represents an absent heritage and an imagined reality, which undermines any comparison to real heritage. Qatari heritage became no longer a self-referential heritage, rather, it is a simulated heritage that wishes to present Qatar on the world map. Through my paper, I undertake a careful reading of Qatari heritage to see if I could reconcile what has been simulated and created with what might be called an indigenous heritage. The government is using heritage as a reflection of historical facts and as an instrument, in the hope of finding a sense of reality in objects that could become representative of Qatari history.

AR8 URBAN NETWORK MODELS FOR ARCHAIC CRETE

Andrew Cabaniss

UNIVERSITY OF MICHIGAN

Modern social network analysis infers macroscale properties of society from pairwise personal interactions. Archaeology often recovers higher-order properties of social organization without recovering individuals. Explicit mathematical models of networks enable different scales of analysis to be linked into a unified scheme for understanding social organization and transformation.

In this paper, network models elucidate the process of urbanization in two Archaic Cretan settlements, Azoria and Prinias. Informed by archaeological inferences from settlement structure, economic organization, and limits on human information processing, I define models for family and civic patterns of interaction in the Early Iron Age and Archaic settlements. Measures of local neighborhood size (numbers of contacts) and clustering enable the perspective of an individual in these networks to be explicitly compared within a game theoretic decision making framework. These analyses indicate a critical tipping point in the size of the social networks at which urbanization becomes a favored strategy, one which corresponds with the settlement data for pre- and post-transformation Azoria and the final Archaic phase of Prinias.

AR9 THROUGH MAGNIFYING GLASS: ANCIENT LANDSCAPES AND TOPONYMY.

Nella Maria (Marinella) Pasquinucci

UNIVERSITY OF PISA

An interdisciplinary methodology and a wide range of techniques are applied to investigate ancient landscapes in a short or long term perspective. The material and textual evidence are “integrated” applying proper methodologies. Site-names add invaluable insights into the history of the studied districts.

I present two Italian case studies characterized by different environments, archaeological and written evidence. In both cases toponymists apply an integrated historical linguistic, historical and archaeological approach.

A) In a valley North of Genoa (Valpolcevera) archaeological evidence is scanty due to the nature of ancient settlements (perishable mountain dwellings) and archaeological visibility; toponymy sheds light on settlements, roads and ancient land use in a long term perspective. A 117 BC inscription (sententia Minuciorum: CIL V 7749) describes the administrative and economical layout of the area and documents pre-Roman and Roman toponyms, hydronyms, oronyms.

B) In North Western Tuscany the pre-Roman, Roman and medieval toponyms can be studied in close link with the local geomorphology, history and archaeology. I'll focus (A) on the indoeuropean toponym Pisa (“rich in waters”) and (B) on a Roman road constructed in the Arno valley in the mid 2nd cent. BC. Only archive researches provide evidence for its track: a series of Roman itineray toponyms is documented by medieval deeds (9th-11th cent.). The palaeogeographical study of the district proves that the road ran along the left bank of the 2nd cent. BC Arno river, in a plain which was centuriated in the 1st cent. BC.

AR4 TEXTILE ACTIVITIES IN THE HILLFORT OF PENDIA (ASTURIAS, SPAIN): THE ARCHAEOLOGICAL RECORDS OF THE LOOM WEIGHTS AND THEIR ANALYSIS IN THE FRAME OF THE ARCHAEOLOGY OF THE HOUSEHOLDS **Fernando Rodríguez del Cueto¹, Fernando Rodríguez del Cueto²**

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The loom weights have always had a relevant role in the identification of textile activities in the prehistoric settlements. Therefore, the *pondera* that were gathered in the hillfort of Pedia (Asturias, Spain), constitute an important archaeological record of the prehistoric and roman times (IV BC- II AD) in the NW of Spain.

Thanks to these evidences, four textile production areas were distinguished inside some cabins. Whereas it seems that three of those spaces hid small looms only, the other one shows an enormous loom weight accumulation corresponding with several big looms. Furthermore, no more finds of domestic life were recovered in this cabin, excepting two querns and some pottery sherds.

All in all, there are various examples in our peninsula with similar registers during the Iron Age. Nevertheless this particular case allowed us to recognize the importance of the spatial analysis, in order to establish the width of the looms; a key aspect to propose what kind of fibres had been woven. Loom weights and querns had always been connected with women, as part of their «typical» tools during the prehistoric times. So, it was another test to clarify whether the archaeological information can establish which gender was using this particular area or to identify an exclusive uses of the rooms.

Thus, we had the opportunity to link two theoretical frames (the archaeology of the households and the gender studies) with specific records and recognize their importance and validity for the Iron Age and roman studies in our region.

AR9 ARCHAEOLOGY AND PLACE NAMES: SOME EXAMPLES OF THEIR COMBINED USE IN THE NW OF THE IBERIAN PENINSULA

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The combination of toponymy and archaeological studies is problematic, as Zadora-Rio has demonstrated. However, toponymy is still valid for understanding some aspects of medieval rural settlements, as has been proved many times. In the field work conducted by our research group in several villages of Asturias and León (NW of Spain) we have used micro-toponymy studies, which have allowed us to locate deserted villages and its internal organization, or recognize displacement of power centers and transformations in the territorial boundaries. Subsequently, in some of these villages we organised archaeological excavations. The results have helped us to test the hypotheses previously raised on based place names studies, surveys or written documents. In this paper we will present the methods used and will assess the possibilities of micro-toponymy as a complementary source to archeology, always based on the results we have obtained over the years of fieldwork.

AR10 REBUILDING THE MOTTE TOWER

William Wyeth

UNIVERSITY OF STIRLING

This paper examines the evidence for timber towers as a medieval building type in response to a lack of discussion over how to imagine the form and processes of erecting motte towers. The image of motte towers as unsubstantial and flimsy structures – derived from excavations at Abinger motte in the 1950s – has endured in assessments of motte-top archaeology. Creighton, Higham and Barker have done much to undo the persistence of the Abinger motte tower reconstruction drawing in the minds of archaeologists and historians. By bringing together evidence for timber castles they have revised our understanding and opened avenues for fresh interpretation. By reflecting on how these structures appeared, were managed and made, this paper

finds it is possible to gain renewed appreciation of timber castles and to undertake an evidence-based assessment of the archaeological evidence.

Though evidence for motte towers from art, documents, archaeology and architecture is slim and already studied, similar evidence for two other tower types, church bell-towers and siege towers has not been closely compared. The results of this approach provide further insight into motte towers' medieval context. It also confirms that these timber towers in the medieval era were similar in construction, inherent building expertise and the expectations of their builders. What emerges is a visual palette of medieval timber towers, from the Abinger-type watchtower to those substantial and enduring buildings akin to church bell-towers and siege towers. Visual and written descriptions of these should now form part of the interpretative package for imagining motte towers.

AR2 RESILIENCE, REPLACEMENT AND ACCULTURATION IN THE MESOLITHIC/NEOLITHIC TRANSITION: THE CASE OF MUGE, CENTRAL PORTUGAL

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ICAREHB - UNIVERSIDADE DO ALGARVE

In central Portugal, there is evidence for Neolithic communities present in the region as early as c. 7600 cal BP. These were exogenous groups that arrived from the Mediterranean Sea, via the Atlantic coast. During a couple of centuries there was an overlap in the region between the Muge Mesolithic and the early Neolithic populations. While the trajectory of the first farmers is well established, the faith of the Mesolithic populations is basically unknown and frequently thought as extinct. With the recent results from the Mesolithic shellmounds from the Muge region (Tagus valley), both DNA from Moita do Sebastião and the presence of the Neolithic loci and human burials in Cabeço da Amoreira, there seems to be evidence of cultural and genetic integration between the two populations.

This paper will focus on the Mesolithic-Neolithic transition in central Portugal and examine the hypothesis that resilience factors are present in the cultural and genetic integration process between the Mesolithic and Neolithic communities in the Central Portugal.

AR11 COASTAL FISHING STRUCTURES STUDY: A MAJOR RESEARCH STEP IN WESTERN FRANCE

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Following the first successful investigations in Normandy (by C. Billard), Western France recently benefited from a research project dedicated to the coastal stationary fishing structures of Brittany, in the Western forefront of Europe, and area submitted to the second most important tidal ranges in the world.

This interdisciplinary based approach combined systematic desk-based analysis (historic charts, aerial photos...) and field archaeology (surveys, remote sensing, excavations...).

Systematically considering 20 variables for each installation, the dedicated database currently groups together the records of 760 fish-traps, made of various materials (stone, wood) and featuring different architectures. The analysis of the main characteristic of these weirs draw to a discussion on the first proposal for typology, and led to consider that, over the millenniums, the organisation of the installations and shapes seem to be more dependent on local topographic, tidal and geomorphologic conditions than influenced by cultural context.

Turning to the chrono-cultural question, a second step of the project led to field refined studies on some installations, selected either because for their local archaeological environment or for their topographic position as regards the sea level and its Holocene variations; we especially considered the permanently submerged fishtraps, which are supposed to be the older ones (Mesolithic or Neolithic).

Through the presentation of the main results, illustrated by several case studies, this paper aims at contributing to a more comprehensive approach of the relationship between man and marine /coastal environment and participating in the stimulation of scientific and heritage interest at a wider European level.

AR16 THE INFLUENCE OF CONVENTIONS AND MENTAL STEREO-TYPES ON THE REPRODUCTION OF LANDSCAPE-IMAGES. PRESENTING AN ALTERNATIVE METHOD BY ANALYSING HUNEBED-PICTURES.

Thomas van den Brink

WAGENINGEN UNIVERSITY

There are innumerable landscape-images in circulation. Pictures which historical geographers, landscape researchers and archaeologists eagerly use for their research. Normally they analyse them by using the methods of *realism* or *symbolism*. Both are based on the assumption that pictures represent or refer to a world outside the picture, respectively physical or mental. Otherwise, they are merely illustrations.

On the other hand, pictures can be seen in relation to other pictures, which possess the question: can pictures be seen as reproductions of mental-stereotypes of certain concepts? Because this inquiry switches the attention from the "real-world-

phenomena" to the corpus of pictures, this method is not used much in archaeological and landscape research fields. Nevertheless, this research aims to do a first inquiry into the matter by analysing hunebed-pictures. It is revealed that in the corpus of hunebed-pictures a pattern exists: most of them have important similarities, while others are not recognized as a 'good' picture of a hunebed. This implies that these pictures are not made randomly, but that their makers shared a mental-stereotype. This stereo-type can be seen as a subconscious, cultural-determined convention. Although this might sound simple, it is rather not. One can only unravel this when a lot of pictures are compared. Furthermore the issue becomes more complex when the different image-production-techniques are taken into account.

Thus, this session proposes an alternative way of analysing landscape picture's without the need to refer to an external "reality". It does so by applying a theory of the famous art historian Gombrich.

AR18 BORDERLANDS IN TRANSITION – THE LANDSCAPE NORTH AND SOUTH OF THE LOWER RHINE LIMES BETWEEN 50 BC AND 500 AD

Kai Radloff

RÖMISCH-GERMANISCHE KOMMISSION DES DAI

Borders are dynamic. They consistently constitute themselves anew by mutual contacts. They change over time, even if they do not change their spatial position. As space is not just the stage for human acting, a border is not "simply there". It is rather the consequence of human agency, which underlay certain terms and has thus a (social and political) meaning and – most important – an effect. However, our current picture of the Limes is still static and mostly romano-centric.

By analysing and comparing the landscape up the River Maas and down the River IJssel, the PhD-project presented in this paper shall explore how the borderland emerged, persisted and changed between 50 BC and 500 AD. What were the consequences of Roman arrival for the landscape on both banks of the river Rhine? What changed over the centuries within pattern of the sites, their composition and interrelation, and what stayed the same? And how do the Roman military facilities relate to them?

For a better description of cross-border relations, the working area respects "both sides" of the Lower Rhine Limes. It will thereby hopefully lead to a better understanding of the socio-political landscape which is up to now mainly defined just by Roman fortifications and watchtowers.

The paper reflects on the conditions and possibilities of analysing borders within the humanities and discusses the application to Landscape Archaeology using the archaeological record.

AR2 TECHNOLOGICAL ADAPTIVE CYCLES BETWEEN 90 AND 51 KA AT PINNACLE POINT 5-6 (SOUTH AFRICA)

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Recent research in South Africa has been refining the boundaries of the Middle Stone Age techno-complexes and showing a greater diversity and complexity within each of them, often hard to justify as only related to site-function. The growth of multidisciplinary data suggests that this complexity can be due to local evolutionary ecological, economic and social adaptations to climatic shifts, changes in the landscape and resource availability.

Pinnacle Point 5-6 is located on the shore of the southern coast of South Africa, but due to morphology of the continental platform, it was adjacent to an expansive plain during glacial periods. Its location resulted in continuous transformations of the landscape, ecological niches, and availability of resources. Nevertheless, technological adaptations, such as the use of diverse lithic raw materials, was resilient through ~40 thousand years. Some technological adaptations exhibit continuity through time, whereas others change in response to paleoenvironmental fluctuations.

Thus, Pinnacle Point 5-6 has the perfect conditions for relating continuous change in local ecological settings with both conservative and innovative technological choices, by presenting a dataset congruent with dynamic adaptive processes based on learning with continuity instead of the collapse of a strategy and replacement by a different one as happened in Europe during the Middle to the Upper Paleolithic transition.

AR20 SHELL MOUNDS AS PERSISTENT PLACES: NICHE RESOURCE PRODUCTION AND LIVING ARCHITECTURE IN LATE HOLOCENE NORTHERN AUSTRALIA

Mick Morrison

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For over five decades, shell mounds have been a focus of research into the life ways of Indigenous peoples living along north Australia's coast during the Holocene. Shell mounds range from 0.5–5 m in height, though some rare examples are double this size. They typically have a shell-rich matrix with limited proportions of vertebrate fauna, and are of late-Holocene age. While traditionally viewed as accidental middens, in recent years new interpretations have been developed that emphasise the economic significance of several key species commonly found in mounds, and that are r-selected and prone to forming large

biomasses. However, one key question has received remarkably little attention to date: why mounds, and in particular, why such very large mounds? Here I outline a new model for the formation of Australian shell mounds via a case study at Weipa, where some 500 mounds have been recorded. I argue that mounds represent the intentional placement of shell at persistent places within dynamic late Holocene landscapes. These places had particular qualities that encouraged their use and reuse through time; most notably, as social hearths situated in close proximity to highly fecund ecological niches. At times, some assemblages of mounds also became competitive feasting sites and centres for social exchange. Furthermore, mounds had important symbolic qualities linked to their biographies as social domains and as feasting sites, and also because of their physical form, their position in landscapes, and finally, because of their associations with a unique resource—the blood cockle (*Anadara granosa*).

AR19 A CHILD'S DEATH AND CHILDREN GRAVES' EQUIPMENT IN 17-19 CENTURY - ON THE EXAMPLE OF ARCHAEOLOGICAL RESEARCH IN POLAND

Magdalena Majorek

NICOLAUS COPERNICUS UNIVERSITY, TORUŃ (THORN), DEPARTMENT OF ARCHAEOLOGY

Source material base for studying child life in Poland has been growing from year to year, creating more overall picture of a childhood of the past centuries, although the subject had been neglected by the researchers for long. It results from scarcity of available sources, and the ones which exist deliver little information concerning the youngest society members. Modern times are rich in information from written sources, the results of archaeological and anthropological research, on the grounds of which it is possible to recreate, among the others, child life conditions and its position in social hierarchy at the space of years.

Examining the excavated artifacts, we are able to discover much information concerning a child's life. Fortunately, history of modern times is supported by written sources, which thanks to cooperation of historians, archaeologists, ethnographers, anthropologists and researchers representing other branches can lead to more complete knowledge on conditions of bringing up children, their toys, clothes, circumstances of death and funeral ceremonies themselves. The study results are extremely interesting, giving on the base of source material a picture of mutual adult – child relations. It was a parent who decided on a kind of burial ceremony, who chose a coffin, garments, accessories. What reasons directed him? What were the differences in funeral equipment between deceased adult and a child?

For most of the questions correspond to the last results of archaeological research.

AR3 FIELD WORK: GIS-BASED INVESTIGATION OF THE LATER PREHISTORIC COAXIAL LANDSCAPES OF THE YORKSHIRE DALES NATIONAL PARK, UK.

Hannah Brown

UNIVERSITY OF BRADFORD

The Yorkshire Dales National Park, situated in northern England, contains some of the UK's most extensive and well preserved prehistoric landscapes. Of particular interest are a number of coaxial field systems, which cover hundreds of hectares and exhibit significant time-depth, yet remain little studied and poorly understood in relation to comparable resources elsewhere in Britain and northwestern Europe. This research employs a GIS-based approach to the collation and analysis of existing resources relating to the field systems, while working in collaboration with a parallel project that takes a field survey based approach to the same landscape. Synthesis of information sources including aerial photographs, LiDAR, archaeological records, cartographic data and historical documents has helped to inform field observation, providing information about known and previously unknown archaeology in combination with the local and regional landscape, and will ultimately inform historical resource management and public understanding of the landscape. The GIS has allowed consideration of, for example, topographical trends, elements of slope, aspect and shadow, and resource distribution, which may shed light on the origins and development of the field systems that also demonstrate complex relationships with the later, medieval patterns of land use. While the geophysical techniques employed by the related project facilitate the focussed survey of a comparatively small landscape, the use of GIS is allowing a broader over view at a macro scale.

AR19 'WHAT HAVE THE ROMANS EVER DONE FOR US?': EARLY MEDIEVAL CHURCHES IN A POST-ROMAN WORLD

Elanor Pitt

THE UNIVERSITY OF SYDNEY

'What have the Romans ever done for us?' This question from Monty Python's *Life of Brian*, though tongue-in-cheek, brings to the fore the question of the impact of Roman occupation on subsequent settlements. This study explores the spatial patterning of early medieval church buildings in the British Isles in relation to existing infrastructure from the earlier Roman period. Two different worlds are compared: one within the boundaries of the previous Roman world, and one beyond. Through this comparison, the influence of the earlier Roman occupation on early medieval church architecture is assessed. The churches in question are those of the Anglo-Saxons in England, the Irish 'Celts' in Ireland and the Picts in Scotland. This research addresses the need for a comparison of the spatial patterning of these pre-Romanesque churches, as architectural remains are a record of the way people configured occupation space, using or disregarding previously delineated spatial patterns. The study demonstrates that these church building traditions were affected by the early medieval 'Papal Roman Empire' which

recreated or reused elements of the Roman Empire to establish authority. This being said, the English, Irish and Scottish churches remained distinct from one other, each demonstrating this 'Christian Empire' through different arrangements of sacred space. The churches built beyond the geographical bounds of the previous Roman Empire maintained their conservatism, whilst the churches among the old infrastructure of Rome were more varied. As the Roman remains faded from the landscape, the spatial configuration of the Anglo-Saxon churches became more consistent.

AR19 BISAMAPFEL, POMANDERS, APPLE – SCENTS IN ENGLISH COURT AND AT HOME OF POLISH NOBLE.

Dawid Grupa

INSTYTUT ARCHEOLOGII UMK W TORUNIU

An apple excavated in village necropolis in Płonkowo was a container for scent substances, like herbs and spices and it was worn at a belt or as a pendant on a neck, together with a string of beads and decorative chains. Appearing frequently in iconography, pomanders belong to very rare archaeological finds. They were properties of rulers, aristocracy, landowners and merchants. Their purpose was to save a person from unpleasant smells around, in some periods, it was believed that they protected from plagues. They were often placed in rosaries as a bead. A person possessing an apple was to be surrounded by nice aroma, hence various decorations and openwork on the container surface. Their sizes differ depending where they were hung. With names listed above they were known as early as 16th c and they were manufactured of silver and gold alloys, although the apple from Płonkowo was made of brass, which originally shone like gold. It is difficult to estimate what type of apple is represented by Płonkowo example, because only its upper part has preserved. When moved slightly, the apple emitted intense smell of various mixtures, like: musk, amber, rose petals, lavender, nutmeg, cloves, saffron, calamus, wood of olive tree, red or white sandal wood, orange and many others. To intensify nice smells, the mixtures were combined with wax; while rubbing - the metal heated together with its contents, sending out nice aromas.

AR7 DYNAMIC DOMESTIC ARCHITECTURE? A VIEW FROM SCOTLAND

Tanja Romankiewicz

UNIVERSITY OF EDINBURGH

Prehistorians in Britain often interpret the later prehistoric roundhouse as the built expression of cosmological concepts, metaphorically integrating the processes of everyday life. The question of how integrated the house was – physically – into later prehistoric economies and subsistence strategies is less often discussed.

Ongoing architectural analysis of Scottish roundhouses indicates that houses also formed an important material component in prehistoric agricultural processes, resource management and resource creation. Case studies from upland, lowland and Atlantic Scotland illustrate that building and rebuilding of houses seems to have been a key element in the cycle of production and provision of surplus. These houses are physically as well as metaphorically embedded in prehistoric life cycles. The birth, life, death (and rebirth) of a prehistoric house might have been even more tangible than often discussed.

This contribution aims to explore these places of dynamic domestic architectures in a wider context of (im)permanent settlement systems in prehistoric Scotland and in contrast with more permanent forms of roundhouse architecture in stone and timber – a comparison that will be discussed diachronically as well as topographically, and with an outlook of testing seasonal or periodic (re-)use with scientific, analytical methods.

AR18 RECONSTRUCTING THE POPULATION OF ROMAN YORK

Lauren McIntyre

ELMET ARCHAEOLOGICAL SERVICES LTD

This doctoral study combines new and pre-existing osteological evidence with archaeological evidence in order to reconstruct the demographic composition of the population of Roman York (Eboracum), and is the first study of its type to be conducted for a whole Roman town. A sample of 785 human skeletons provided data with which to examine the population's biological sex distribution, age at death, and average life expectancy. Mortality profiles were also constructed using raw osteological data, and adjusted for methodological bias using Bayesian statistics (after Gowland and Chamberlain, 2005). Furthermore, population size was estimated using the aforementioned demographic data, as well as archaeological burial data and evidence for settlement size. Results indicate that the population had significant male bias, under-representation of infants and sub-adults, and approximately equal male and female life expectancy. The population size range was calculated at approximately 10,000-14,000 individuals. This is larger than previous estimations and indicates that Roman York was more comparable in terms of population size to contemporary towns such as London (Londinium), Colchester (Camulodonum) and Cirencester (Corinium Dobunorum). Overall, findings strongly suggest that the demographic composition of the population of Roman York was heavily influenced by the presence of the military.

AR10 ALTERNATIVES AND APPROXIMATIONS: RECONSTRUCTING TIMBER CONSTRUCTIONS IN TREELESS PREHISTORIC LANDSCAPES

Tanja Romankiewicz

UNIVERSITY OF EDINBURGH

In the Iron Age people in the north and west of Scotland built tall stone roundhouses, the brochs. From a handful of sites with evidence for internal postrings, we have reconstructed elaborate timber interiors, upper floors and roofs. Our view of brochs as the home of status-conscious households has influenced such reconstructions. In return these reconstructions visually confirm broch dwellers as conspicuously consuming substantial timbers in treeless landscapes as a means of intergroup competition showing off social and economic success.

Architectural analysis of the stone-built remains and the archaeological evidence for timber use suggests a more complicated picture of buildings adapted to local materials and environmental conditions, and reflecting the idiom of earlier traditions; characteristics also of the later, vernacular architecture of these areas.

What if we changed our standard reconstructions using fewer, smaller timber elements that could have grown in small woodlands managed over generations? What if there was no standard broch, but each structure adjusted to regional architectural traditions, local conditions, and even individual preferences? This paper will present results from the architectural analysis and propose different reconstructions of brochs in different regions, based on site-specific evidence and inspired by the local vernacular tradition. By reconstructing in alternatives, it is hoped to highlight that our reconstruction attempts will always be approximations and can perhaps be better understood as such if not one single solution is presented.

AR15 COMPLEX STRUCTURE OF AN ARCHAEOLOGICAL DATUM AND THE PROBLEM OF INTERPRETATION

Karolina Pauknerova

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Archaeological record is translated into archaeological data during the research, and although we usually speak about interpreting the archaeological record, it is these data that are interpreted. In my paper I focus on the architecture of archaeological data and its consequences for interpretation, using examples from research I participated in in the UK (Pebblebeds Project, led by C.Tilley) and the Czech Republic (Becov IV, led by J.Fridrich).

I argue that archaeological data are partly the product of the connoisseur's eye, state of the art, and process of objectification, e.g. currently used typology, but also the product of unique and subjective conditions. In the research process, the archaeological record is "purified", which is generally achieved by isolating some features and thus also by omitting some other aspects. In this way the archaeological record is translated into archaeological data – thought, written, photographed and drawn evidence from a site. I will demonstrate that this complex process has implications for interpretation and that data understood in this way present a challenge for interpretation of the archaeological record.

Analysing construction of data seems to be of utmost importance now when we witness a decline in reflexivity and a turn to exactness of the mechanical type of interpretation, such as various attempts to use material semiotics and symmetrical approach, or space syntax. This turning away from reflexivity is coupled with turning away from the hermeneutical approach in interpretation. My aim is to draw attention to the often overlooked steps critical to the interpretation the archaeological record.

AR6 EXPLOITATION OF THE RAW MATERIAL OF THE POOR QUALITY – CASE STUDY FROM EASTERN BOHEMIA (CENTRAL EUROPE).

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This paper presents case study from the Central European region, Czech republic, eastern part of Bohemian territory. This region is known from the surface survey. There were many different lithic scatters found. Some of them contains several thousands of pieces. Absolute chronology in this region is not known, radiocarbon dates are missing until today. There are about 350 different scatters with Mesolithic finds.

In this paper I would like to present technology of the exploitation of the local raw material during Mesolithics. The local raw material is of the poor quality, usually in the blocks of maximal width of 10 cms. It comes from cretaceous sediments which creates a subsoil in this region. Exploitation of this specific raw material is not very different from the exploitation of the raw materials of much better quality. Aim of the process were bladelets which were divided in to smaller pieces by technique of microburin. From these smaller pieces microliths were produced. This way of exploitation of this raw material indicates strong tradition in lithic production, which was done according to the tradition, from any kind of knappable stone. The most interesting thing about collection is, that cores were exploited up to the ridiculously small size. Main aim of this paper is reflection why in the region with sufficient amount of the raw material, chert was exploited in such an absurd way without any obvious reason.

AR3 A SHEEP'S EYE VIEW: LAND DIVISION, LIVESTOCK AND PEOPLE

Clare Randall

BOURNEMOUTH UNIVERSITY

Fields and field systems in later prehistoric British archaeology have generally been discussed in relation to territory or land tenure. They are also frequently assumed to relate purely to arable agriculture. Alongside this, we also tend not to situate animals within landscapes. Increasingly, morphological features of fields can be identified as having use in animal handling. Consequently field system morphology, and changes to layouts over time, enable their re-examination in relation to pastoral

and arable husbandry (and the interplay between them), and consideration as to why differing approaches may have been adopted within the same landscape at different times. This provides models which are potentially applicable to a range of places and periods.

The later prehistoric bounded landscapes surrounding the hillfort at Cadbury, Castle, Somerset, UK, reveal an intimate relationship between the occupiers of the hillfort, sites in its environs, livestock and the landscape. A series of different forms of land division and organisation from the earlier Bronze Age onwards can be compared with both faunal and plant macro-fossil data from within that landscape. Different forms of layout appear to reflect different types of strategy and approach in Bronze Age and Iron Age farming. During the second and first millennium BC an oscillation can be observed from different forms of highly extensive pastoral farming to integrated and intensive systems. The explanation would seem to be more social than practical in origin, but discerning this is reliant on large scale field survey, and integration of multiple strands of information.

AR11 NEOLITHIC FISHING CONSTRUCTIONS OF DNEPR-DVINA REGION

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Several sites with the remains of fishing constructions dated to 6-3 mill. BC were found in Dnepr-Dvina region. Fishing facilities consist of various constructions made from thin elaborated sticks, partly – with remains of binding. They were found left in a shore zone on the sites Serteya X, Rudnya Serteyskaya and Serteya XIV, dated to the second half of the 6th mil BC, located either near the settlements or remote from inhabited places. Remains of fishing constructions were found also in the cultural layer of pile-dwelling Usviaty IV, layer B.

Fishing stationary constructions and different facilities best conserved were found on middle-late Neolithic site Serteya I and pile-dwelling Serteya II. Reconstruction of paleolandscape situation allows supposing the existence of a small channel on the place of the site Serteya I, connected two lakes, that might attract here ancient inhabitants for fishing. Remains of two pine fishing constructions, numerous piles, fishing net and sinkers, different elaborated wooden implements, fragments of bone arrowheads were found here. The site was visited several times in the past, which is testified by radiocarbon dates from the first half of the IV mill. BC till the end of the I mill. BC. Pile-dwelling Serteya II with the remains of several dwelling constructions represents one of the unique sites with rich collection of wooden, bone artefacts, pottery, rich fauna collection and botanic remains. Numerous traces of fishing activity were found here which demonstrate importance of fishing in ancient economy: fish bones, net's fragments, fragments of tools.

AR20 AN ENEOLITHIC PERSPECTIVE: DOGS IN BURIALS, RITUALS IN SETTLEMENTS

Maja Pasarić

INSTITUTE OF ETHNOLOGY AND FOLKLORE RESEARCH

Looking at the modalities of human-animal relationships in the past, it is possible that dogs played more diverse and polyvalent roles in human societies than any other animal species. Following cattle, dog burials are the second most numerous kind of animal burials in the Eneolithic of Continental Croatia. Earlier investigations and more recent discoveries in the chosen geographical area have unearthed different types of dog burials within the settlement areas of a number of Eneolithic cultures, such as Lasinja, Baden, Kostolac and Vučedol. Dogs are found in human graves, buried separately (individual or double burials) and with other animals. This contribution will discuss possible ritual interpretations of these deposits and types of ritual activities within the Eneolithic cultural contexts. Attention will be given to the biological characteristics of animals, the treatment of their bodies, as well as spatial aspects of the deposits, in accordance with the available data. An attempt will be made to gain insight into possible roles of dogs in these prehistoric communities, and to document change and/or continuity from the Neolithic to Eneolithic periods by looking at a broader Central European context.

AR11 FISHING FARMERS OR FARMING FISHERMEN? EXPLORATION OF COASTAL RESOURCES IN THE FUNNEL BEAKER CULTURE WITH LEISTERS AND FISH WEIRS

Lars Ewald Jensen

MUSEUM LOLLAND-FALSTER

Excavations prior to the construction of a tunnel from Lolland, Denmark to Femarn, Germany, has resulted in the find and documentation of several fish weirs on Lolland from the early period of the Funnel Beaker Culture, dating approx. from 3000 to 2500 BC. They were situated on tree locations in two fossil lagoons.

Finds of numerous bone points and leisters at other sites in the lagoons are evidence of a stalking fishery perhaps continued directly from the Ertebølle Culture. If the fish weirs are sign of a community organized fishery and the fishery with leisters shall be comprehended as a single man fishery is uncertain.

Trail excavations on dry land have documented a rather large settlement from the same period as the fish weirs covering approx. 100.000 square meters. Next to the settlement registered six megaliths probably constructed between 3200 and 3000 BC. They are demolished decades ago but remains from a single one has been found in 2013.

The complete picture of the activities requires further analysis and work. However: there is evidence of an intense use of the coastal zone during the Funnel Beaker Culture when fishery was a significant activity. The Mesolithic coastal settlement from the Kongemose- and Ertebølle Cultures are famous. The evident use of the coastal resources in the early Neolithic and the reinterpretation by Eriksen and Andersen of the Danish megaliths as community monuments and not indicators of chieftainships once more set the question of the Neolithisation process on the agenda.

AR1 DIRT AS MATTER EXACTLY IN THE RIGHT PLACE – OR THE CULTIVATION OF MEDIEVAL LUND

Gertie Eriksson, Aja Guldåker

KULTUREN

This paper will address how dirt went from "matter out of place" to "matter exactly in the right place", through a close cooperation between archaeologists and archaeobotanists/geologists in Lund, in the southernmost part of Sweden. Lund was founded as a town around the 990s, and since the 1890s archaeological excavations have been undertaken throughout the urban setting. The dirt was formerly seen through a medieval "dirtlens", and no one questioned the presented picture, with manure and rubbish thrown out into heaps in backyards. Thick cultural layers made up by household waste were often interpreted as levellings using rubbish in a "use what you got" kind of way. Introducing archaeobotanical and geological analysis has radically changed the point of view. At all recent major excavations gardens, fields and meadows have been identified, leading to a new approach analysing the urban settings. Knee deep waste has turned into fertile kitchen gardens. Kulturen uses the household as a basic theoretical unit in order to study why people lived like they did rather than how they lived, a view inspired by Axel Christophersen. New methods have made it possible to study the living conditions of people, and the role that cultivation played in the medieval town on many different levels. Traditional interpretations have been overthrown and new questions are proposed, when viewing the medieval town through a "green lens".

AR3 FIELD MANAGEMENT AT GRICIGNANO D'AVERSA - U.S. NAVY (SOUTHERN ITALY), CA. 3900 CAL. BP: 3D ANALYSIS OF THE 60 HA-WIDE FIELD SYSTEM

Fabio Saccoccio

LA SAPIENZA, UNIVERSITY OF ROME

Recent investigations in the Piana Campana (Southern Italy), mainly caused by infrastructural development, have revealed the potential of the archaeological deposits under the current soil for landscape reconstruction. The repeated, and sometimes devastating, volcanic activities of the Somma-Vesuvius and Campi Flegrei, spread over a wide area and over the centuries, led archaeologists to the recovery of detailed data about the past environment and human occupation, of the Piana Campana, during the Late Holocene.

Settlements, burials, landscape and agrarian infrastructures (fields, tracks, wells, etc.) show an intense and continuous human presence since at least late Neolithic times (ca. 6.2 ka cal BP) also confirmed in the pollen diagrams.

The investigations conducted at Gricignano d'Aversa by the Soprintendenze of the Italian Ministry of Culture from 1995 to 2005 allow us to evaluate with a specific accuracy the comprehensive pattern of the Early Bronze Age agrarian traces. These are preserved directly below the Vesuvius eruption named as "Pomici di Avellino" (ca. 3900 cal BP): an uninterrupted ploughed surface and field system over 60 ha, is shaped by agrarian features (banks, gullies, cart tracks) with a remarkable regularity. A first "static" reconstruction of the system has been published in 2013 (Saccoccio et al. 2013).

Aim of this contribution is the detailed analysis of the management of this Early Bronze age agrarian system: 3D analysis of the agrarian surface will be employed to understand the patterned use-cycles of the landscape by these human communities, characterized by a long-lasting shifting agricultural strategy.

AR5 MARGINAL HUMANS? THE ACOUSTIC LANDSCAPES OF NEANDERTHALS

Jan Kolen

FACULTY OF ARCHAEOLOGY, LEIDEN UNIVERSITY

It is argued in this paper that European Neanderthals favored environments that we now generally consider as marginal, such as highly dissected mountainous landscapes and densely forested areas. It will be suggested that Neanderthals' preference for these landscapes –at least in part- may have related to highly developed communicative practices that used the landscape as an acoustic device. This possibility will be discussed by referring to both palaeo-environmental information (including archaeological observations) and recent ethnographic situations. Instead of being marginal types of environments, it is posed that mountainous and forested landscapes formed focal areas for Neanderthals – although they may have frequently acted in an isolated way or in small and dispersed groups.

AR19 MAPPING IMPROVEMENT SCHEMES WITHIN 19TH CENTURY IRISH MARKET TOWNS

Laura O Connor

INDEPENDENT ARCHAEOLOGIST/GIS SPECIALIST

Towns represent a vital aspect of the evolution of human society and as such represent one of the most complex artefacts created by humanity. My proposed presentation stems from my MPhil research where the aim was to evaluate the evolution of

modifications made to post medieval urban forms and how their increasing complexities lead to planning control in Munster - a province in the south west of Ireland.

The development of industries within towns in eighteenth century Ireland resulted in the alteration of population trends with the movement of rural inhabitants to urban setting, seeking employment in the growing manufacturing industry. As population further expanded in the nineteenth century, so did the need to develop basic amenities such as water supply, drainage and sanitation. The increased construction of civic infrastructure coincided with the evolution of road networks, not only between urban centres but also within towns where the provision of footpaths, bridges and crossings vastly improved the mobility of people and goods.

Using surviving local government records which documented publicly funded improvement schemes in many towns throughout the course of the 19th century, this paper will map the provision of roads, footpaths, bridges and crossings within two Irish market towns. Mapping these schemes will not only allow us to further evaluate the physical extent of urban development, but also analyse the fiscal costs of these works as well as the economic and social benefits. The surviving evidence of these schemes will also be discussed.

AR18 NEW STUDIES OF EPINETRON. AN EXAMPLE OF SYMBIOTIC RELATIONSHIP BETWEEN CLASSICS AND ARCHAEOLOGY.

Barbara Szubert

UNIVERSITY OF WROCLAW

Archaeological research even today, in the 21st century, in specific or hopeless cases needs help of written sources. The aim of this paper is to prove that ancient texts can still be useful to solve tormenting problems and riddles in archaeologists' work. To support this thesis the new studies of *epinetron* will be presented. Preserved archaeological finds of *epinetron* caused in the past substantial interpretative problems. Ceramic finds (mainly from the region of Attica, 6th – 4th centuries BC) were interpreted, e. g., as roof-tiles or rhyta. After years of misinterpretations, in 1892, they were identified correctly by Carl Robert thanks to both – the archaeological and philological evidence, and more precisely thanks to a new archaeological find and ancient Greek literary sources. Still, there remain some unanswered questions. We know that the *epinetron* was used by female spinners and was covering their thighs to protect the clothes. But for what purpose was the *epinetron* used precisely? On which stage of the process of wool working was it used? Before the spinning, during the spinning itself or after the spinning? The researchers' views on this matter are divided to this day. The second important question is whether the preserved decorated *epinetra* were used daily by the spinners or whether they were only imitations serving as wedding gifts, funerary equipment or votive offerings? Some researchers believe that the *epinetra* of a practical function were made of wood or skin. Ancient literary sources discussed in this paper show that the latter conjecture is wrong.

AR8 FORMAL NETWORK ANALYSIS AND ARCHAEOLOGICAL THEORISATION: A PROPOSITION FOR FRUITFUL COLLABORATION

Koji Mizoguchi

KYUSHU UNIVERSITY

Different formal network analysis methods have different implications for the understanding of the effects and consequences generated by the formation of social networks. This paper attempts to connect them to new theoretical trends in archaeological understanding of the mechanism of the reproduction of sociality and social change, and will reveal that the proper use of suitable formal network analysis methods enriches not only factual understanding of but also theoretical insights into those important issues for the study of human history.

AR18 NEW ASPECTS OF IMPERIAL COMMEMORATIVE SYMBOLISM IN THE CITYSCAPE OF CONSTANTINOPLE: REALITY AND VIRTUALITY

Richard Magito Brun

UNIVERSITY OF LUND

This paper deals with some high profile monuments of imperial Rome, the columns of Trajan and Marc Aurel, in relation to monuments in Istanbul from contexts at the same prestigious level.

The Istanbul monuments are familiar to connoisseurs of constantinopolitan topography, but rarely known in detail. One is a columnar monument, that of Arcadius, since centuries accepted almost as replica of Trajan's and Marc Aurel's prototypes. The other two monuments in Istanbul are later Byzantine objects.

The real analogies between these splendid columnar memorials – with their dominant visual qualities in the cityscape – and the two shadowy, completely different two-dimensional objects, from a Byzantine architectural context, have not been approached by any research.

One object in Istanbul that we relate to the columns is a mosaic quadrangle with *opus sectile* in the pavement of the cathedral Saint Sophia, known as *Omphalos*.

Another one is the closely related Mid-Byzantine square floor mosaic found close to Saint John Prodromos' Early Byzantine church in Hebdomon.

The premises at Hebdomon consisted of the prodromos octagon and its forum, a monumental column dedicated to Theodosius II, and the imperial palace *Ioukoundianai*. A great number of emperors were also crowned in the octagon. The quadrate at the octagon resembles in important respects the quadrate in Saint Sophia.

The analogies appear at the level of metrology and mathematics. The flat squares and the huge columns are not at all visually similar.

One interesting conclusion would be that *Omphalos* as circle-in-square, represents a two-dimensional "drawing" of the ideal column.

AR3 FIELD SYSTEMS IN ITALY, 3RD-1ST MILLENNIUM BCE

Alessandro Vanzetti

UNIVERSITY OF ROME LA SAPIENZA

The perception of the ancient landscape has changed in Italy, in the last years, thanks to research perspectives ultimately rooted in the New Archaeology tradition and to the recent improvement of rescue activities in wide development projects.

The paper will present the state of present knowledge, as here sketched in the following text.

Diffuse evidence of agrarian field systems has started to emerge, albeit still with a patchy chronological and geographical distribution, as due to different local preservation and intensity of excavations. In general, during the late Neolithic and the Bronze Age (ca. 2.800-950 BCE), two main patterns can be identified: extensive linear fields and enclosed, structured systems, with relevant infrastructures.

A simple view could be proposed, suggesting a sequence from the first to the second system, around the end of the Early Bronze Age (1.700-1.600 BCE) but indeed detailed data still need to be more widely acquired, as major functional overlap of the systems could indeed occur.

The transformations in field patterning could be coupled with main transformations in the society, implying socio-economic differences in the access, attribution and control of primary resources.

During the Iron Age (after 950 BCE), new, and different, extensive field systems appear, connected with major infrastructures, as a correlate of state-directed societies.

AR3 CEREAL CULTIVATION IN THE DUTCH NEOLITHIC WETLANDS (C. 4300-4000 CAL. BC). RESEARCH HISTORY, EXTEND AND SOCIETAL RELEVANCE

Daan Raemaekers

UNIVERSITY OF GRONINGEN - GRONINGEN INSTITUTE OF ARCHAEOLOGY

In 2007 a cultivated plot of c. 5x5 m was excavated at Swifterbant (the Netherlands). Thanks to excellent preservation the tilled surface was preserved and documented in great detail. Interestingly, this site had been partly excavated in the 1970's when the field surface was documented but not recognised. Field documentation of neighbouring sites makes clear that already from the early 1960's similar surfaces were documented, but left without interpretation. This research history is a typical example of the need of a 'template' to interpret archaeological phenomena.

Now that three sites with ard marks have been documented it is time to discuss the extend of the fields and the importance of the produce in the economic strategies of the communities involved. How important was wetland farming?

AR17 BRIQUETAGES AND SALT CAKES: INTERPRETING SOME CERAMIC ASSEMBLAGES FROM THE ROMANIAN CHALCOLITHIC BY EXPERIMENT AND ETHNOGRAPHIC ANALOGY

Marius Tiberiu Alexianu, Felix Adrian Tencariu, Vasile Cotiuga

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

The paper describes the background, objectives, progress and results of a series of field experiments concerning the production of salt cakes using the ceramic vessels known as *briquetages*. The experiments were conducted within the framework of a larger research project concerning the ethnoarchaeology of the salt springs and salt mountains from the extra-Carpathian areas of Romania. The approach was based on the existing archaeological data – description of *briquetages* shards, their discovery contexts and the presumed ways to use them, as well as on ethnographic and ethnoarchaeological accounts and previous experimentations. The experiments allowed some valuable observations on the distinct aspects of this *chaîne opératoire*: modelling and firing the *briquetage* vessels; exposure to fire of the *briquetages* filled with brine or a salt paste of varied concentrations; the amount of time needed for crystallization and hardening of the salt, dependent on the fuels used and temperatures reached; ways of extracting the salt cakes from the ceramic coat; assessment of the effort (i.e. labour and raw materials) involved in the whole process. All the failures, challenges and eventual successes encountered during the experiments granted an insight into an ancient technique, described mainly *a priori* in the archaeological literature. Also, it

gives a hint in understanding the appreciable importance and value of salt as trading good in times when this essential mineral was not available as it is today.

AR8 IBERIAN NEOLITHIC NETWORKS: THE RISE AND FALL OF THE CARDIAL WORLD

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Interactions among individuals and groups in human societies can be represented as networks, in which the nodes are social agents and the connections between the nodes (edges or links in network terminology) represent their interactions. This allows for the application of a wide range of mathematical tools, with which to understand their evolutionary dynamics. During the last decade the analysis of complex networks has raised significant interest, especially since its ubiquity across scientific fields was uncovered.

The impact of these theoretical and methodological tools on issues concerning exchange and social interaction is evident and their utility has been perceived by archaeologists. However, the application of network analysis' tools to archaeological data requires addressing a number of issues concerning, for instance, objective clarification and the appropriateness of the available data.

Our goal in this work is to apply network analysis to a particularly challenging scenario, namely Iberian first farming societies. Specifically, we aim at studying the dynamics of cultural evolution and change of the earliest agricultural groups in Iberia.

Concerning network construction, we will use the analysis of ceramics' style, applying methods developed recently, to obtain proximities or distances as a measure of relationship. Once the network is obtained, we will evaluate the macro effect (in terms of network connectivity) of micro changes such as the removal of a node (focusing specially on "hubs", which are responsible of the transmission of information to the entire network).

AR2 LONG-TERM SOCIO-ENVIRONMENTAL DYNAMICS AND ADAPTIVE CYCLES IN CAPPADOCIA, TURKEY DURING THE HOLOCENE

Samantha Allcock

BOURNEMOUTH UNIVERSITY

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. 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. Taking the archaeological settlement record for Cappadocia, Turkey and comparing this to palaeoclimatic records from the same region, an adaptive cycles framework is used to explore socio-cultural evolution during phases of changing past natural conditions.

Adaptive cycles are used at the scale of broad chrono-cultural periods, and are based primarily on changing settlement patterns, which in turn are derived from published regional archaeological site survey data. Four major settlement cycles can be identified during the last ten millennia, broadly matching the Neolithic, Bronze Age, Iron Age-Classical, and Medieval to Modern periods. They were separated by periods of rupture corresponding to the 'release' phase of the adaptive cycle model, during the Mid-Chalcolithic, end of the Late Bronze Age, and Late Antiquity, at which times 'normal' cultural traditions and life ways buckled. Some, but not all of these phases of release were marked by episodes of climatic/environmental instability. Thus, environmental crises may have been a necessary, but not a sufficient condition for societal transformation. Despite these periods of social, economic and demographic destabilisation, past human populations in Cappadocia rebounded to structural patterns that were often similar to those witnessed prior to disruption.

AR17 MAKING SENSE OF FRAGMENTS: MODELLING FRAGMENTARY HOARDS OF THE LATE BRONZE AGE

Anne Lehoerff

LILLE UNIVERSITY

How should we make sense of the Crundale hoard, 185 pieces weighing 14 kg? Found in 2003, this hoard is typical of the practice of fragmentation and deposition in the late Bronze Age. Fifty-seven fragments of socketed axes, 4 complete axes, 11 knives, fragments of 17 Ewart Park swords, 1 Gündlingen sword, 10 Carp's Tongue swords, 16 spearheads, a fragment of a socket tool (containing other fragments), 4 bracelets, 4 rings, probable vessel fragments, etc. The catalogue is long and complex.

Briefly published for the first time by Roberts in 2012, this hoard is currently in a laboratory in Lille (LEACA, dir. A. Lehoërff) for study and analysis. The objective of this research is to understand the technical processes involved in a social context, along with the 'value' attributed to metal, its recycling and its deposition. This paper will present a conceptual approach to these 'complex hoards' by way of this (extra)ordinary hoard from Crundale and beyond.

Biblio : B. Roberts, "Metal Hoard. Crundale", in A. Lehoërf (dir.), *Beyond the Horizon. Societies of the Channel and North Sea 3 500 years ago*, Paris, Somogy, 2012, p. 148

AR9 NAME OF PLACES AND SPATIAL ANALYSIS FOR THE RECONSTRUCTION OF MEDIEVAL LANDSCAPE

Gabriele Gattiglia

UNIVERSITY OF PISA

The archaeological study of a city must be strictly related to the analysis of the environmental context surrounding it. In the case of medieval Pisa, which was part of a geographical–environmental context characterised by a floodplain cut by two river basins, forming wetlands and marshes, the influence of the environment is evident. I approached this question using spatial analysis and predictive modelling over a 350 km² area to provide a comparative analysis of data deriving from several sources: archaeological, geological, geomorphological, palaeoenvironmental and toponymic data. I addressed the issue by matching the toponymic data with the data on the palaeochannels, reaching various assumptions on possible fluvial palaeo-traces, convinced that toponymic tracking is able to provide an overall view of the courses. Regarding the use of toponymic data, I create the toponyms potential areas transforming the toponyms point shapefile in a Voronoi tessellation calibrated on cost surface and hydrological data, and finally I related them to the palaeotraces through a selection by location. A similar approach was used for defining the wetlands: a model was created using spatial analysis which took into consideration geographic data (terrain elevation, slope, drainage areas), geopedological data and toponyms referring to the presence of marshy areas and toponyms available in written medieval sources. The results obtained (and desired) shows a series of possible snapshots from Late Antiquity to late Middle Ages that depict a complex and variable environmental context, and the value of toponyms for the reconstruction of medieval landscape.

AR9 FROM TOPONYMS TO RECONSTRUCTED IMPRESSIONS OF PROTO-SLAVIC MYTH IN THE LANDSCAPE

Juraj Belaj

INSTITUTE OF ARCHAEOLOGY

Most Slavic areas are littered with toponyms whose spatial arrangement suggests that they are associated with ancient Proto-Slavic mythic narratives (V. V. Ivanov and V. N. Toporov, R. Katičić, V. Belaj). The arrangement consists of three visually related points in the space. These points have conspicuous morphological features, they are recognizable by their names, and their arrangement in space follows specific rules (A. Pleterski), forming triangular spatial structures. The names of these points bear witness that we are discussing an "impression" of pre-Christian Slavic myths in space.

Particularly salient structures are those that form a triangle with an angle of around 23°, with a 1 : $\sqrt{2}$ ratio of the two longer sides. We believe that they depict imaginary relationships arranged by the Maker when he created the world and delivered it to his divine children to manage. Due to this, such triangles brought holy order in space and legitimized the rule of tribal leaders. As a rule, they are surrounded by toponyms complementing the myth related by priests during the ritual, enabling them to transform the landscape into a scene of mythical events by pointing their hand at these features.

V. Belaj and J. Belaj, as well as several other authors, following in Pleterski's footsteps, discovered around 30 such triangular structures in the present-day territory of Croatia.

In order to better interpret these structures it would be necessary to understand whether all Slavic groups knew of them, and whether they were known also beyond the Slavic world.

AR6 LITHIC RAW MATERIAL VARIABILITY AT STAINTON WEST, CARLISLE, CUMBRIA.

Antony Dickson

OXFORD ARCHAEOLOGY

Recent excavations along the route of the Carlisle Northern Development Route (CNDR) recovered an extensive Late Mesolithic flaked lithic assemblage from a site on the southern banks of the River Eden at Stainton West. The lithic assemblage was associated with cut features and was located adjacent to a palaeo-channel, which produced evidence for Early Neolithic to Middle Bronze Age occupation. The presentation will focus on the Mesolithic flaked lithic assemblage. The assemblage comprises over 300,000 pieces and represents all stages of reduction, including a collection of c 6000 microliths. A wide variety of raw materials were used at the site, including different types of flint and chert, and tuff, some derived from regions beyond Cumbria. The on-site reduction of nodules was identified through the presence of a large number of 'knapping groups' and the integrity of the macroscopic identification of some the chert 'knapping groups' was confirmed by geochemical analysis.

The presentation will focus on a discussion of raw material use at the site and its significance towards understanding procurement and reduction strategies. Raw material use within the wider landscape will also be considered, through comparison with the situation at Stainton West. The role of raw material analysis will also be discussed in order to highlight the potential of such studies towards the interpretation of the Late Mesolithic in the north-west of the British Isles.

AR10 TIMBER BUILDING TECHNOLOGY; VARIATIONS IN TECHNICAL RECIPES DERIVED FROM ROMAN AND SAXON WET SITE EXCAVATIONS IN LONDON

Damian Goodburn

MUSEUM OF LONDON ARCHAEOLOGY

Excavations on waterlogged sites in London have yielded much evidence for variations in the raw materials, techniques, and constructional details used in timber buildings of the first millennium AD. This has taken the form of timber, roundwood and earthy elements surviving in situ or collapsed and second hand timbers reused well below the water table. Detailed investigation of this large corpus of well dated evidence has indicated that there were a range of important changes in raw materials and technological features such as, timber preparation, jointing, fastening and assembly between major periods. This paper sets out to briefly summarise the key evidence dating to the Roman period and contrasts it with the very different evidence from the following Saxon and Norman period, up to c. 1180AD when dramatically new techniques were adopted. The raw materials, methods of working and assembly defined resemble 'recipes' in cooking and are just as tied to society and environment as cuisine in pre-modern societies. The evidence has been interrogated from a perspective informed by practical woodworking experience relevant to each period and also ethnographic evidence from NW Britain and the east side of the North Sea. This has led to a number of detailed graphic reconstructions and limited physical reconstructions more firmly based on archaeological evidence than is often the case, examples of which will be illustrated in the paper.

AR9 WATER CONSCIOUSNESS IN EARLY MEDIEVAL ENGLAND

Richard Jones

UNIVERSITY OF LEICESTER

The Old English toponymicon contains many terms which refer directly or indirectly to the presence, characteristics and behaviour of water in the landscape. From sheer numbers alone it is clear that Anglo-Saxons--the speakers of Old English--were deeply conscious of water. The richness, precision, and range of vocabulary they deployed suggests, moreover, that when originally coined, place-names were actively designed to convey detailed environmental information in transparent, spatially specific and meaningful ways. This paper explores what these place-names reveal about Anglo-Saxon understandings of river systems and wetland environments, how they were conceived, how they were broken down into their component parts, how people managed water flow and how they protected themselves against the threat of flood. Thinking about Old English place-names as a hitherto neglected repository of Traditional Ecological Knowledge (TEK), mapping them against watersheds, and examining how name assemblages work at the scale of whole river basins, all open up new ways of approaching and interpreting the information they contain. In short this paper examines how did people successfully lived with water in the early medieval period.

AR17 "CULTURAL LANDSCAPE OF HILLFORTS" OF THE LUSATIAN AND PUCHOV CULTURE IN NORTHWESTERN SLOVAKIA

Milan Hornak

VIA MAGNA S.R.O.

Mountain ranges are very specific in comparison with other areas, which are more suitable for living. They can be characterized by rougher climate, absence of soil suitable for agriculture, less variable economical strategies etc. Valleys and mountains of Northwestern Slovakia were in late prehistory (from Late Bronze Age to Late LaTène Period/Early Roman Period) inhabited by the people of Lusatian and Puchov Culture. Despite less favourable natural conditions relatively strong archaeological cultures, and their dominant features - hillforts, developed in this area. Localisation of these hillforts enables us to understand this kind of cultural landscape, which we may call the cultural landscape of hillforts. The spatial distribution of various functionally diverse hillforts gives us a good starting point for interpretation of centres and peripheries. In this paper we would like to present, by means of two case studies, the concept of organization of the area of Lusatian and Puchov Culture in the mountain world of Northwestern Slovakia.

AR20 MESOLITHIC HUMAN-ENVIRONMENT INTERACTIONS IN THE BRISTOL CHANNEL REGION (UK)

Tyra Standen

UNIVERSITY OF SOUTHAMPTON

The Severn Estuary and Bristol Channel (UK) region has repeatedly been highlighted as an area of outstanding potential for understanding prehistoric human-environment interactions. Previous studies in this region have produced some of the country's most important Mesolithic archaeological sites, as well as an internationally significant environmental archive in the form of Holocene sedimentary deposits. Thus, on paper, it represents one of the best places in the UK from which to generate a detailed account of the changing relationship between people and the environment through time.

However, recent work has indicated that achieving the much vaunted potential for improved renderings of human-environment interactions still remains a significant challenge in Mesolithic archaeology. This paper will therefore present the results from this English Heritage funded research into the environmental and archaeological history of this region; drawing on both the onshore and offshore records, archaeological fieldwork and geophysical survey. It will argue that, although this disconnect still exists between our research aims and the local datasets, much can be gained through facing up to the weaknesses this research reveals. Core research questions regarding human-environment interactions therefore need to be re-evaluated and with them our expectations of the Mesolithic archaeological record of the UK.

AR11 FISHING STRUCTURES IN GLOBAL CONTEXT: SOCIAL AND ECONOMIC IMPLICATIONS

Annalisa Christie

UNIVERSITY OF THE HIGHLANDS AND ISLANDS

There are numerous examples of permanent and semi-permanent fishing structures (traps) from across the world. Constructed with a variety of designs and using a range of materials, these traps are often considered to be of economic importance – providing users with an opportunity for catching fish in large numbers, with comparatively little outlay. However, further investigation of these remains, particularly when considered from an ethnoarchaeological perspective have the potential to inform our understanding of the social dynamics of the communities using them.

This paper will consider these permanent and semi-permanent traps socio-economic perspective, using examples of stone and reed fish traps from around the world to elucidate the range of social and environmental factors which might influence the design, construction, location and archaeological visibility of these remains. This assessment will be completed to address the following questions - to what extent are these traps an expression of identity or artistry (c.f. Gell 1996)?, and what factors influence the use of these traps in comparison to other fishing technologies?.

The paper will conclude by exploring how traps (and other archaeologically ephemeral fishing technologies) might be explored archaeologically, through assessment of faunal assemblages – using data from recent excavation at the site of Kua Ruins on the East African coast.

AR19 SETTLEMENT VARIABILITY AND SOCIO-ECONOMIC PROCESS. ARTICULATIONS IN EARLY MODERN SWEDEN

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There is no simple, straightforward link between settlement organisation and socio-economic process. When addressing settlements we need a broad range of theories and methods to work with and it is important to avoid rigid concepts and models in the first step of analysis.

Concerning Early Modern Sweden we find a diversity of settlements. Traditional discussion has used a standard terminology, resembling the English terms of farms, hamlets, villages, towns and cities. These administrative/jurisdictional concepts, however, fail to account for the rampant variability of the empirics. We suggest a microarchaeological approach, using ideas from Cornell & Fahlander (2002), with variability taken as an asset. Such an approach allows for identifying socially, economically and/or politically relevant variables, to use as a starting point in the analysis of the data.

By looking at the archaeological record, and contrasting this evidence with other sources (text, maps etc.), we wish to discuss settlement patterns and variations at regional and local scales. The discussion will involve several cases from today's Western Sweden, from hamlets to larger towns. Scale is highly relevant, and we will discuss how a microarchaeological approach will help finding variability and similarity at different spatial and social levels.

There is no quick way to identify the larger socio-economic processes. By starting at the smaller scale, we wish to develop an approach which helps to find variability and similarity. Only from detecting the particular can we identify the general.

AR2 TEMPO AND MODE IN HUMAN BEHAVIOURAL EVOLUTION

Sonja B. Grimm

MONREPOS ARCHAEOLOGICAL RESEARCH CENTRE AND MUSEUM FOR HUMAN BEHAVIOURAL EVOLUTION

Likewise shown by G.G. Simpson for the biological evolution, tempo and mode are important factors to understand human behavioural evolution, in particular in the context of significant and rapid climatic and environmental changes such as during the Weichselian Lateglacial. In these unstable, natural surroundings, the human social systems functioned as complex adaptive systems. These formed a resilient factor that slowed the tempo of response to these changing environments. A complex adaptive system of a human society from Late Weichselian North-West Europe is used as an example to show how an adaptive cycle and its different phases can be read from the archaeological record. The tempo of this transformation from the Late Magdalenian to the Azilian way of life can only be established by a precise chronology. The mode is fundamentally influenced by the development of the Late Magdalenian and can be assessed from the different levels of society that are affected by changes.

AR7 MOVING HOUSES. THREE ASPECTS OF THE THREE-AISLED HOUSES IN IRON AGE EASTERN NORWAY.

Lars Erik Gjerpe

UNIVERSITY OF OSLO

In this presentation the link between building technology and moving settlements will be discussed.

The three-aisled longhouse was the preferred provider of shelter for humans, animals and artefacts from 1500 BC onwards, until it fades from history in the Viking Age (800–1050 AD). Approximately at the same time a fixed settlement pattern is established, and the two happenings are probably interlinked. From a technological point of view the three-aisled longhouse

has three qualities that make it good for settlements that moves, either in a social or a geographical sense. First, it has an assumed life-span of 25-50 years. Thus, if an adult builds a house it is a home for life, but each generation is forced to establish a home of their own. Second, it is easy to extend or shorten, so if the economic or social status of the inhabitants change, the house could easily be re-built to reflect the new status. Third, it could be constructed in a short time by a collective effort, which in turn could serve as the society's acknowledgment of the inhabitant's right to establish a new home.

AR5 DECREASING SIGNIFICANCE – FROM IAPODIAN CENTER TO SMALL ROMAN TOWN

Ivana Ožanić Roguljić¹, Hrvoje Kalafatić¹, Bartul Šiljeg¹, Emily Zavodny²

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In this paper, we utilize landscape survey and analyses of material assemblages to track the development and decline of the prehistoric settlement at Brinje in modern-day Croatia. Brinje was first known as *Monetium*, an important cultural center for the Bronze and Iron Age Japodians, but became increasingly marginalized as the area came under the control of the Roman Empire, starting ca 200 BC. We hypothesize that changes in site characteristics, artifacts, and the surrounding landscape hold the key to understanding the reasons behind the waning importance of *Monetium* as a cultural center. Our project represents an important first step in a long-term investigation of Iapodian sociopolitical development in the context of the European Iron and Roman Ages, as well as in building a systematic framework for testing prehistoric site function that can be used in different regions and time periods.

AR4 ARCHAEOLOGICAL AND ANALYTICAL RESEARCHES IN AZERBAIJAN (MEDIEVAL CERAMICS OF AZERBAIJAN: BASIC PARAMETERS OF DEVELOPMENT DYNAMIC)

Fariz Khalilli¹, Gafar Jabiyev², Andrea Macchia³

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The production of ceramicwares in Azerbaijan started since Neolithic age. It is known that ceramicware was produced by using potter's wheel since Eneolithic Age.

Azerbaijani medieval ceramics are divided into three groups: unglazed ceramics, glazed ceramics and construction ceramics. The development dynamics in the field of unglazed ceramicware production is displayed mainly in growing of kind variety of the product; commence of new item production depending on time and conditions; the ware's being more delicate and practical from technical and technological aspect, finally, cooking of produced samples more qualitatively. However, main parameters observed in the development dynamics of glazed ceramic production are different. The dishes of this kind are attractive for the changes in seat parts and edges of mouth, as well as seal under thin walls, especially bottom parts; bowl, dish, goblets; inner part is decorated with geometrical, botanical or live descriptions. Construction ceramics in Middle Ages consist mainly of brick, tile and water pipes.

This can be explained on the one hand with demands of domestic circumstances, on the other hand wide-spread of Islamic architecture.

AR5 TO WHAT EXTENT DID THE AVAILABILITY OF ECOLOGICAL RESOURCES CONSTRAIN THE CHARACTER OF PREHISTORIC CONSTRUCTION AND LAND-USE IN ORKNEY?

Michelle Farrell¹, M. Jane Bunting²

¹QUEEN'S UNIVERSITY BELFAST, ²UNIVERSITY OF HULL

On the windswept islands of Orkney, separated from the Scottish mainland by a notoriously difficult sea crossing, Neolithic culture flourished in a way rare elsewhere in Europe. Today the islands are largely treeless, and existing palaeoenvironmental data suggested that the landscape was open throughout much of the Holocene, with limited 'scrub' woodland either cleared in the earliest phase of Neolithic settlement, or lost earlier due to peat growth and exposure to the hyperoceanic climate. This paper explores how people used and managed a landscape that was apparently marginal in terms of resource availability and economic potential.

Recent palynological data indicate that some woodland persisted beyond the Neolithic as part of a rich mosaic of habitats, and woodland communities were more diverse than simply birch-hazel 'scrub'. A wider range of resources may have been available than previously thought, with important implications in the context of recently discovered Neolithic timber structures.

In contrast to the spectacular Neolithic monuments, Bronze Age remains have until recently been less well studied, with suggestions that the relative invisibility of this period represents a cultural and/or economic 'decline', perhaps caused by increasing marginality of the landscape due to changing environmental conditions. Although new palaeoenvironmental data provide some support for climatic deterioration, it seems farming practices and landscape organisation were successfully adapted to cope.

Rather than being shaped purely by environmental necessity, the predominance of Neolithic stone architecture and the archaeological changes of the Bronze Age seem to reflect an element of cultural choice among several available options.

AR11 TERRESTRIAL LASER SCANNING AS A MEANS OF RECORDING FISHING STRUCTURES

Michael Lobb, A. G. Brown, Julian Leyland

UNIVERSITY OF SOUTHAMPTON

Stationary fishing structures are well documented around the coast of Britain where they range in date from the Neolithic through to the twentieth century. The recording of these structures is challenging as they are mainly located within the intertidal zone, which presents a range of hazards to the terrestrial archaeologist. In this environment traditional methods of hand planning are time consuming, whilst other survey techniques such as photogrammetry are less detailed and fail to connect the artefacts and structures with the surrounding landscape.

Terrestrial laser scanning provides the ability to not only respond to the environmental challenges of these structures, but also to offer a level of detail and accuracy necessary to capture their complexity. It affords the opportunity to monitor intertidal excavations in real time, with minimum disruption to excavation, and has sufficient resolution to record both the surrounding landscape context as well as details of joinery and construction.

This paper will present examples from a range of sites in England and Brittany where terrestrial laser scanning has been used to record intertidal fishing structures, and will examine how it can also be used to enhance our understanding and interpretation of these sites. The paper will also briefly look at the potential of the technology for monitoring the impact of erosion on these sites over time.

AR14 DRAWING VALUE FROM THE PAST: INNOVATING RESPONSES TO ARCHAEOLOGICAL LOSS

Helen Green¹, Alan Leslie², Kenneth Brophy¹, Chris Dalglish¹, Aphrodite Sorotou¹

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In recent years there has been considerable debate around the nature of 'heritage' and its role and value within society, and we do not claim to resolve these issues here. It is notable, however, that increasing numbers of archaeologists have become highly conscious of the complexities of advocating for cultural heritage; aware that concern with preservation must compromise with other legitimate claims to our landscapes and resources. Scottish planning policy (SHEP 1.8), for example, explicitly acknowledges that protection of the historic environment is not about preventing change.

Given this, it seems appropriate to critically re-examine the practices and mechanisms currently used to 'compensate', 'offset', or 'mitigate' negative impacts on archaeological and cultural heritage assets, resulting from development and other social processes deemed necessary or desirable by society. Archaeology is widely viewed as a cultural resource, drawn upon for cultural, social and/or economic ends, which must be curated for current and future generations; yet this resource is subject to change and loss, which cannot straightforwardly be compensated for – no exchange rate exists. Nevertheless, we suggest there are alternative ways we can respond creatively to this situation, to generate value for society in circumstances of archaeological loss.

In this paper we will set the context for the session and, referring to a range of examples, make the case that opportunities exist to approach development creatively, with an emphasis on effecting meaningful cultural and social benefit. We would also like to invite participation in this discussion from others with similar and opposing viewpoints.

AR4 JADE VESSELS IN THE WESTERN HAN MORTUARY CONTEXT

Eileen Hau-ling Lam

THE HONG KONG INSTITUTE OF EDUCATION

Imitation was a prevalent and constant practice in the material world, once distinctions of value occur among various materials. There are myriad examples of imitation throughout the ancient China, such as ceramic *ding* tripod, wooden *bi* disc etc., showing that it was popular and understandable to use inexpensive material to imitate objects made of valuable primary material. Jade imitation; however, seems to be a case of an inverse of this logic.

Jade is esteemed as a premier artistic medium in China, and among jade artifacts created in early imperial times, vessels are especially sumptuous in the large quantity of raw material and extraordinary craftsmanship required to craft them. Indeed, fewer than twenty jade vessels have been excavated to date. Focusing on the Western Han (206 BC–AD 9) burial context, the discussion seeks to explore the notion of imitation not only for its astonishing jade excavation with jade vessels; but also for the fact some jade vessels have been mingled with their lacquer counterparts. By comparing substantial data from widespread sites, this paper attempts to bring to light patrons' incentives for selecting jade as a medium for these vessels. More broadly, it will also examine the contemporary status of jade, in relation to the changes in value and position among various materials of the mortuary repertoire.

AR9 MIXED NAMES AS AN INDICATOR OF SLAVIC-GERMAN SETTLEMENTS?

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GRADUATE SCHOOL "HUMAN DEVELOPMENT IN LANDSCAPES", UNIVERSITY OF KIEL

In the 12th/13th century as part of the eastward expansion, Germans systematically settled down from the Holy Roman Empire to regions of Eastern Europe. Particularly, Slavic tribes were hit hard by this expansion. Certain Slavic settlements became

preserved but others changed immensely due to settlements shifts or refoundations by German settlers. The massive internal colonization modified the whole pattern of Slavic settlements. These settlement changes are reflected linguistically, as well. The so-called mixed names emerged. Mixed names are defined as forms which exist, generally considered, out of two constituent parts. One of it is Slavic and the other part is German or vice versa, for instance, †*Gardensee* (Duchy of Lauenburg) which is recorded in 1230 as *Gardense* and can be derived from the Polabian word **gard* 'castle'. In this case, the first part of the toponym is Slavic and the second part is German. The emergence of mixed forms refers to an intensive language contact. Consequently, Slavic and German people might have settled together. But are mixed names always a reliable indicator of mixed settlements? Is it also possible that a German settlement was only bearing a Slavic name or vice versa? Obviously, the German eastward expansion was modifying not only the settlement landscape but also the language landscape. It is the purpose of this paper to illustrate the meaning of the so-called mixed names for the settlement history and furthermore, the importance of an interdisciplinary work between onomastic sciences and archaeology.

AR1 EVERYDAY LIFE FROM PITS OF FILTH: PRESENTING A NEW MODEL TO UNDERSTAND MEDIAEVAL COMMERCE, INDUSTRY AND SOCIAL ORGANISATION FROM THE ZOOARCHAEOLOGICAL RECORD

Lee Broderick

ZOOARCHAEOLOGY.CO.UK

If Mediaeval towns were 'unorganized, cluttered and filthy' then urban archaeologists would have an unenviable, possibly even untenable, role in satisfactorily interpreting the archaeological record. Mediaeval life was highly socially stratified and, so, highly organised, it stands to reason therefore that Mediaeval towns must in fact also have been highly organised. This manifests itself most conspicuously in the body of the guilds which governed much of the commercial and social life of urban Europe. If they would have appeared cluttered and filthy to us, we might justifiably question our perception with recourse to relativism. The prominence of pit and ditch deposits in the urban archaeological record is strongly suggestive of some kind of effort, possibly organised, to keep towns clean.

For zooarchaeologists in particular, if not for archaeologists in general, the unstratified pit deposit has often proven an inadequate record of urban life, contributing little more than contributions to amalgamated data. Much industry and commerce at this time though was based on animal products and the guild structures ensured consistent signatures of activity. By adopting *chaîne opératoire* theory in the interpretation of these assemblages it becomes possible to shed new light on the society that created them. Embracing this theory shifts the focus of interpretation from the assemblage to the processes that created it. Understanding these processes has important ramifications for our comprehension of everyday life – commercial, social and cultural – in past urban centres. This presentation explains the model's underpinnings and explores its application through case-studies.

AR2 FLEXIBILITY VERSUS SPECIALIZATION - COMPLEX ADAPTIVE BEHAVIORAL SYSTEMS OF PLEISTOCENE HUNTER-GATHERERS IN NORTHERN SPAIN

Martin Solich¹, Marcel Bradtmöller², Alvaro Arrizabalaga², Aitor Calvo², María-José Iriarte²

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Transformations of behavioral patterns in past hunter-gatherer societies constitute major historical events. Environmental deterministic explanations of those changes underestimate different capacities of hunter-gatherer societies to deal with alterations of environmental conditions. By using an agent-based model of ideal-typical hunter-gatherers, the here proposed paper illustrates first how the concept of adaptive cycles can be beneficial for understanding of behavioral transformations among hunter-gatherers. Based on a theoretical model emphasizing interdependences between behavioral strategies like mobility and cooperation, the specifics of adaptation processes among hunter-gatherers and resilience of behavioral 'systems' are analyzed. Especially relevant for the degree of resilience are adaptation processes directing towards an increasing specialization. Specialization may in some cases support system's resilience. Usually, however, specialization is assumed to reduce the behavioral flexibility that is believed to have a positive effect on resilience. In such cases a trend of specialization can actually increase the vulnerability and therefore the probability of a behavioral system's collapse and the subsequent need to reorganize into a new effective one.

To demonstrate the practicability of the described model for archaeological research, the model is tested furthermore for the case of Pleistocene hunter-gatherers in Northern Spain who show a number of considerable changes in behavioral patterns. With limited success, it has been attempted to explain these processes of changes by models like the Repeated Replacement Model (see Bradtmöller et al. 2012 and Schmidt et al.2012). Turning to the resilience of the observable behavioral systems provides here a promising alternative.

AR5 A SOCIAL CHRONOLOGY FROM BELOW: A 'MARGINAL' EARLY IRON AGE SITE FROM WESTERN NORWAY IN A COMPARATIVE PERSPECTIVE

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DEPARTMENT OF ARCHAEOLOGY, CONSERVATION AND HISTORY, UNIVERSITY OF OSLO

How may the concepts of microscale, marginality and the everyday, 'perspectives from below', provide new insights and inform the more established 'perspectives from above'? This paper argues for the concept of social chronology as an interpretive tool,

informed by a recursive view on analytical scale and temporality. The Early Iron Age archaeological site Kalvebeitet, situated in the mountains of western Norway, is our departure point for discussing the potential of microscale studies, especially how they may offer new ways to approach and understand human/landscape engagements. The main settlement phase of Kalvebeitet is dated to the Late Roman Iron Age and the Migration Period (c. AD 200 to 550). Studies of Iron Age sites abandoned before AD 600 rely heavily on evidence other than written sources, which may be applied only retrospectively, as with Norse or medieval texts, or by analogy, e.g. broadly contemporary writings from outside Scandinavia. By placing the case of Kalvebeitet in a broader comparative perspective, we explore what an alternative analytical view from below may add to the ongoing debate about the enigmatic 6th century AD in Scandinavia. The application of a social chronology provides insight into the everyday lives and choices of people living in marginal areas for farming, and how they may have coped with the influences of external forces, such as the 'dust-veil event' in AD 536/37. The case will be compared to other examples from Western Scandinavia, with the aim of opening for a constant recursiveness between local perspectives and 'grand narratives'.

AR19 BETWEEN A ROCK AND A HARD PLACE: ORKNEY'S VIKING AND MEDIEVAL HARBOURS

Julie Gibson

UHI

The adaptation of reefs and tidal ponds for use as harbours and protected landing places has occurred in several places in Orkney's islands. Small cuts in natural rocky reefs and construction of small walls to extend reefs to dam water provided security for boats against the strong tides and wind-driven seas, and convenient ebb-dry facilities for loading/ unloading. Until recently landing places of the Viking and medieval period in Orkney have been thought of mainly in terms of beaches, slips and nousts. These newly recognised modified pools add to the suite of structures available for a safe landing out of the waves. A lack of direct dating evidence associated with any of these structures requires that a multi-disciplinary, including a toponymic and archaeological, approach is taken to identify and potentially date these harbours which seem to relate to Orkney in the Viking and Medieval period.

The safe use of these harbours would rely in particular on local knowledge, since the way in or out is all but invisible at the point that the harbour is accessible at the top of the tide. Today, local knowledge on sailing in and out of these pools has all but disappeared, yet where small boat fishermen still understand their uses gaining this information is a key to understanding this significant part of Orkney's maritime landscape.

AR3 CHANGING LANDSCAPES: SOCIO-ECONOMIC, POLITICAL AND CLIMATIC CONTEXT OF LAND ORGANISATION IN 2ND AND EARLY 1ST MILLENNIAL SOUTHERN BRITAIN

Judie English

SUSSEX ARCHAEOLOGICAL SOCIETY

Large, formally designed coaxial field systems cover much of the chalk lands, moorlands, gravel terraces and coastal plains of southern Britain and are increasingly being recognised on other soil types. They give way to smaller groups of fields towards the turn from the 2nd to the 1st millennium BC – a period which also sees land divided into larger areas by linear ditch complexes, and probably the construction of cross-ridge or spur dykes. Also approximately contemporary are the earliest hillforts and increasing development and use of weaponry, and, in some areas, deposition of large middens.

The change from apparently stable agriculturally based communities to a more mobile society with an emphasis on stock farming and an increasingly violent raiding culture may well represent a response to pressure either within society or from external factors. Considerable problems exist in creating a chronology for these changes but population fluctuations or climatic change may be implicated; this paper will attempt to place observed changes in the archaeological record within this wider context.

The help of Dr Richard Tapper and David Lea MA with the work utilised here is gratefully acknowledged.

AR5 SHIFTING SHAPES: LANDSCAPES UNRAVELLED IN PREHISTORIC SHETLAND

Val Turner

SHETLAND AMENITY TRUST AND UNIVERSITY OF STIRLING

Shetland, on the northern edge of Britain and at the edge of the North Atlantic, has long been recognised for the remarkable survival of prehistoric landscapes associated with the northern most limit of early farming. Recent surveys of Shetland field boundaries and landscapes have extended these analyses to include some which, given their relationship to extant and in some cases excavated longhouses, can be considered as Viking / Norse. These features give new opportunities to test models of prehistoric and Norse settlement in agriculturally marginal environments and the emergence of distinctive landscapes at different periods.

Our methodological innovations include the application of Shape Analysis to the study of field boundaries, a method usually applied to study microscopic objects. This, together with related GIS applications, was used to characterise the geometrical attributes of single period prehistoric and Norse field boundaries and spaces. In doing so new landscape patterns emerge enabling us to identify some of the variables controlling field boundary shape, type and size, together with the definition of a new understanding of apparently peripheral farms. Testing of our methodology and its extension into complex multi-period

landscapes is now leading to new understanding of the way in which the landscape organisation of earlier communities influenced subsequent field and landscape organisation.

AR5 CONFRONTATIONS AT THE BOUNDARIES: THE BENEFITS OF DOING ARCHAEOLOGY AT THE EDGES

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This paper will use examples from the author's PhD projects (looking at wetland sites in the British Isles, rural hinterlands in Southern Italy and soil chemistry / physics interactions on challenging sites in Scotland) to take a more abstract approach to both the challenges and benefits of working in marginal environments. These landscapes are often framed in terms of difficulties, limitations; as challenges to be overcome. We agree, but would argue that these challenges exist because they cause us to confront the gaps in our scientific practice that are papered over by the apparent facility with which we can access and interpret more central landscapes and research themes.

We will take the concept of 'marginality' and examine how this can be applied to our scientific practice: at the edges of our own disciplines (geophysics, geochemistry, landscape and survey archaeology), and see what the benefits are when we explore the edges of the map, both literally and figuratively. The many challenges of these landscapes (too wet, too dry, too fragmented, too sparsely inhabited) cause problems for our methodological approaches but also for our interpretative schemes; and we must remember that marginality is in the eye of the beholder. Ultimately, when we rise to the challenge of these 'terra incognita', we have a more complete picture of landscape use, vital to landscape-scale interpretations, but also that these peripheral environments actually make us test, improve and in some cases overturn our methodologies and bring us to the edges of what is possible.

AR19 INTERPRETING THE ARCHAEOLOGICAL RECORD OF SHIPWRECK FINDS IN THE BALTIC.

Riikka Alvik

THE NATIONAL BOARD OF ANTIQUITIES

Most of the shipwreck findings known in Finnish waters are from the 18th century or younger consisting both armed war ships and merchants. Many shipwrecks are also known from historical sources like toll records, insurance records, newspapers, court orders, military records and so on. Still, it is often very difficult to relate the finding to a written source – the date of the ship and also the accident should be known, and the data should be gathered from the find by using multidisciplinary approach.

If we look at the finds in Finnish register of underwater finds, in many cases there is an assumption of the identity of a ship. What if this assumption leads the research to wrong direction and identification becomes the most important goal?

How is it possible to get valid archaeological record for interpretation, when the site is under water, often very deep and visibility is limited? What are the best methodological measures for archaeological research conducted under water? What kind of questions we should ask from archaeological data to be able to interpret it so that it would be possible also to combine it to written record? Written records do not often tell much about the everyday life onboard, so archaeological record can give answers that cannot be found from written source.

In this paper questions of interpreting archaeological record of shipwreck findings are discussed by presenting some 18th century shipwrecks, two merchant ships most likely Dutch origin and war ships from late 18th century Russo-Swedish war.

AR1 WHERE THROWING OUT RUBBISH? REFLEXION OF WASTE MANAGEMENT AND STUDY OF REFUSE AREAS IN THE TOWNS IN BOHEMIA AND MORAVIA IN THE HIGH MIDDLE AGES.

Ladislav Capek

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Production of waste is a direct result of formational processes, in which the artefacts and ecofacts discarded from the systemic context become part of the archaeological context. Waste is for the reason widely valuable category in behavioral archaeology, because study of discard behaviour identifies specialized human activities they may reflect the social and economic status of households, consumption habits or spatial organization within the settlement areas.

Waste has two dimensions – temporal and spatial. Spatial-temporal dimension can be seen as a progress in waste management and its distribution within the settlement areas. Waste in developed societies, that are aware of the negative attributes of waste such as its smell and filthiness, is usually deposited in spatially defined refuse areas.

In the town in the Middle Ages appear systematic waste handling regulations, in the form of its removal and displacement from public areas to spatially defined refuse areas – municipal and private trash heaps, middens, cesspits, wells or other sunken features (rubbish traps). This change in the maintenance processes is evident in the towns in Bohemia and Moravia from the 2nd half of 13th century to the turn of 13th/14th centuries and it is one of the manifestations of advanced urbanization.

This paper focuses on the waste management in the medieval towns in Bohemia and Moravia in the 13th - 15th century. Special attentions is paid on study of refuse areas and selected examples of different strategies dealing with domestic and municipal waste through the study of the distribution of artefacts and ecofacts.

AR15 'BIG DATA' AND MATERIAL CULTURE IN ARCHAEOLOGY: PANACEA OR PASSING FAD?

Daniel Stansbie

UNIVERSITY OF OXFORD

There has been a return to empiricism across the humanities and social sciences in recent years that has included a renewed interest in scientific and computational techniques in many disciplines. One expression of this movement has been the adoption of the idea of "Big Data", which has seen the application of increasingly powerful databases to aggregate large data sets in disciplines ranging from economics (Piketty 2014) to history, law and English literature (Guldi and Armitage 2014) in an attempt to uncover patterns and connections thought to be unreachable using conventional techniques. This interest in "Big Data" has also begun to make itself felt in archaeology, with a number of projects having been initiated in British archaeology to aggregate and analyse the data produced through developer-funded archaeology. But the idea of "Big Data" also has its detractors, with some arguing that it represents a form of rhetoric which seeks to renew an older idea of "interpretation free" social science (Jurgenson 2014). This paper will seek to examine these issues in archaeology through the use of a case study examining the aggregation of large prehistoric, Roman and early medieval finds data sets from southern England, generated by developer-funded excavation.

AR1 "SLOP BUCKETS WERE EMPTIED ON THE STREETS COVERED WITH DIRT AND DUNG" HOW COULD THEY LIVE IN THE MIDST OF THAT ALL? – WHAT IF THEY DIDN'T?

Liisa Seppänen

TURKU UNIVERSITY

Prevailing conceptions about the medieval towns, especially on the fringes of European civilisations, are characterised by dirt and disorder. These images are based on general impressions about the medieval way of life supported by many popularisations. Perceptions of poor sanitation have been based partly on medieval town laws, which have been interpreted as attempts to improve the sanitary conditions of the dirty town. These interpretations have been supported by ideas, according to which it was not until at the end of the 19th and early 20th century when the relation between the health and hygienic conditions of the environment was universally understood.

The focus of this paper is on the sanitary conditions of the medieval Turku. The town was established in the turn of the 13th and 14th century in the eastern part of the Swedish realm on the fringes of the Hanseatic sphere and it became one of the biggest and most important towns of the medieval Sweden. The paper discusses the recent findings related to environmental urban conditions and the measures, which were aimed at improving the sanitation of Turku. These findings challenge us to re-evaluate the dirtiness of medieval towns in the North and old conceptions of the development of sanitation and waste management. Furthermore, the paper reflects the ideas and practises related to dirt and filth in Turku from the modern period, which have colored the picture of the past, and discusses the possibilities of recolorizing the view.

AR19 AN INTERDISCIPLINARY INTERPRETATION OF CREMATION DATA: THE IDENTIFICATION OF MULTIPLE SITES OF MEMORY ON THE ROMAN NECROPOLIS RICHAUME XIII (NARBONNE GAUL)

Gaëlle Granier¹, Florence Mocchi², Carine CENZON SALVAYRE³, Alexia LATTARD⁴, Titien Bartette⁵, Celine Huguet⁶, Aura Fossati⁷

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The burial space Richeaume XIII revealed 43 funerary structures, broadly grouped into two chronological phases: the first to the middle of the third century, and the second half of the third to the seventh century AD. The key element is a large monument, around and within which the funerary elements were located during the Early Empire. This first phase of occupation is characterized by the single cremation, except for the very young Immature.

The site survey is based on an interdisciplinary approach, implemented in order to better address the function and definition of the structures. A common protocol that met the needs of anthropological and archaeo-anthracological analyses was employed across every structure and allowed us to assess the variability and complexity of these practices within the same space. This collaboration facilitates the study of different types of cremation structures, including their construction, mode of operation.

This excavation data has permitted the identification of complex structures. These structures and their gestures reflect the proliferation of memorial sites and places involved in the ritual, and emphasize the importance of the monument, whose operation is similar to that of a mausoleum.

We ask especially the concept of burial and memorial sites which may apply to structures related to cremation in their archaeological definition compared with those suggested by the ancient texts.

AR3 THE CHANGING FIELDSCAPES OF LOUGHCREW: NEW INSIGHTS FROM AIRBORNE LIDAR

Corinne Roughley

UNIVERSITY OF CAMBRIDGE

Loughcrew is famous for its prehistoric monuments, but it is also a landscape with well-preserved multi-period relict field systems. Over 150 Km of 'field' boundaries, which predate historic mapping, have been revealed by the Loughcrew Landscape Project's airborne lidar survey. The complex of overlapping boundaries can begin to be disentangled by considering the relationships between boundaries and their relationships with prehistoric monuments and early Medieval sites. A sequence emerges with its earliest phase(s) most likely being prehistoric. Later phases are likely to be medieval or more recent and dating remains challenging.

A striking aspect has been the realisation that the fieldscape has been repeatedly, radically altered – in some places the shape, orientation, size and regularity of the boundaries are completely reorganised three or four times. Some boundaries are also not part of archetypal fields, for example the linear feature which appears to predate the Loughcrew "Cursus" is long and winding and does not enclose space.

Integration of the lidar evidence with historic mapping from the late 18th Century to the present has allowed the impact of more recent landscape changes to be evaluated. Although the 20th century saw a radical reorganisation of land tenure and the fieldscape, it is the developments of the first half of the 19th century which have affected the preservation of earlier boundaries most dramatically. The area has also seen significant development in recent years with many new houses scattered across the landscape. The extent of the relict field systems challenges monument-based recording and management strategies.

AR6 THE WEIGHT OF TRADITION – MAGDALENIAN GROUPS ON THE NORTH EUROPEAN PLAIN

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SCHLOSS GOTTORF

The Hamburgian represents the result of the first human occupation of the North European Plain after the Last Glacial Maximum, originating in the Magdalenian. This pioneer situation makes it possible to study in what way the Magdalenian hunter-gatherer groups adapted their equipment and their methods of producing flint artefacts to a different environment, characterised by an abundance of high quality flint. The question is all the more interesting since Magdalenian flint working seems to have been governed by strong norms and, in certain cases, shows a level of craftsmanship that necessitates the transmission of knowledge from one generation to the other.

In this paper, the respective importance of the Magdalenian technical tradition and the raw material situation of the North European Plain in the formation of the Hamburgian will be investigated by comparing the intentions as well as the methods and techniques of lithic blank production in the Magdalenian and the Hamburgian, focusing on the Paris Basin and northern Germany. Within the Hamburgian, the question whether the younger Hamburgian, the Havelte Group, shows a decline in the importance of Magdalenian norms and a progression in the adaptation to the new environment will moreover be examined.

AR17 GEBELEIN AS A REFLECTION OF EGYPTIAN ARCHAEOLOGY

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The Gebelein archaeological site complex is an area where nearly all kinds of archaeological sites known in Egypt are represented, dated from Palaeolithic till the Islamic Period, as well as, all the challenges of Egyptian archaeology. The area was visited by scholars since the 18th century and by archaeologists since the end of the 19th century. They provided us with records reflecting changes of research methods during the history of Egyptian archaeology. Nowadays, Gebelein is under great threat due to the progress of modern expansion of the cultivation zone and settlements development.

Gebelein has plenty of different kinds of the Archaeological Records, not only the archaeological sites, but also other different sources, e.g. early travellers and scholars' descriptions, archival maps and satellite imaging, as well as, drawings made since the end of 18th century and photographs dated to the early 20th century. Described records are showing changes of the landscape and providing us with the information and data from previous excavations.

The aim of the Gebelein Archaeological Project is to obtain information on the sites' topography, history, function, state of preservation and to test new methods like mobile GIS devices, RTI photographs and remote sensing analysis to improve procedures of use during the field prospection. Archival maps and satellite imaging are used to locate archaeological features, to analyse changes of the landscape and to trace modern destruction. As a result different kind of information could be put together into a jigsaw which reflects the true historical profile of the site.

AR14 DISARMING HARM

Jon Humble

ENGLISH HERITAGE

Conservation Principles (English Heritage 2008) provides a useful conceptual framework for considering the mitigation / compensation / offsetting debate.

For example, in England most mitigation in historic environment contexts is applied to mitigating the loss or reduction of evidential value. Indeed, archaeologists may have become perhaps too focused on evidential and historical values – when the most significant impact of development to the rest of the population may be the loss or reduction of aesthetic and communal values.

A useful example is provided by excavation in advance of a major road scheme. Our sector has become highly skilled at mitigating the impacts on the evidential values (often buried and unseen) – but what about the much more visible impacts on landscape character and historic landscape character that typically are much easier for the public at large to relate to and connect with?

Nature conservation has an established hierarchical approach – avoid the impact – if you can't avoid the impact, mitigate – and only when the impact can't be avoided or mitigated, then compensate / offset. This has happened with the historic environment impacts of some forms of mineral extraction, where the impacts may be considered so problematic that there is a presumption against development, unless the impacts can be made environmentally acceptable by compensatory measures. The most slippery and problematic slope of all, however, occurs if it is suggested that avoidance or mitigation might be 'traded' for compensatory measures, or worse still, what may be considered as tantamount to the 'buying' of planning permission.

AR11 LATE NEOLITHIC FISHERS AT LAKE ARENDSEE, SACHSEN-ANHALT, GERMANY

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In 2003 local sport divers discovered in Lake Arendsee (Sachsen-Anhalt, Germany) parts of a wickerwork structure in a water depth of 9-11 m. A first inspection by scientific divers in 2004 revealed that they belong to a wooden fishing fence structure, which originally was deposited in a horizontal position in the shallow shore zone. Owing to natural land subsidence, triggered by subsidence, later the lake bottom was lowered to the recent water depth. Extended underwater archaeological investigations followed in 2005–6 and 2007. The fence could be tracked and measured for a distance of about 150 m. It consists of individual, prefabricated mats up to 1.60 m wide that were woven to 1.80 m long stakes. These were then fixed onto vertically exposed stakes in the lake. The mats were made of thin wooden branches of *Corylus*, bound with rope of phloem of *Acer campestre*. Radiocarbon analyses date the wooden artefacts between 2600 and 2200 cal BC. An evaluation of the archaeological finds and archaeobotanical studies indicate that during this period the region was inhabited by the single grave culture. In comparison to similar fishing fences from northern Europe, the fishing fence of Lake Arendsee demonstrates a practice that was certainly often used, although the structure is of a type that is rarely documented for the Late Neolithic. The Arendsee fishing fence is the oldest such find from a lake in Germany, and the first evidence for the coppicing of hazel bushes in Lake Arendsee area during that period.

AR15 INTERPRETIVE APPROACHES TO FIELD METHODOLOGY

Joakim Thomasson

DEPARTMENT OF ARCHAEOLOGY AND ANCIENT HISTORY

Stratigraphic excavation techniques combined with contextual recording have been practised within archaeology for a long time, especially within urban archaeology. The theoretical foundations are that the archaeological remains are deconstructed to their smallest entities in reversed chronological order before being reconstructed. The process can be described as a creation of a hierarchical chain of interpretation, also known as grouping, creating a scale from small to large entities or feature types. This is often done mechanically with pre-defined feature types, disabling deeper understanding of the contextual relations between materialised activities and thereby also agency.

In this paper it is argued for a relational approach to the interpretation of archaeological record, which creates better possibilities to understand duration, agency and thereby also other processes and events.

AR4 SURFACE PATTERNS AND WORKING EDGES. TOWARDS A FUNCTIONAL ANALYSIS OF BRONZE TOOL KITS

Bianka Nessel

UNIVERSITY OF HEIDELBERG

Tools bear witness of craftsmanship and labour. Depending on production methods and the type of objects being produced, both the requirements of the tool, as well as the needs of the user were different. Based on functional properties, Bronze Age tools can be divided in versatile and specialized equipment. Their typological characteristics render most of them suitable to be used on different materials, but differences in their design do not inevitably have an influence on how they were used. My analysis of the functional properties of 12 different groups of tools has in many cases shown that it is not possible to clearly assign specific tools to a particular craft branch or a certain material. This applies particularly to mechanical tools whose

purpose at first glance appears evident. Thus, to reduce the much cited "Set of metalworker's tools" to this specific branch of activity is hardly justified. Rather, it can be assumed that different sets of tools were combined for certain products and specific chaîne opératoires. To investigate the composition of Bronze Age toolkits and how they were employed therefore involves analysis of tool use wear and marks on objects indicating how they were manufactured, combined with functional tool characteristics.

AR8 NETWORK ANALYSIS AND ECONOMIC PATTERN. THE CASE OF THE MEDITERRANEAN IMPORTATIONS IN CELTIC SOCIETIES (250-25 BC).

Aurélia Feugnet, Clara Filet

PARIS I - PANTHÉON SORBONNE

During the last three centuries BC, non-Mediterranean Europe undergoes a deep economic upheaval. Trade exchanges between Mediterranean states (Greek and Roman) and Celtic Europe literally exploded, and thousands (millions?) of southern goods were spread over the entire known continent. A recent project now works at identify, inventory them and analyse their distribution from Great Britain to the Balkans.

The aim of the proposed presentation is to discuss the interest of Network Analysis for the examination of big archaeological datasets. Co-presence and similarity networks are exploited to visualise and study the pattern of distribution of more than 20,000 imported objects (mainly *amphorae* and metallic and ceramic vessels, but also jewellery, coins, medical and writing *instrumentum*, glass vessel, weapons, and art objects) discovered on 1684 Celtic sites. Associations of particular finds are confronted to chronology, localisation and contexts of discovery (rural, urban, funerary or religious settlements) to perceive what kind of products might have circulated together and how the indigenous population operated a selection and an appropriation of exotic goods.

If significant patterns can be distinguished thanks to the network modelling and its exploratory approach, we discuss how far statistical tests developed by mathematicians for the study of big data networks can be (or cannot be) applied on archaeological contexts. Finally, we interrogate what significance we can give to the results when interpreting them in terms of archaeological meaning in the study of socio-economic processes.

AR14 NEGOTIATED CHANGE AND COMPENSATION MEASURES: SYSTEMATIC DESTRUCTION OR A POSSIBILITY FOR INNOVATIVE RECONSTRUCTION OF THE CULTURAL HERITAGE?

Benjamin Grahn Danielson¹, Magnus Rönn², Stig Swedberg¹

¹RIO KULTURLANDSKAPET, ²KTH SCHOOL OF ARCHITECTURE / RIO KULTURLANDSKAPET

Maybe you have been discussing and negotiating with authorities and developers, over impact on an heritage site or buildings with high cultural values? And maybe experienced that all these discussions ends with an excavation or an evaluation with the result of a report some where in a dusty library... And afterwards you have asked yourself why?

What if we should leave the discussion about negative impact on heritage and instead start with a discussion about how we want to form and use cultural heritage values in the landscape?

Since 2013 Rio Kulturlandskapet have been working with a research project about compensation measures for impact on cultural heritage. We want to share our thoughts and experiences from several case studies from this project. One important conclusion is that 'value' is a crucial concept when discussing compensation: What value are we going to compensate? We have also found out four (at least) different strategies that could be used in professional practice for rethinking cultural values. One of these strategies is to compensate the loss of a cultural heritage value in the landscape by adding something totally different... and elsewhere(!). Crucial in all strategies is that there is a negotiation over the change. But this negotiation has to include the evaluation of the cultural heritage at the site and the everyday landscape! And with this in our mind we could start working with archaeology and architectural design as systematic reconstruction: First excavating – then creating!

AR2 ADAPTIVE CYCLES OF THE HUMAN OCCUPATION OF LIGURIA DURING THE PALEOLITHIC

Julien Riel-Salvatore

UNIVERSITÉ DE MONTRÉAL

The region of Liguria in NW Italy appears to have been occupied more or less continuously since the Lower Paleolithic. This is likely due, in part, to the nature of the region as a topographically stable biogeographical corridor linking mainland W Europe to the Italian peninsula. This study summarizes the available information about the human occupation of Liguria focusing especially on the Middle and Upper Paleolithic, generally argued to be associated with Neanderthals and *Homo sapiens* respectively. By combining geographic, archaeological and paleoenvironmental data, it is possible to characterize both the similarities and differences between and within the two phases of human occupation of the region. Drawing on the panarchy framework, and specifically on the concept of adaptive cycles, I propose here a revision of the Ligurian record that emphasizes both long-term continuities between these different periods and well as highlighting distinctive socio-ecological features that characterize each uniquely. This, in addition to a consideration of Pleistocene niche constructing behaviors, yields an original framework within which to discuss the nature of the Paleolithic occupation of the region that transcends traditional models that

emphasize mainly lengthy periods of stability and brief bursts of 'revolutionary' innovations usually tethered to changes in human phylogeny.

AR8 NETWORKS AT THE LOCAL SCALE: COMMUNITY RESPONSES TO EXPANDING MEDITERRANEAN EXCHANGE IN THE EARLY FIRST MILLENNIUM BCE

Jessica Nowlin

BROWN UNIVERSITY

Archaeology has traditionally employed network analysis at the regional scale, while projects that focus on site-based, local applications of this methodology have been less frequent. When examining wider phenomena such as long-distance trade and cultural interaction, network analysis provides a useful tool for interrogating the ramifications and nature of these processes at a local level. This perspective is particularly important for Italian communities that took part in the broader phenomenon of cultural interaction occurring between the 8th and 7th centuries BCE, referred to as the "orientalizing" period. The proposed effects of this exchange emphasize social changes such as increased social hierarchy, and new practices of banqueting and drinking, as customs and ideas accompanying goods from the eastern Mediterranean. This paper examines the application of bipartite networks through a series of chronological periods at two cemeteries, Fossa and Campovalano, in order to understand the way in which new objects and practices enter and spread through each community. Individual burials are linked through the common deposition of particular funerary goods and grouped through a variation of k-means clustering to identify communities of common consumption. Such simultaneous clustering of both objects and tombs, as well as other common network measures specifically related to bipartite networks, are then compared to the standard interpretations of each cemetery and their place within the macro-level sphere of interaction. Through this work, the paper explores the broader question of the direct application of network analysis to mortuary data and the usefulness of standard network measures.

AR14 ARCHAEOLOGY, DEVELOPMENT AND COMMUNITIES: ADVOCACY, JUSTICE AND MUTUAL ACCOUNTABILITY

Maggie Ronayne

NATIONAL UNIVERSITY OF IRELAND, GALWAY

Change, development and sustainability can have many meanings. This paper draws on the author's experience of working to support communities in a number of countries who are opposing destructive development and demanding more just alternatives. Large scale, for-profit development involves a top-down decision-making process. Change is imposed and impacts are often devastating. Frequent promises on benefits or compensation either don't materialise or there are many problems with who benefits, who does not and what is offered. Communities say repeatedly that they have not been properly consulted, if at all. Within this, women are routinely the least consulted but, with their children, often the most affected. For these and other reasons, conflict over development is the norm and there is often opposition among affected communities. Sometimes this also includes rejection of monetary or other compensation. This opposition is not seen by those communities as 'holding up progress' or change but as a fight for justice and survival. What is our role as professionals in these circumstances? There is often a separation between impacts on heritage and impacts on people. Professionals may risk proposing options which further undermine affected communities, deepening economic and social inequalities and inadvertently supporting the 'greenwashing' of cultural and environmental destruction. This paper examines methodologies for advocacy in support of communities and their heritage, drawing out the connections between the case of communities for economic, social, cultural and environmental justice and the case of archaeology. An approach based on mutual accountability will be outlined and discussed.

AR1 BATHING FOR HEALTH: THE RELATIONSHIP BETWEEN HYGIENE AND BALNEOTHERAPY IN THE ROMAN WORLD

Mariya Avramova

THE ANTIQUITY OF SOUTHEASTERN EUROPE RESEARCH CENTER, UNIVERSITY OF WARSAW

When it comes to hygiene in the ancient world, Romans are considered to be one of the cleanest people in history, mainly because of the custom of using public baths on a daily basis. However, upon closer examination of some written as well as archaeological evidence, a different picture begins to emerge. In *Historia Naturalis* Pliny the Elder recommends urinating leaning forward while in the *solium* of a bath in case of pains in the bladder, kidney, or loins (HN 28.63). Though it is hard to estimate the effectiveness of such treatment, it is quite probable that such situations did occur in public baths. Another clue as to the purity of the water in Roman baths can be found in Aulus Cornelius Celsus' *De medicina*, where the author advises his readers not to bathe in case they have an open wound, because it can be rendered dirty, which in turn may lead to death (Cels. 5.26.28d). The picture becomes even more interesting, when we take into consideration some archaeological finds of pools with no drainage, i.e. no water circulation inside the basin (e.g. in baths in Pompeii). Balneotherapy was a treatment commonly assigned by Roman physicians for a number of ailments varying from cholera and epilepsy to headache. In my presentation I would like to try to establish the nature of the relationship between hygiene and balneotherapy by taking into account various treatments, described in ancient sources.

AR7 PERMANENT POSTS, SEASONAL MOBILITY?

Niels Algreen Møller

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This paper examines land use strategies and settlement mobility during the early Iron Age in Western Jutland, Denmark. During this period there is a considerable shift in settlement systems from labile dispersed farmsteads to densely spaced, more permanent hamlets and villages. The growing settlement stability is reflected in architecture and the investment of labour in houses and farmyards. The intensification of settlement density in areas with favourable resources is visible in a regional analysis of finds distributions.

While mobility of houses and settlements are decreasing, and the distribution of archaeological sites are contracting in favourable coastal areas, pollen data suggest that the meagre soils in the interior are continuously in use in some sort of extensive land use most probably in the form of seasonally used shieling areas. Such extensive land use has sadly been very difficult to investigate archeologically, due to a lack of archaeological sites with permanent structures and accumulating find material. But with recent developments in developer funded archaeology, using more rigorous trial excavation, more C14-datings and analysis of macrofossils, we can now glimpse the first signs of an extensive land use in the form of isolated cooking pits, shelters and corrals.

This paper is based on an inter-site analysis of architectural elements and macrofossils found in both permanent settlements and seasonal sites. It will examine the evidence of permanence and mobility in Iron Age Denmark and discuss how to proceed with the investigation of seasonal mobility and extensive land use.

AR18 THE MIGRATION PERIOD BURIAL SITE IN PRAGUE – ZLIČÍN, CZECH REPUBLIC IN THE LIGHT OF MULTIDISCIPLINARY RESEARCH

Milan Kuchařík, Jiří Vávra

LABRYS O.P.S.

Between 2005 – 2008 a rescue archaeological excavation was carried out in Prague – Zličín on the western border of Prague the Migration period cemetery. The Prague – Zličín site represent largest inhumation cemetery of the 5th century AD yet excavated and one of the largest in whole Europe. It contained 173 graves with 176 inhumation burials. All graves were disturbed by secondary interferences. The cemetery belongs to the Vinařice Group. The Vinařice Group is thus defined within the stages D2a-D3, and the Prague – Zličín burial ground contains a selection of finds from the greater part of the 5th century AD. Development of the Vinařice Group can be traced to the contact of parts of the local Suebian population of the Late Roman Period with influences and probably also new immigrants from other parts of Europe, especially from the East. The inventory of site, reflecting material culture within the greater part of the 5th century and we can suggest contacts with different parts of the Barbaricum and with Roman provinces. The importance of the Zličín cemetery is in the number of variable sort of finds (the biggest collection of glass vessels, silver and gold jewels).

From the year 2010 the interdisciplinary research was focusing on every sort of artefacts, biology samples and on population. Results of analysis of the material, samples and comparative analysis show on their origin and technology. The microbiology, parasitology, odontology, physical anthropology and paleobotany show on health condition, social status and live strategies of Zličín population.

AR8 CONNECTING THE DOTS: THE BRONZE HOARDS FROM THE LOWER DANUBE REGION IN THE LBA AND EIA **Florica Matau**

ALEXANDRU IOAN CUZA UNIVERSITY OF IASI

The bronze hoards belonging to the Late Bronze Age (LBA) and Early Iron Age (EIA) from the Lower Danube region represent a large dataset of associated assemblages which can be investigated based on uniform criteria. The complexity of interactions established in this *bridging* region is reflected by the distribution of individual artefact types and the multiple combinations in the composition of the hoards. Different levels of interaction can be distinguished in the interaction networks outlined and assessed using a complex network analysis. Communities with a differing social role and social position take part in the creation and maintenance of connections, which determined the diffusion of bronze artefacts and technologies, as well as their consumption and possession, even if to differing degrees of complexity on each level.

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. 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.

AR10 THE DELIBERATE DESTRUCTION OF CUCUTENIAN HOUSES: A CASE OF AFFORDANCE?

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The study addresses the issue of house building in the Chalcolithic Cucuteni culture of North-Eastern Romania, with reference to a contentious issue of European archaeology, namely the interpretation of the so-called burned house horizon. In light of the results of an archaeological experiment carried out in the eponymous settlement of the Cucuteni culture, where a number of timber and cob houses were built and subsequently fired in order to reproduce the conditions that left behind the type of evidence present in the archaeological record, the paper explores the question if the phenomenon of house firing as a deliberate act—for religious or practical reasons—was engendered by the very nature of the construction material used to raise the structures. Did timber afford the Cucutenians with the necessary material setting for developing idiosyncratic beliefs, of a religious or practical nature, different from those of the contemporary Pontic, Mediterranean, Anatolian and Middle Eastern cultures? The paper develops on a research carried out in the framework of the CNCSIS-UEFISCDI project PN-II-ID-PCE-2011-3-0885, Religion and Art in the Cucuteni–Tripolye Civilization (V–IV Millennia CalBC).

AR19 THE SIGNIFICANCE OF SMALL-SCALE EXCAVATIONS – THE CASE STUDY OF MEDIEVAL BRANDENBURG AN DER HAVEL

Teresa Helfritsch

FREIE UNIVERSITÄT BERLIN

In archaeology large-scale excavations have been, and still are, the priority, and typically attract the most academic attention. In contrast, small-scale excavations are rarely published and their results are often overlooked. However, in many cases this can be a misjudgment as such excavations may contain important archaeological information. This is demonstrated using the case study of Brandenburg an der Havel. Since the early 1990s the vast majority of excavations have been fully recorded irrespective of size. This approach, which has included 1500 separate excavations, has led to a detailed picture of the origins and growth of the medieval twin town. Additionally, these have shed light on earlier, prehistoric, phases of occupation. This level of recording is nearly unique in Germany. With the help of selected archaeological features which inform on the development of the town, including urn burials, mass graves and dendrochronologically dated wooden structures, the importance of small-scale excavations will be demonstrated.

Acknowledgement: For valuable discussions about the past and present excavations in Brandenburg an der Havel and the support I thank Stefan Dalitz und Joachim Müller of the Untere Denkmalschutzbehörde Brandenburg an der Havel.

AR11 FOLLOWING IN THE FOOTSTEPS OF A NEOLITHIC FISHERMAN - FISHING WEIRS IN A CHANGING LANDSCAPE AT SYLTHOLM, LOLLAND, DENMARK.

Terje Stafseth

MUSEUM LOLLAND FALSTER

A large area of a submerged prehistoric landscape at Syltholm, Denmark is currently being excavated by Museum Lolland Falster in connection with the construction of an immersed tunnel across the Fehmarn Bælt linking Denmark and Germany. Several well preserved systems of standing fishing weirs, dating to between 3000-2800 BC, are being investigated as part of this project. During this period of time, the fishing weirs were located in sheltered coastal waters with an associated sand barrier. This landscape was repeatedly subjected to inwash from stormy seas, which occasionally broke through the sandy barrier, thereby altering the local landscape over time. As a result, we find the fishing weirs buried within a series of deep marine deposits that have preserved a complex stratigraphy of weirs standing more or less on top of each other. In addition to this, the excavation has also revealed several footprints left by the Neolithic fishermen themselves during one of these storms. The excavation is still ongoing, but it can already be seen that the construction techniques and the concepts of landscape at Syltholm differ to those seen in other areas of Denmark where Stone Age fishing weirs have been found, i.e. Oleslyst (Storebælt) and Slivsø (Haderslev), and imply the use of different fishing techniques. The Syltholm weirs therefore give a unique opportunity to study different construction techniques and to gather new information concerning prehistoric fishing with fixed devices in changing waters, which I will address in this lecture.

AR6 BETWEEN OPPOSING IDIOMS: EPISTEMOLOGICAL ISSUES IN THE INTERPRETATION OF LITHIC RAW MATERIAL MANAGEMENT

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Lithic raw materials are *provided* by the natural environment in which organisms, and by implication hominins, are situated. Simultaneously, specific rocks are *chosen* from a variety of different available raw materials to become an integral part of hominin sociocultural systems. In studying human evolution, scholars are therefore regularly torn between emphasising the *constraining effects* of lithic raw materials on the one hand and their *sociocultural role* on the other. It is highly questionable if these issues can be entirely resolved as research advances because interpretation is heavily contaminated by different epistemic frameworks. The stress on lithic raw material constraints and consequently on the requirement of technological adaptation is paralleled by (1) the view that *extrinsic factors* largely determine what hominin groups can do and how they finally perform in the landscape. This ecological-evolutionist perspective on lithic raw material management and technology, however, is refused by (2) those who patronise *intrinsic factors* in the formation of raw material assemblages and their technological decomposition. The latter view argues for example that physical raw material properties critically *underdetermine*

technological exploitation modalities and therefore fail to fully explain the relationship between the physical substrate and its management. While (1) *naturalises* lithic raw material management, (2) draws on insights from anthropology of technology insisting that raw materials are *meaningfully* and often *intentionally* embedded in specific 'chaîne opératoires' and are thus socioculturally 'sensitive', becoming focal targets of cognition and conceptualization. Although negotiating between these stances proves to be difficult, the paper concludes by pondering possible exit-options.

AR16 THE LATE NEOLITHIC IN SOUTHERN BAVARIA – A GIS BASED APPROACH

Stephanie E. Metz

LUDWIG-MAXIMILIANS-UNIVERSITY MUNICH

The so called Münchshöfener Culture (dating from ca. 4600–3800 BC) is mainly distributed across the Upper Danube and its southern contributing streams. Little is known about settlement structures, function of causewayed enclosures and burial practices. This is not only a matter of state of research, but mainly due to the lack of published data. Thus in this study all registered sites are systematically assembled via the digital archives (Fachinformationssystem/FIS) provided by the Bavarian State Conservation Office (BLfD). Further published sites located outside of Bavaria are also incorporated. This data set is analysed with GIS methodologies in order to gain an idea about the cultural interactions between the Münchshöfener Culture's population and its environment. The distribution of different types of archaeological sites lead to tendencies that show zones of potential socio-economic activity. Visibility maps should help to evaluate the relation between burials and settlement features. Accessibility maps regarding least-cost path analyses including natural resources such as flint stones and copper should deliver information about economic processes. Stratified pollen data can also be taken into account for estimating the past vegetation composition respectively the past cultural landscape. This paper aims to shed light on the Münchshöfener Culture's settlement structures using GIS based techniques but also focuses on the understanding of the potential and limitations of spatial analysis.

AR1 THE 19TH CENTURY SANITARY AWAKENING IN A LONG-TERM PERSPECTIVE: MAPPING PRE-INDUSTRIAL SANITATION INFRASTRUCTURE IN THE DUTCH TOWN OF HAARLEM

Roos van Oosten

LEIDEN UNIVERSITY

In his monumental 400-pages book *Water facilities in Bruges*, the Flemish historian Vandevyvere observed that in the 19th century the number of public water pumps increased rapidly. In 1830 Bruges counted 50 pumps, by 1900 the number had risen to 200. Vandevyvere rightly notes that in terms of neatness and cleanliness 'the increase reflects a direct advancement of public health within people's every day affairs'. According to Vandevyvere the increase was the result of what he coined: 'a sanitary awakening'. Such a statement corresponds with the widely and long-held notion that the further one travels back in time the less sanitary towns become, with medieval towns being the superlative of disorderly and dirty. Only recently has a 'major revision of the historiography' been advocated by historians trying to dispel this myth of the filthy medieval city.

In this paper trends in water facilities are researched in combination with trends in waste facilities. The primary research questions are whether a strong increase of (private) water facilities can be detected in Haarlem, similar to Bruges in the 19th century, and whether such (perceived) trends, if any, are class depended.

AR8 URBANISATION, NETWORKS AND STATISTICAL PHYSICS : A CASE FROM THE CELTIC WORLD (IV-I CENTURY BC)

Clara Filet¹, Fabrice Rossi²

¹PARIS 1 - PANTHÉON-SORBONNE, ²SAMM - UNIVERSITÉ PARIS 1

This presentation offers to examine, via a case-study, the use of spatial interactions models on archaeological datasets. These models, introduced by statistical physicists, can bring further insights into the organisation and dynamics of a settlements structure.

Starting from interrogations about the development of the first urban agglomerations in the continental Celtic world, we try to reconstruct and study the settlement pattern in the form of a network. We then no longer consider the importance of a town as solely deriving from its intrinsic characteristics, but most of all from its location inside an interactions network linking the agglomerations together.

First developed and used by physicists and urban geographers, the retailer models became a valuable tool for archaeological topics, which allows us to identify and explain the relative importance of each node depending on its position in the network. If the majority of applications were tested on data from Bronze Age Crete, Greece and Aegean Sea (Rivers, Knappett, Evans 2013), we try here to apply and adapt their models to the context of Celtic urbanisation. This new area mainly offers the possibility of archaeological validation of the model, by comparing its results to settlement hierarchy, political divisions and circulation of artefacts. Different scales can also be confronted, from the supra-regional level (networks of towns), to the local level (by including rural settlements) to better perceive how far these new agglomerations had a role to play in the territory structuration and the emergence of the first archaic states north of the Alps.

AR18 THROWING RUBBISH OVER THE WALL? INTERPRETATION OF A HILLSIDE SITUATION OF THE EARLY MEDIEVAL HILLFORT IN PRAGUE-JINONICE.

Ludek Kos

CHARLES UNIVERSITY IN PRAGUE

Rugged topography of the Czech Republic allows archaeological finds in situations which apparently could not be created by direct settlement activities (e.g. steep hillside). "At first sight damaged" contexts often tempt to resign from systematic research of these naturally disadvantaged terrains. However in a "deposition trap" of hillforts hillside can be preserved an extremely important part of archaeological artefacts.

Hillfort in **Prague-Jinonice** was already settled in prehistory, but the most important period of the hillfort was during the early medieval period (9th century) when was it also fortified. The settlement was abandoned at the end of the century – in the time of the rise of the Prague Castle, the centre of the forming early medieval Czech state. In the middle parts of the north slope (inclination 40-45°) was found an extraordinary large accumulation of solely early medieval finds, mostly ceramic fragments, what is in a big contrast to the polycultural character of the hillfort plateau. On the basis of a non-destructive survey of the slope was excluded a possibility of transporting the artefacts from the hillfort plateau by erosion. Moreover there were found other arguments for intentional deposition too. The interpretation as a relic of an early medieval **refuse areal** is suggested.

Identification of an early medieval refuse areal - a place where were intentionally removed rejected artefacts from the hillfort – is in the context of middle Europe rare. The paper illustrates methodical way to such an interpretation and point out a testimony of this kind of archaeological evidence.

AR6 THE QUALITY BENEATH: POSSIBLE REASONS FOR RAW MATERIAL CHOICE IN THE PORTUGUESE UPPER PALEOLITHIC AND MESOLITHIC

Telmo Pereira¹, Nuno Bicho¹, Joao Cascalheira¹, Jonathan Haws², Joao Marreiros¹, Catarina Andrade³, Anne Farias³, Eduardo Paixão³

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The Portuguese Upper Paleolithic and Mesolithic records are characterized by the use of a large diversity of raw materials (chert, quartz, quartzite and greywacke). Such variety occurs in almost all archaeological layers despite their location, function, techno-complex or chronology. The reasons for the presence of fine grain raw materials (chert and quartz) and coarse raw materials (quartzite and greywacke) seem to be linked to their use towards specific tasks considering the physical properties of each one. However, that does not seem to answer to why each raw material tends to also show a great variability.

In this paper we present our preliminary results on measuring the elastic properties, strength surface hardness and penetration resistance of raw materials performed in a multiplicity of different geological samples of chert, quartz, quartzite and greywacke. Our results show not only different results between the major raw material groups but, most interestingly, differences within each raw material, namely in rebound values. Such differences in our results are giving important clues, not only to understand the reasons behind such a diverse spectrum of raw materials but also, and most importantly, to quantify lithic raw material quality.

With this set of data we are targeting to understand which specific features past population considered important in each raw material and if such preferences changed through time. Ultimately, we expect these results bring relevant information to understand human past.

AR5 MARGINAL AND PERIPHERAL LANDSCAPES IN DRAHANY UPLANDS (CZECH REPUBLIC): MEDIEVAL AND POST-MEDIEVAL SETTLEMENT ABANDONMENT AND HUMAN-ENVIRONMENTAL INTERACTIONS

Lukas Holata

UNIVERSITY OF WEST BOHEMIA IN PILSEN

An extensive process of settlement abandonment (especially from the 14th to the 17th century) is documented in Drahany Uplands – the elevated region largely with barren soils. Today, only half of all villages established within so called "high medieval colonisation" exist, most of the region is covered by woodlands. Preserved remains of deserted villages were widely documented by the surface surveys during the second half of the 20th century and, therefore, complete medieval settlement pattern could be obtained. In addition, numerous traces of the ploughlands testify for agricultural subsistence strategy of peasants in Drahany Uplands.

The cultural (e.g. size of settlements, proximity of churches, towns) and also environmental context (e.g. topography, geology, soils in hinterland) of settlement evolution has been explored via GIS and multivariate statistics to determine the impact of these factors on communities. This paper will introduce the results of these analyses; they indicate the placing of many deserted villages in considerably marginal landscape. Furthermore, the settlement was vulnerable to abandonment also within peripheral landscapes (in the close proximity of central places).

Special attention of this contribution will be paid to human-environmental interactions which have been pursued in particular segments of marginal landscapes. The extent of soil erosion within deserted ploughlands will be determined (via GIS modelling and sampling by the auger) and the impact on village communities will be outlined.

AR19 THE STUDY OF THE GREAT MEDIEVAL AND MODERN URBAN ENSEMBLES: NEW FIELDS OF RESEARCH AND NEW EXCAVATION METHODS ?

Isabelle Souquet-Leroy

INRAP

Large urban cemeteries are never searched exhaustively under preventive excavations because the high density of graves (up to several thousand) and their important surface (sometimes with unknown limits) are major obstacles to archaeological investigations. Full exploitation amount to several years of search and such a high cost that the proposed alternatives only relate mainly restricted areas selected based on future work..A large urban cemetery is it the sum of several concurrent operations (equivalent to several rural small independent cemeteries attached to an institution type or territory) or is it a place of death indiscriminately for all? Is it possible to highlight one or more operations from a methodology redesigned and adapted to these great sets?

To illustrate our thinking, we propose to take as an example the excavation and study of urban cemeteries excavated in recent years in France. The excavation methodology implemented met the two most relevant in the case of archaeological operations of this size ie the period of use of the burial area and typo-chronology of burial practices issues. The results of the search and interdisciplinary studies showed that burials at different operation can be recognized immediately, but that different managements can not be defined without archaeologically historical data.

From our experience, we would start a discussion on the development of new methodologies adapted to the search of large cemeteries. The goal is to better understand their functioning and overall management over the centuries.

AR1 VARIATIONS IN THE CLEAN AND DIRTY SPACES: URBAN ACTIVITIES WITHIN THE INDIGENOUS QUARTER IN MEDIEVAL RĪGA, LATVIA, IN LIGHT OF INTEGRATED ENVIRONMENTAL ANALYSES

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Founded in 1201, Rīga is arguably the most important Hanseatic city in the eastern Baltic. This paper presents integrated geochemical, macrobotanical, pollen, zooarchaeological, and micromorphological data from internal and external occupation deposits within the indigenous quarter in medieval Rīga, providing important information about daily life and the development of occupation within the town. Excavations in 2011-12 within the south-eastern corner of the historic centre of Rīga revealed parts of the indigenous quarter dating to the 13th-16th centuries; the virtual absence of imported material culture and the presence of local styles of jewellery strongly identifies this as a community of indigenous Livs living within medieval Rīga.

The multi-phase occupation was exceptionally well-preserved and comprises traces of 17 timber buildings, timber-planked streets and latrines. Integrated datasets complement each other to characterise the occupation deposits, to interpret the spatial layouts of buildings, and to identify internal and external activities. Certain buildings were less regularly maintained than others, and there are 'clean' houses in terms of the absence of notable Pb and Sn geochemical enrichments, and macrobotanical remains. The area between Buildings 15 and 17 produced burnt and calcined bones from unusual parts of the animals such as horns, and old/arthritis animals, and may indicate the use of bone as fuel, particularly in metalworking. Integrated analyses indicate that several of the deposits that were described as 'manure layers' during excavation are probably not manure as they are low in P and foddering plants.

Additional contributors: Monika Badura, Alexander Brown, Uldis Kalējs, Aleks Pluskowski

AR3 SPATIAL AND TEMPORAL DISTRIBUTION OF ESTONIAN PREHISTORIC FIELD SYSTEMS: QUESTIONS OF CONTINUITY AND CHANGE

Helena Kaldre

THE UNIVERSITY OF SHEFFIELD

The earliest field systems in Estonia are dated to the Middle Bronze Age (around 1200BC) but the establishing and use of these systems continued up to the Historic Times. The following paper concentrates on Prehistoric field systems and gives an overview of their spatial and temporal distribution in Estonia.

Field systems consisting of stony field banks and clearance cairns in Estonia are mostly found in the Northern and Western coastal areas of the country. The main types of the field systems distinguished are clearance cairn fields, pre-Celtic fields, Celtic fields and strip fields. The aim of the paper is to discuss the levels of change and continuity in the morphology and location of field systems in the landscape over Prehistory and to assess the role of economic, social and environmental factors that were behind these variations.

AR6 LITHIC RAW MATERIAL STUDIES IN MIDDLE PALAEOLITHIC IBERIA

Ana Abrunhosa

UALG / ICAREHB

Some authors suggest that the study of the origin of lithic raw materials should be the first step in any study of a lithic assemblage. Usually these studies tend to focus on raw materials that are considered rare by the researcher. More common materials tend to be left behind as if being easier to obtain means there directly a lesser value to it.

The Iberian Peninsula is a limited geographic and geologic area there is an abundance of Middle Palaeolithic sites, mainly located off the Iberian coast. Nonetheless, raw material studies are still limited and not systematic.

We propose an illustration on the state of the art of the research developed in this region that can bring into discussion which properties can or should we analyse when studying stone materials. Raw material studies are important to understand mental patterns, cognitive abilities, mobility and landscape and resource exploitation methods during the Iberian Middle Palaeolithic.

AR3 TESTING TERRACES: INVESTIGATING THE HEAVILY TERRACED LANDSCAPES OF MALTA AND GOZO

Jeremy Bennett

UNIVERSITY OF CAMBRIDGE

Terracing is a fundamental part of the delicate equilibrium of fragile landscapes in the Mediterranean and beyond. Superficially, it is observable as a significant investment in wide scale landscape alteration for agriculture. However, it represents more than the sum total of its constituent parts – appearing symbolic of the complex social dynamics intrinsically linked to environmental adaptations and technological change. In spite of this crucial facet of the agrarian environment, very little work has been developed to establish a methodology for their investigation. With comparison to terracing cultures across the world, this study will blend the relatively under-examined social context for agricultural change with a rigorous scientific examination of crucial uncertainties surrounding these practices. This paper, will discuss a methodology of integrated geophysics, GIS and geoarchaeology to investigate the issue of the initial construction, maintenance and subsequent development of terracing in Malta and Gozo. Specifically, this research will seek to fill this important gap in understanding by examining their location, layout and construction using remote sensing, ground penetrating radar and spatial analysis. The goal of this methodology is to establish a model, for the terraced landscape, which maximises the potential for ground penetrating radar by substantiating the survey results with a geoarchaeological 'stratigraphic biography.' From this foundation, a localised pilot study can be expanded to the wider landscapes of the islands. This will foster a greater return in data value by using the most non-intrusive means available. This project is supported by the FRAGSUS ERC FP7 'Ideas' Advanced Programme (323727).

AR1 TOWNSCAPES AND POOSCAPES

Don O'Meara

DURHAM UNIVERSITY

This paper examines the changing ecology and environment of the medieval towns and cities of Northern England based on an archaeobotanical analysis of cesspit deposits from this region. Using this database the paper will aim to show that our knowledge of the ecology and environment of medieval towns needs to be understood in the context of changing urban management, the rise in urban elite culture (often in conflict with aristocratic culture), and architectural changes from the early to later medieval periods. Studies of urban waste and filth often use data from archaeobotanical analysis in order to infer details of urban ecology across the medieval period. However, the complexity of this data is often poorly presented and does not acknowledge the regional variations and diachronic biases within our record. Even from well studied urban centres such as York the environmental record does not evenly represent the medieval period. It will be demonstrated that there are still significant gaps in our knowledge of medieval diet, even from centres such as York, where it might be presumed the deep, waterlogged deposits provide a thorough record.

However, the record which is currently available does show significant trends in the urban ecology. We can infer decreasing diversity within the urban flora through time, within the caveat that this must be interpreted through the lens of differential levels of preservation. In this respect the work of other disciplines, particularly archaeoentomology, may play an important role in providing independent gauge for preservation within samples of cesspit remains.

AR19 REFLECTING GENDER: AN INTERROGATION OF PICTISH MIRROR AND COMB SYMBOLS

Traci N. Billings

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The gendering of symbols in iconography can be a useful tool for archaeologists in determining various forms of identity. This process, however, is problematic when the medium reflects corporate rather than individual identity, especially if it is the primary line of evidence available for study. Contemporary gender biases also complicate the interpretation of iconography by projecting dichotomous systems of male and female gender categories onto material culture that appears to have used gendered symbols for purposes only indirectly related to gender marking. Many of the issues associated with the problematic nature of the use of iconography can be illustrated using studies of Pictish standing stones in Scotland produced during the last 100 years. Mirror and comb symbols found on Pictish standing stones in Scotland between 400 AD and 900 AD have been interpreted as being associated definitively with women and the female gender. This seemingly one to one correlation has been challenged more recently and this project will contribute to that reassessment by examining ways in which both the stone

medium and the descent and inheritance patterns of this society may have been more about power and lineage than about gender *sensu strictu*.

ARI DUNG AS PREHISTORIC MATERIAL

Agni Prijatelj

DURHAM UNIVERSITY

This paper is concerned with exploring the material, sensual and cultural qualities of animal dung in European prehistory by presenting a series of selected archaeological, geoarchaeological and ethnographic case studies. Whilst previous studies have used animal dung as an indicator for human agency in the form of distinct anthropogenic activities such as herding and manuring, these thoroughly overlooked the agency of the dung itself. As a critical response to the earlier approach, and in the light of dynamic new research on vibrant materials and the agency of matter (Boivin 2008; Bennett 2010; Conneller 2011; Jones 2012; Jones & Alberti 2013), this paper shifts the focus of research on to the agency that stems from the dung's material properties. In so doing, it argues that dung had, in prehistory, an emotional, sensual and social impact through the corporeal force of its physicality and transformative potential. Furthermore, by elucidating dung as prehistoric material and by rigorously focusing on process, change and material connections and interactions, the paper demonstrates not only the diversity and specificity of human interactions with animal dung, but also the active role it played in emerging prehistoric technologies.

AR6 ENHANCING THE DUALITY OF THE CHAÎNE OPÉRATOIRE TO OFFER AN UNDERSTANDING MESOLITHIC EVENTS IN NORTHERN BRITAIN

Dene Wright

UNIVERSITY OF GLASGOW

The *chaîne opératoire* is often reduced to a methodology of lithic analysis. The structure of interpretation is applied to offer an understanding of Mesolithic events from the data set of attributes recognised and recorded in the typological and technological analysis of the lithic assemblage. The *chaîne opératoire* is forever present in the work of the analyst, although generally cast as the foundation upon which theoretical approaches are built. It is time to consider and enhance the duality of the *chaîne opératoire* in the study of lithic scatters. Whilst retaining the methodological aspect of the *chaîne opératoire*, this paper seeks to move the concept beyond the foundation and offer an understanding of it in abstract integral to formulating a *bricolage* of theoretical approaches. The *bricolage* will be principally drawn from symmetry and materiality, although it will incorporate critical aspects from philosophy. Evidence from a regional synthesis of the Mesolithic of west central Scotland will be woven into the narrative of the paper.

ARI9 RECENT DISCOVERIES IN THE LATE MEDIEVAL FORTIFICATIONS OF CLUJ AND ITS ROMAN PROCEEDINGS. THE RESCUE EXCAVATION OF 25 AVRAM IANCU ST

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The rescue excavation of 25 Avram Iancu St[1].

Cosmin Onofrei, Sorin Cociş[2]

Recent rescue archaeological excavations at 25 Avram Iancu St. (Cluj-Napoca, Cluj County) uncovered for the first time a complete section through the whole fortification system of the medieval and early modern city. On a length of 4 m., the foundation of the still standing medieval city wall was uncovered and documented, featuring an inscription (the year 1703) marking probably a late restoration work of the fortification. The fortification's trench is about 12 m. wide. In the space between the wall and the trench, in the area not affected by medieval and modern building activity, some graves were discovered. They are a part of the southern necropolis of the Roman town Napoca. Six graves were uncovered, of different rites: incineration (four of them) and inhumation (the other two). Out of all the graves, only one of the incineration type has a complete inventory (2 pots, 1 lamp, 1 coin issued by Hadrian, 1 token) together with the burnt bones fragments.

[1] This paper is presented in the framework of the project „MINERVA – Cooperare pentru cariera de elita in cercetarea doctorala si postdoctorala”, cod contract: POSDRU 159/1.5/S/137832, financed by the European Social Fund through the Sectorial Operational Program for Human Resources Development 2007-2013.

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ARI7 DUNRAGIT: THE PREHISTORIC HEART OF GALLOWAY

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Recent investigation at Dunragit, in Dumfries and Galloway have revealed new sites of Mesolithic, Neolithic, Bronze Age and Iron Age date in an already complex and very significant prehistoric landscape.

The archaeological record from these investigations revealed how those settling in this part of Galloway throughout prehistory were both opportunistic and adaptive in what continues to be a topographically dynamic landscape.

The landscape of this coastal fringe today bears all the scars of topographical change including the formation of raised beaches, palaeochannels, estuarine environments and dune systems.

This is taken into consideration when interpreting the archaeological record from the Dunragit investigations, aiming to understand the challenges faced by settlers throughout prehistory.

RI7 PROCESSED BABIES: EARLY BRONZE AGE INFANT BURIALS FROM BULGARIAN THRACE

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The recent analysis of over 50 infants from Early Bronze Age (third millennium BC) pot and pit burials from various sites in Bulgarian Thrace have revealed interesting funerary practices that were previously unidentified. Varying degrees of skeletal articulation indicate that the bodies of most of the babies were in a state of partial decomposition before being placed in the containers. In addition, there was ample evidence of dismemberment, inexplicably missing bones, as well as additional isolated body parts from other individuals. These factors are suggestive of a mortuary practice, in which the dead were 'processed' prior to burial. This paper will explore the evidence and the possible reasons for these unusual mortuary practices.

AR6 RELATIONS OF SUBSTANCE, MATERIAL AMBIGUITIES

Nyree Finlay

UNIVERSITY OF GLASGOW

In conventional lithic studies there is a tendency to treat a given raw lithic material as a separate unified entity even when there is considerable variation present in both the character and quality of a given raw material type. Yet, there is often more homology in technological practice between different lithic raw materials than the strategies used within a class that is geologically identified, and separately treated, largely as a reporting convenience. The aim of this paper is to reflect on the wider implications of these analytical practices to explore some of the material ambiguities in lithic substances and how these inform technological choice. Using the interplay of skill to consider the imbrication of self and stone to expose the contours of tradition. Case studies drawn from research on Mesolithic assemblages in Britain and Ireland will consider how the process of lithic skill acquisition and identification of kid-knapped and novice events intersects with the affordances of materials to expose and (re)constitute various types of relations. Of central concern is the place of stone as a distinct media and how increased sensitivity to its properties can enable us to more fully appreciate the contours of past lithic practice.

AR9 TRIBULATIONS OF A PLACE-NAME WITH ARCHAEOLOGICAL REMAINS. "JIDOVA" ROMAN CAMP: FROM THE GIANTS TO THE DACIAN-ROMAN SYMBIOSIS AND BACK

Dragoş Măndescu

ARGEŞ COUNTY MUSEUM

The Roman camp (2nd-3rd centuries AD) nearby Câmpulung, Argeş County (Romania) is known since the end of the 17th c., when Colonel Luigi Ferdinando Marsigli visited the ruin's place and marked it as "Sidoua". Obviously, the Italian scholar transcribed so the genuine of the place that heard from the local people: "Jidova", meaning in Romanian folk language The Giant's Citadel ("jidov" = giant), fortification, fortress. High stoned walls of the old fort justified this name. "Jidova" (and its various forms) is a name frequently given to the places with ruins of old fortresses or buildings in Romania ("Cetatea Jidovilor" = The Giants' Citadel, "Biserica Jidovilor" = the Giant's Church, "Jidioara" = The Little Citadel, "Zidina Dacilor" = The Dacians' Stronghold), or even in Serbia ("Židovar"). At mid-19 c., by an act of zealous local patriotism and in accordance with the scholarly fashion of the time, the historian Constantin D. Aricescu in his writings re-named the place as "Jidava" (from "dava" = pre-Roman, Dacian settlement, like Sucidava, Ramidava, Buridava, Zargidava etc.), although there was not a Dacian trace before the Roman camp. The new fabricated name "Jidava" lasted for a century and a half, widely publicized and strongly supported by the official historiography of the Communist era, promoting the idea of Dacians and Romans peaceful symbiosis as the basis of the Romanians' ancestors. Today, in order to preserve the historical truth, the place was returned to its old toponym "Jidova".

AR4 SHARPENING OUR STYLUS: THE TERMS DEFINING THE TOOLS, WORKING PROCESSES, TOOL-MARKS AND OUTCOMES OF MODIFIED STONE, WITH PARTICULAR REFERENCE TO SARSEN AT STONEHENGE AND AVEBURY, TO MEGALITHIC ROCK-ART, STONEMASONRY, AND PORTABLE ARTEFACTS

Diana Pattison

INDEPENDENT

The brief for symposium AR13 (concerning funerary studies) suggests now is an apt time to reflect upon and establish *shared definitions upon which interpretation, understanding and knowledge depend*. This recalls to mind George Nash's comment in *Art as Metaphor* (Archaeopress 2008) that, regarding rock-art studies, we need to use language more carefully. Rock-'art' need be neither intentionally artistic nor skilful.

One aspect of a 15-year struggle to write about my discoveries of artwork and stonemasonry at the Avebury WHS complex in Southern England has been the lack of standard terminology to name the tools, tool-handling processes, tool-marks and outcomes of sarsen-modification. Gowland, Stone and others sought in the 1920s to understand and define the stoneworking methods used at Stonehenge. In unpublished notes and correspondence of c1934 Alexander Keiller strove to understand markings he suspected were artefactual on Kennet Avenue stones. Perhaps to the surprise of many, there are tool-marks on the majority of Avebury's stones, visible to the naked eye, indicating an unusually wide range of stoneworking processes. Similar tools were used there but for different purposes.

This paper attempts as thoroughly as possible to list and distinguish between the confusing lexicons of terms used by earlier writers and to illustrate examples of tool-marks and stone-working. It will briefly also cover the processes of erosion and eroded marks together with signs of deliberate and accidental damage mainly of the historic period. It will then propose the production of a standard nomenclature with a view to publishing a study/fieldwork guide.

AR8 NETWORKS OF ARTEFACT DECORATION IN BRONZE AGE SWITZERLAND

Benjamin Jennings

UNIVERSITY OF BRADFORD

Network science applications in archaeology have generally been used to examine the circulation of objects through prehistoric trade and exchange systems. This paper addresses such networks through a micro-scale approach, focussing on the use of specific design elements on Bronze Age metalwork objects. Such an approach enables the further interpretation of production zones, and of regions which expressed similar cultural preferences for specific design styles and elements. Using Switzerland as a case-study region, published catalogues of Bronze Age ring jewellery were exploited and the occurrence of individual decorative elements on each object recorded to produce a dataset connecting decorative elements, types, and sites. In this manner it is possible to observe regions in which specific decorative elements are more prominent than others. Comparing both network graphs and network science statistical analyses with the archaeological record and cultural typological classifications demonstrates not only that the networks produced largely correlate with what has been interpreted from the regional archaeological record, but also provides an insight to sub-regional patterns. Expansion of the dataset to include more regions and artefact types will enable the observation of networks of artefacts by identifying situations where decorative elements have crossed between different categories of object, and providing greater indications of production and decoration 'schools' and the expression of identity by communities within broader 'cultural regions'.

AR19 LATE MEDIEVAL SETTLEMENT: THE EFFECT OF BASTARD FEUDALISM ON THE GREAT HOUSES OF ENGLAND

Sarah Kerr

QUEEN'S UNIVERSITY BELFAST

The development of bastard feudalism greatly affected late medieval England. The Norman feudal system, which involved great lords granting land to lesser aristocrats in return for vassalage, was engrained in society, resulting in a clearly demarcated social structure. This structure was well defined and respected by society, however it grew less common during the high medieval centuries. The evolved system involved monetary payment in return for homage and fealty. It developed under the rule of Edward I but did not become commonplace until the 14th and 15th centuries. This bond between lord and follower, based on a financial agreement rather than land, has since been coined 'bastard feudalism' implying it was arbitrary and morally corrupt.

This paper examines the extent to which bastard feudalism affected settlements, in particular the great houses of England. Retainers, that is a lord's private army, were a product of bastard feudalism. These groups of young men with the ability to bear arms are thought to have been unruly and selfish in nature, potentially purely motivated by financial gain. It has been suggested that the double-courtyard system was an attempt by the lord to distance himself from fickle supporters, lest they revolt. Self-contained towers may have been built to protect the family from irrepressible livery-wearers. Was this feudal change so significant that it caused a discernible change to medieval settlements? Using results from the survey of great houses, these potential effects of bastard feudalism on the construction, plan and day-to-day running of settlements will be discussed.

AR1 THE LANDFILL URBAN SITE UFA II AS A SOURCE OF ARTIFACTS IN THE SOUTHERN URALS: FROM THE EARLY MIDDLE AGES TO THE LATE 20TH CENTURY

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BASHKIR STATE PEDAGOGICAL UNIVERSITY NAMED AFTER MAKMULLA, LABORATORY OF METHOD AND METHODOLOGY OF HUMAN RESEARCH

In modern Border Studies issue of Barbarian territories adjacent to great empires with their urban sites is almost not investigated in respect to the Southern Urals. Lack of authentic written evidences makes archeological investigations of early trade and handicraft settlements on the territory of Southern Transurals exceptionally important. For the last ten years in the area of Southern Transurals interdisciplinary studies of urban site Ufa – II were carried out. To generate initial view of the

archeological site, they worked with surviving maps of 19th century. The results identified several centers and types of landscape utilization on the territory of urban site Ufa – II in the Middle Ages. These data were confirmed by paleopedology investigations. Several types of anthropogenic changes of landscape in urban site Ufa – II were identified in the period of the Middle Ages. One group of soils was formed in the result of erection of residential and household facilities. Another group of soils was formed in the result of erection of fortifications. In the centre of urban site Ufa – II territory rich collection of artefacts was found out: ceramic products, metallurgic and bone items, jewelleryes including disc-shaped amber beads with incised decoration, so typical for Central Europe, Scandinavia, and Black Sea region. The greatest number of artifacts have been found in cesspools. The Landfills have collected artifacts from different periods, from the early Middle Ages until the late 20th century.

AR16 PREHISTORIC MEASUREMENT OF TIME AND DISTANCE

Richard Keatch

INDEPENDENT RESEARCHER

The analysis of the dimensions of stone circles, passage cairns and brochs suggests that the elusive measurement unit used in prehistoric times in Scotland was in fact not a single length but a series of pendulum lengths that measured both distance on the ground and time. Previously unidentified geodesic spheres are shown to be long ruler winding tools used to measure special multiples of these pendulum lengths on the ground to draw out the stone circles and other ancient circular monuments. The deciphering of the Pictish symbols has revealed a compound ceremonial pendulum and indicated the way in which Pictish pendulums were accurately calibrated using special star pairs. When the measurement system, ideally suited for use at a latitude corresponding to the North of Scotland, is adapted for southern locations, taking into account of the latitude-dependent gravitational field of the Earth, the resulting new slightly shorter pendulum lengths can be used to explain the dimensions of the pyramids at Giza.

AR20 GNAWING, BUTCHERING AND OTHER FORMS OF MESSING WITH THE DEAD: FIRST CASES FROM THE EASTERN BALTIC AREA (NEOLITHIC LITHUANIA)

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New bioarchaeological data obtained during re-analysis of all human skeletal materials from undisturbed Stone Age graves from the territory of Lithuania led us to the new findings that allow us to make pioneering insights into burial practices of Neolithic people (Narva culture) from a present territory of Lithuania.

Ultimately, newly observed bone changes (i. e. butchering / cut marks, gnawing marks) in human skeletons enable us to challenge the accepted view towards the burial practices in the Eastern Baltic area during the Neolithic.

It is argued that the Neolithic inhabitants of present day Lithuanian territory were no strangers to such burial practices as exarnation or intentional bone manipulation of deceased. It is also suggested that these cases might be considered as the first tangible evidence of the changing perception of the World during the process of Neolithization.

AR5 CURRENT RESEARCH ON LATE PLEISTOCENE AND EARLY HOLOCENE IN CROATIA: THE ARCHAEOOLIM PROJECT

Ivor Janković

INSTITUTE FOR ANTHROPOLOGICAL RESEARCH

In 2014 a project entitled „Archaeological investigations into the Late Pleistocene and early Holocene of the Lim Channel Istria“ (ARCHAEOOLIM), started. The main aims of this 3 year project financed by the Croatian Science Foundation are to provide data for better understanding of a number of important issues regarding behavioral and possibly biological aspects of human groups during a time when Late Glacial hunter gatherers were forced to change and adapt to a changing environmental and other pressures. Project concentrates on the archaeological fieldwork on four sites where preliminary survey or small scale excavations yielded evidence of human occupation: Romualdova cave (Middle and Upper Paleolithic sequence), Pećina kod Rovinjskog sela 1 (Late Upper Paleolithic and Mesolithic), Abri Kontija (Late Upper Paleolithic) and Lim 001 (Late Mesolithic), all in the Lim Channel. Here we provide a summary of the results of the first two excavation seasons.

AR7 MESOLITHIC - NEOLITHIC DWELLINGS OF NORTH-WEST RUSSIA (SMOLENSK REGION)

Khrustaleva Irina

THE STATE HERMITAGE MUSEUM

The territory of the basin of the Upper Western Dvina River was researched by archaeologists since 60th of the XX century. The series of Neolithic sites were discovered here (impermanent sites of hunter-gatherers, long-termed settlements and pile-dwellings). The long-terms settlements contain large collections of flint and ceramic finds from different chronological periods and remains of different constructions and dwellings. Layers of the sites mainly occur in sandy sediments, so we have no any organic remains excepting some cases of occurrence of sites layers in peat deposits. All dwellings and objects of the sites can be detected only by pits of colored sand or some stone constructions in the case of their existence. 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. It allowed us to trace natural and climatic conditions and the ways of human adaptation to them. It was established that the Neolithic sites were closely related with ancient 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.

Complex analysis of all finds and objects of the sites allowed us to define some chronological features of the dwellings structure, to detect the transition from Mesolithic to Early Neolithic and to find out the influence of other cultures, especially from the Baltic States, on the Neolithic dwelling-building tradition of the Upper Western Dvina basin.

AR6 SOME ASPECTS OF TRANSVERSE ARROWHEADS FRACTURE ANALYSIS FROM LATE MESOLITHIC SOUTHEASTERN BALTIC REGION

Tomas Rimkus

UNIVERSITY OF KLAIPĒDA

The Southeastern Baltic region for hunters-fishers-gatherers in the Mesolithic period was one of the main vantage points, which was mostly determined by abundant natural food resources and strategic flint raw material extraction points. There were located and excavated many archaeological sites in this region, and most of them chronologically cover the entire period of the Mesolithic. One of the main criteria allowing to distinguish the Late Mesolithic period in Lithuanian archaeology is the appearance of transverse arrowheads, or trapezes, in the Late Mesolithic Nemunas culture. These artifacts are interpreted as microlithic technology leap forward, which gave hunters even greater advantage over their prey in the hunt. Based on the Katra 1st settlement (Varėna district, South Lithuania) archaeological inventory obtained trapezoidal arrowhead types, there were accomplished their use-wear and residue analysis, which complements and allows to gather more data on the Late Mesolithic hunters-fishers-gatherers communities economic model in the South-Eastern Baltic region. Use-wear analysis of the trapezoidal arrowheads suggests about intensive exploitation of these composite tools. Also, it allows to distinguish some of the hafting traces, which are clearly detectable. The paper also deals with some experimental studies related to technological hardware of these microlithic tools production in the context of the concerned region.

AR13 'LABELS' IN FUNERARY ARCHAEOLOGY: COLLECTIVE BURIALS AND SECONDARY MORTUARY PRACTICES. CASE STUDY: EARLY ENEOLITHIC FUNERARY DISCOVERIES FROM TRANSYLVANIA (ROMANIA)

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¹"1 DECEMBRIE 1918" UNIVERSITY, ²JOHN MOORES UNIVERSITY

Researching, classifying and interpreting burials are dealt with on a standard basis by every archaeologist involved in funerary studies. One of the common difficulties consists in using the satisfactory terminology. For example, the collective burials or secondary burials are often interpreted by the scholars as unusual mortuary practices.

Today, by usual we mean the normal practice, the most widespread one and the most evidenced by archaeological research. By unusual we refer frequently to all the funerary discoveries which do not represent the standard mortuary practices for the period, all the exceptions (collective burials, multiple burials, deviant burials, secondary burials, ossuary etc).

During excavations from 2003, 2005, 2011 and 2014, remarkable discoveries of a funerary complex with unique mortuary practices were made in the Alba Iulia-Lumea Nouă site (Alba County, Romania). The skeletal remains have not been discovered in anatomical connection. Osteological analyses have determined the presence of children, male, and female adults. The current paper aims to present and discuss the particularities of these funerary discoveries which indicate specific mortuary practices by the communities of the Transylvanian early eneolithic. Using Bayesian approach we have obtained a model that evidences the very short time interval (less than 50 years) which includes all data from the funerary complexes: start 4587 – 4492 BC (95,4%), mean 4534 BC; end 4535 – 4448 BC (95,4%), mean 4493 BC.

Are, therefore, unusual funerary discoveries more an interpretation issue, or do we need adequate terms for more particular cases?

AR4 STICKS AND STONES AND BONES: MAKING HOLES IN METAL IN PREHISTORY

David Bell

QUEEN'S UNIVERSITY, BELFAST

The advent of extractive metallurgy, creating materials harder than most previously worked, introduced a new challenge to the process of creating holes using available technologies. In the case of bladed weaponry, it has been suggested that the rivet holes which afforded the attachment of an organic handle could have been drilled, cast or punched. It is also assumed that the difficulty of this task contributed to the decision to routinely locate these holes at the thinnest and therefore weakest part of the blade's butt. Experiments were conducted using a bow-drill and drill-bits of hardwood, flint and bone to perforate test pieces of copper, bronze and steel sheet. The relative ease with which an appropriate sized aperture was created in these materials suggests that in the Early and Middle Bronze Ages factors other than expediency contributed to the locating of rivet holes. The conclusion drawn is that for those who produced these weapons display rather than utility was paramount.

Confirmation of this hypothesis is seen when blades which were rehafted in modern times have replacement rivet holes located

in more substantial areas of the butt. It is also concluded that stone is an inappropriate material for bow-drill breast-stones and supposed examples in museum collections served some alternative function.

AR20 TERRACOTTA DURING THE MIDDLE NEOLITHIC IN THE BALKANS

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The Middle Neolithic period in the region is contemporaneous with the Late Neolithic of Central and Western Europe. The terracotta is dark, burnished, decorated with flutings and other motifs. Villages, sometimes fortified, contain rectangular stone-wall houses with beams, straw roofs, ovens, storage and craft space. Portable altars are found within deposits, including house models and statuettes models in anthropomorphic and zoomorphic form. They suggest the existence of temples. The statuettes are distinguished by the presence of figurines in female form. They have an upright sitting stance with hands placed on either side of the waist or crossed arms; at times significantly flat, small, they contain wholes to allow them to be worn on clothes. The stomach and buttocks are foregrounded. Initially they are schematic in character and latter make a departure towards a more original style. The body is much smaller than the head and contains grooves and engravings evidencing clothing and tattoos. The face is hieratic, oval or rhomboidal, with a pointed chin, emphasized eyebrows, and beak-shaped nose that hides the mouth. The hair is in chignon style and almond shaped eyes are presented in relief. One variant - "Goddess on Throne" - is places in obvious position of power. Another statuette is a hybrid - "centaur" - with the face similar to the "goddesses" and a small schematic animal body. Lids have a round hat-like shape and face of the "goddesses." They contain a stylized mask of a wild cat, a possible symbol of protection or control of wheat reserves.

AR2 CROSS-SCALE ADAPTIVE BEHAVIORS DURING THE UPPER PALEOLITHIC OF IBERIA: THE EXAMPLE OF VALE BOI (SW PORTUGAL)

Joao Cascalheira¹, Nuno Bicho¹, Joao Marreiros², Telmo Pereira²

¹ICAREHB - UNIVERSITY OF ALGARVE, ²ICAREHB

It is now rather evident that, concomitant with the advent, growth and disappearance of the traditionally defined Western European Upper Paleolithic technocomplexes, a series of discrete eco-cultural niches would have existed within Iberia.

Vale Boi, and its surroundings, may represent one of these niches, since its lengthy and fairly complete archaeological record clearly attests that the region was an attractive location for hunter-gatherer communities for over 10,000 years.

From the first Modern Human occupations, c. 32 ka cal BP ago, a set of very specific cultural adaptive markers seem to have been developed in response to the particularities of the regional ecological background. Some of these strategies, such as intensive subsistence practices, raw-material specialized use, among others, were resilient through time and apparently impermeable to the major shifts in the techno-typological novelties brought about with the advent of each Upper Paleolithic phase. Even with the appearance of quite unique and broad-scale technologies, e.g. Solutrean, regional markers and identity have been kept, clearly showing that each level of the adaptive system seem to have operate at its own pace.

This paper will focus on long-term adaptive choices and on how hunter-gatherers inhabiting Vale Boi manage to absorb change and re-organize their system under new technocomplex cultural patterns while still retaining, efficiently, the same regional adaptive idiosyncrasies.

Within the theoretical framework of Panarchy we argue that these cross-scale interactions between creative and conserving behavioral adaptations were, most certainly, the keystone for the sustainability of hunter-gatherer cultural systems across the Late Pleistocene.

AR2 THE RISE AND FALL OF PALATIAL SOCIETIES: SYNCHRONOUS DIVERSITY IN LATE BRONZE AGE AEGEAN

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ARCHAEOLOGY AND ANCIENT HISTORY, UPPSALA UNIVERSITY

The time frame 1600-1400 BCE spans the LB I-II transition in the Aegean and holds the material for a comparison between the beginnings of the palatial Mycenaean period on the Greek mainland and the circumscribed Third Palace Period on Crete (also called the Final Palatial period, or the Postpalatial period), following the destructions that marked the end of the Second Palatial Period or the Neopalatial period, considered to be the high-point of Minoan civilization.

The resilience view will be used to explore the practical and cognitive essence of change during these transitional periods, and to pose follow up questions concerning our definitions of societal success and failure, the intentionality of change (and ways to assess this), as well as any external and internal forces stimulating change. The model of the adaptive cycle will provide a conceptual tool for the study of "back loop" processes and for the exploration of the contrasting cultural developments and dynamic cycles of change provided by the synchronous but divergent social contexts on Crete and the Greek mainland.

AR20 NEOLITHIC CIRCULAR PALISADE ENCLOSURE – A CASE STUDY OF PLOTIŠTĚ NAD LABEM IN THE CZECH REPUBLIC

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¹INSTITUTION OF ARCHAEOLOGY PRAGUE CAS, ²INDEPENDENT RESEARCHER

The aim of this poster is to present the spatial and material analyses of the settlement and burial area from the Neolithic through to the 5th century AD. The excavation of the site of Plotišť nad Labem (east Bohemia, Czech Republic) was carried out at the end of the 60s and at the beginning of the 70s of the last century.

Among various large features, a circular enclosure of palisade construction with a preserved south east entrance was uncovered. At the time of the excavation, the enclosure was dated to the first half of the new millennium. Recent horizontal stratigraphic and material analyses proved that the previous dating had been wrong and newly dated the building and the demise of the enclosure to the late Neolithic period (about 5000-4400 cal. BC). It is the time of monumental circular ditched enclosures (called rondels in Czech terminology). It is possible to recognise other late Neolithic features on the site, such as Danubian longhouses of timber construction, dozens of settlement pits and several groups of Neolithic burials.

It appears that the position of the Neolithic settlement and burial area must be re-defined in the light of the latest dating results. Plotišť nad Labem thus may represent one of the types of central settlement areas for a wider region.

AR5 THE MOST FRIGHTFUL OF LANDSCAPES: ARCHAEOLOGY AT BLÅ JUNGRUN, SWEDEN

Ludvig Pappmehl-Dufay¹, Anna-Karin Andersson², Kenneth Alexandersson³

¹KALMAR COUNTY MUSEUM, ²LINNAEUS UNIVERSITY, ³KALMAR COUNTY MUSEUM

The island Blå Jungfrun is located off the Swedish east coast between the mainland and the island of Öland. Huge boulders and steep cliffs provide a dramatic landscape and for centuries the uninhabited island has been associated with supernatural powers. The time depth of these stories is shrouded in mist but could be considerable. Archaeologically not much was known about the island, until spring 2014 when the first archaeological fieldwork was conducted. The results are astonishing and reveal extensive human activities on the island in the Mesolithic Stone Age. In two caves, distinct ritual features were identified, and in a rock shelter situated between the two caves massive cultural deposits were found containing lithic and osteological material. Charcoal from the deposits has been radiocarbon dated to 7000 BC. In addition to this, an open area a short distance below one of the caves was found to contain cultural layers containing worked quartz. Fieldwork on the island will continue in 2015.

AR4 MATERIALS OF KHALINSKAYA CULTURE IN THE MIDDLE VOLGA REGION

Arkadii Korolev

VOLGA REGION STATE SOCIAL-HUMANITARIAN ACADEMY

Khvalynskaya culture was discovered in the Middle Volga region by Igor Vasilev in 1980s. A particular interest to Khvalynsk culture is due to the fact that it is connected with the beginning of productive economy and copper spread in the Volga region. However, in the XXI century we got new materials and such questions as origin, development stages, type of economy, and stone industry of this culture are also relevant. The most interesting results of them were obtained on the Central Sura River during the excavations of settlement Utyuzh I. In this laminated settlement we found the remnants of dwellings, tools on large knife-like blades, ceramics which has a sink admixture, thick corolla and decorated by direct and oblique stamps. Communication between ceramics and stone tools is not obvious. We suppose that Khvalynsky complex includes tools on the blades which were made of gray semitransparent flint with white crusts. The similar blades, ceramics and dwellings were found in the settlement Russian Truevo I in the source of Sura River. Differences in ceramics probably reflect the chronological sequence of monuments. We should say that materials of Khvalynskaya culture were found in The Middle Volga region in such settlements as Gundorovka, Lebyazhinka I, Lebyazhinka IV, Chekalino IV. We marked different types of them. Here, in the Sok river basin they are not related to dwellings. Recently we revealed a new settlement Lebyazhinka VI where there are more depth dwellings and Khvalynskaya ceramics combined with white and dark gray semitransparent tools on the blades.

AR18 A FUNERARY INVESTIGATION OF A NON-HELLENIC PEOPLE OF SOUTHERN ITALY: FLUCTUATION IN GRAVE ASSEMBLAGES IN TWO OENOTRIAN NECROPOLES OF BASILICATA (ALIANELLO, MT AND GUARDIA PERTICARA, PZ).

Patrizia Macrì

INDEPENDENT RESEARCHER

The indigenous populations of *Oenotrians* inhabited a vast area of south Italy from the Early Iron Age to the Archaic Period (9th - 5th century BC). The burials considered, those from the necropoleis of Alianello and Guardia Perticara with conserved outfit, number only 80 (a tiny proportion of the almost 1900 burials recovered). Therefore data processing is limited but the adequate diachronic variety of graves is sufficient to allow the investigation on fluctuations of funerary practices suggesting a succession of chronological phases. It is assumed that funerary practices involved both archaeologically visible remains and archaeologically invisible actions: the latter may, however, be deduced theoretically using anthropological analogies as a parametric tool. Analysis of the grave contents entailed attributing objects in groups referred to the funerary phases. Subsequent elaboration identifies which group remain unchanged, vary, appear or disappear, depending on period and, presumably, for different cultural interactions.

The adopted methodology aims, by distinguishing fluctuations in grave goods, to highlight changes in funerary ritual and to deduce where attainable social information regarding these communities.

AR4 ANALYSIS OF SPINDLE WHORLS FROM GURUKLY DEPE (TURKMENISTAN)

Dominika Kossowska

UNIVERSITY OF WARSAW

Poster will present results of analysis of spindle whorls found at the archaeological site Gurukly Depe located in the Serakhs oasis, in the south-east Turkmenistan. Since 2010 the site is excavated by Polish-Turkmen archaeological mission headed by Professor Barbara Kaim from University of Warsaw. Gurukly Depe site was identified as the Parthian-Sasanian (3th century B.C. - 7th century A.D.) qala – a fortified residence, typical for Central Asian oasis settlement. The majority of investigated structures are dated at the Late Sasanian Period. To date about 102 spindle whorls were found here. They are mostly clay objects, conical, spherical and discoid in shape. Whorls are relatively small and light. Majority of them weight between 3 – 9 g. and they are 1,5 – 4 cm in diameter. On the basis of their dimensions and weight I could assumed, that they were rather used to spin cotton then wool yarn. Cotton fibres are much more delicate and shorter then wool fibres. That is why to spin cotton yarn light spindle whorls are more adequate. Analysis of whorls from Gurukly Depe suggests that at the site in the Late Sasanian period cotton fibre played a major role in textile economy. So far, spindle whorls from Gurukly Depe are the first evidence of cotton cultivation in Sasanian period in the Serakhs oasis and one of few indications of cotton crops in Central Asia before the Muslim conquest.

AR19 SILK COFFIN UPHOLSTERY FROM 18TH CENTURIES (THE NAME OF THE HOLY VIRGIN MARY CHURCH IN SZCZUCZYN – POLAND)

Magdalena Majorek

NICOLAUS COPERNICUS UNIVERSITY, TORUŃ (THORN), DEPARTMENT OF ARCHAEOLOGY

Coffin upholstery, if it was present at all, belonged to an integral part of the coffin. Not all coffins were equipped with upholstery. Such equipment was very expensive, because it consisted most often of silk textiles, although using broadcloth was not cheap either. External coffin sides also roomed signboards, cartouches with coat-of-arms, coffin portraits and ornamental pegs, frequently with Christian use of symbols: Marian, christological (IHS) or dates of death, initials of names and surnames. Various silk textiles were used for coffin upholstery. Most of them belong to plain fabrics in weave 1/1 with varied warp and weft thread density per 1cm. Patterned and ornamented silks were also used for coffin upholstery. The coffin decoration and textile selection was deliberate. Textile ornamentation relates to motifs and elements taken from geometry and the plant world. In many instances they were used simultaneously in one composition. Harmony in proportions of particular details and elegance of drawing influenced the beauty of ornamenting motifs used in textile production. Floral elements were either stylized or depicted realistically, creating most commonly, tangled patterns of bent or circular lines. These beautiful compositions were drawn by excellent painters who created the basis for modern industrial design.

Let's see how 18 th century upholstery coffins looked.

AR4 NOMADIC CAST CAULDRONS FROM EURASIAN STEPPE - THE TYPOLOGY AND DEVELOPMENT

Paweł Janik

ANTIQUITY OF SOUTHEASTERN EUROPE RESEARCH CENTRE UNIVERSITY OF WARSAW

One of the most characteristic elements of the material culture of ancient nomads such as the Scythians and Huns were large cast metal cauldrons. For centuries, this type of vessels was a very important part of the culture of Eurasian nomads from the area of the Great Steppe. They were used to cooking food and for worship. Initially nomadic cauldrons were made of embossed metal sheets spliced rivets. Cast pots appeared about 10 century BC on the borderland between Chinese and nomads. Probably the technique of casting and some forms of vessels were borrowed from Chinese culture. The form of the cauldron, whose components made of bronze or copper which were cast in several molds, and then connected by soldering. This type of vessel were using by most of the cultures of the Eurasian nomads from the Great Steppe for the next 1,500 years. It was long thought that the Hunnic cauldrons not originate from Scytho-Sarmatian. To answered this question of origin of Hunnic cauldrons, I analyzed findings of vessels from the Great Steppe and created a typology of these cauldrons. I was analyzed the three separate elements - the foot, the body and handles, which each could be varied independently. The results of this research contradict the former assertion, and based on these studies I created the typology of nomad's metal cauldrons in the period from 10 century BC to the 5 century AD and scheme diagram of their development. I would like to present these results on my poster.

AR6 MESOLITHIC FLINT AXES IN LITHUANIA: FUNCTION AND TECHNOLOGY

Gvidas Slah

KLAIPĖDA UNIVERSITY

In Lithuanian territory Mesolithic period flint axes are quite rare finds. Objects from this period have not been published in a special study with appropriate focus yet. Nowadays archeological interest starts to be focussed on the Mesolithic flint axes, because there is possibility, that there will be obtained reliable results from technological, experimental and use-wear analysis. For this study was selected settlement of Mesolithic period of Southern, Eastern and Western regions of Lithuania.

First use-wear analysis was conducted on the archeological pieces. Than there were new pieces produced experimentally. And with these new pieces experiments were performed: wood and bone cutting. After these experiments a comparative use-wear

analysis was done. Grace to its results some remarks on the economic model of East Baltic Mesolithic communities were determined.

AR4 FROM THE SUBJECT TO THE OBJECT: CORRELATION BETWEEN MOTIFS AND GEMS IN INTAGLIOS.

Aurelie Crausaz

UNIVERSITY OF LAUSANNE

Intaglios, engraved stones with recessed motifs often serving as seals, are almost exclusively analysed according to the represented iconographic design. While the geological classification of the stones is always recorded, just like the setting material, all the main catalogues still classify intaglios according to the various subjects represented – male and female divinities, human beings, animals, symbols, etc. During a Master thesis completed at the University of Lausanne in 2014 (to be published), an exhaustive survey of all the intaglios brought to light during excavations at Avenches / *Aventicum* (the capital of the *Helvetii* which obtained *Colonia Pia Flavia Constans Emerita Helvetiorum Foederata's* status in AD 71/72) enabled identification of a link between gnostic motifs and a particular type of stone: the garnet. The cross analysis of engraving media and various glyptic subjects could bring a new research direction to the preventative medical properties attributed to certain gemstones and/or to certain motifs.

AR1 WHAT TELLS THE MEDIEVAL BROOMS?

Povilas Blaževičius

NATIONAL MUSEUM – PALACE OF THE GRAND DUKES OF LITHUANIA

It is commonly considered that people who lived in the medieval castles and cities had nothing to do with cleanness. Residents of Vilnius castle in Lithuania also had been not an exceptions. Thick cultural layers formed in the living surrounding are filled with food waist, worn shoes, pottery shards, excrements etc. However, people share different need of cleanness. This actually was the same even in the medieval times, some of citizens had been more concerned with their environmental cleanliness.

The aim of this poster is to present a very interesting case – a wooden building and it's surrounding. The remains of the house had been excavated in the Lower castle of Vilnius in 2014 and were dated to the late 14th – early 15th century. 3x4 m size building has two separate rooms: one – hardly polluted, another – with clean floor boards. It is also very important to notice that in the surrounding area of this small building more than twenty brooms remains were discovered.

Meanwhile we are trying to find out the purpose of the building on the basis of archaeological context. That will get us closer to the mentioned house owner's personal understanding of the cleanliness.

AR4 STONE BATTLE EXES IN THE TERRITORY OF UPPER DVINA REGION, RUSSIA.

Evgenia Tkach

INSTITUTE OF MATERIAL CULTURE

This poster devoted to the stone battle exes, which were founded in the territory of Upper Dvina (Pskov, Smolensk regions, Russia). These artifacts frequently refer to the Corded Ware cultures in Europe. In the investigation area these are, mostly, accidental finds. A part of them were discovered in the cultural layers, in the peats settmenets (Naumovo, Serteya II). They date the second half of III mil. BC. During the investigation was separate 13 types of battle exes. The earliest are battle axes of boat-form axes, which refers to the A-Horizont of the Corded Ware cultures (first half of the III mil. BC). Most of types belongs to the second half of III mil. BC. We can traced analogies of these types of axes in the materials of Corded Ware cultures in Poland, Germany, Baltics. Also we found analogies in the materials of Middle Dnieper culture (Ukraine, Upper Dnieper) and Fatjanovo culture (Russia, Upper Volga). This means that the territory of Upper Dvina was includes in the zone of influence of the Corded Ware cultures in III mil. BC and we can traced the earliest migrations inhabitants of the Corded Ware cultures in the middle Neolithic.

AR17 THE SRUBNA CULTURE OF SOUTHERN URAL STEPPES

Andrey Evgenyev

ORENBURG STATE PEDAGOGICAL UNIVERSITY

The Srubna (Timber-grave) culture is one of the most important communities of the Eurasian steppes in the Late Bronze Age. The monuments of the Southern Urals are of particular interest, because of contacts between the population of the Srubna and the Andronovo cultures.

Investigation of the Srubna culture monuments of Southern Urals in recent years is connected with the Orenburg archaeological expedition. In the 2000s Labazy, Skvortsovka and Bogolyubovka burial mounds and Maloyuldashevo settlement were excavated. The investigation of the materials used data of paleopedology, technological analysis of pottery, radiocarbon dating.

Analysis of the funeral rite and radiocarbon dates suggest that the investigated complexes belong to the early (XX-XVIII centuries BC) and developed (XVIII-XVI centuries BC) stages of the Srubna culture. Most burials made on a standard rite, but also there are central burials with complex design and variety of grave goods, which is typical for the monuments of the early

stage. There are facts of the Andronovo culture influence in the rite and paraphernalia, such as cremation, complex stone structures, pottery. Local feature of the Southern Urals is the presence of stone rather than timber roofs over the graves.

Stone was widely used during the construction of settlements. The buildings have been built with a key role of stone structures, up to complex masonries, marking wells and foundations. The materials of settlement and funerary monuments of Southern Urals demonstrate the developed metallurgy of the Srubna culture and show the economic and cultural contacts with the population of neighbor areas.

AR17 RETHINKING NUMANTIA (SORIA, SPAIN): A CHRONOLOGICAL REVIEW OF THE STRATIGRAPHIC SEQUENCE AND THE CELTIBERIAN POTTERY

Raquel Licerias-Garrido, Sergio A. Quintero-Cabello, Alfredo Jimeno-Martínez, Antonio Chaín-Galán

COMPLUTENSE UNIVERSITY OF MADRID

From the beginning of the research in Numantia, the stratigraphic sequence has been a major issue since different researchers have failed to identify the underlying phases of the cities or the sequence of activities and their chronological relationship. Furthermore, Numantia is a reference site in Celtiberia region (North-Central Spain) considering that its archaeological materials have influenced the chronological assignment of the rest of the sites. In the light of recent excavations, between 2006 and 2009, these have provided new data about chronology, materials and the settlement sequence of the Celtiberian and Roman cities that allow us to suggest a new outlook of Numantia and the Celtiberia.

AR13 DEAD CERTAINTIES: THE NEED TO PIN DOWN IDEAS AND DEFLATE CONFLATIONS IN FUNERARY ARCHAEOLOGY

Martin Smith

DEPT. OF ARCHAEOLOGY, ANTHROPOLOGY AND FORENSIC SCIENCE

The growth and refinement of various approaches to recognizing evidence in funerary archaeology has led to increasing realization that past treatments of the dead were both more varied and often more complex than was previously realized. However, contra to what might have been expected there has been relatively limited enthusiasm (at least in Anglophone spheres) for revision and refreshment of the terminological toolkit available to us to describe the plethora of practices in evidence, nor any great acceptance that there might be a need to do so. As a consequence we risk (or arguably already have) a situation where similar practices and processes might be described quite differently and widely divergent treatments are made to appear more similar than they really are or even fail to be differentiated at all.

The current session is arguably overdue, especially in the wake of useful re-orientations of terminology in French publications. Much ambiguity in English publications stems from the fluidity and flexibility of the English language. Whilst favouring colourful literature and inventive poetry this is more curse than blessing when aiming for descriptive precision in an increasingly technical subject. Some points the present author would be pleased to see included for discussion are:

The word Burial (surprisingly diverse)

Funerary versus Mortuary

Remains are plural (can't have a 'human remain')

Injuries affect the living (can't have post-mortem trauma)

Excarnation (more than one way to deflesh a body)

Mummification Deviant burial (this term may cause more problems than it solves)

Mass grave (how to define)

AR19 GENDER AND AGE IN THE 18TH – 19TH CENTURY WORCESTER PORCELAIN INDUSTRIES: RELATING THE RESULTS OF ARCHAEOLOGICAL RESEARCH TO SOCIAL HISTORY.

Helen Loney

UNIVERSITY OF WORCESTER

This poster will present some of the finds analysis from the Worcester Porcelain Project, which is conducting fieldwork in the suburbs and agricultural zones around the City of Worcester, in order to better understand the processes of industrial waste management prior to World War II. The study of industrial archaeology in Britain since the 1960s has emphasized monument and landscape studies, with emphasis on preservation and conservation of iconic factories and installations. In parallel to this work, a number of social historians and scholars have been recording production methods and exploring company archives, in order to critically evaluate the history of industry during the 17th, 18th and 19th centuries, in particular. These studies have contributed to our understanding of the nature of industrialization, including the roles and contributions of women and children. These results shed light on the stages of the industrial process, leading up to the production of marketable items. Importantly, the results have revealed artefacts which when seen in conjunction with local social and industrial histories can be

confidently assigned to specific age and gender groups, most importantly male and female children. This offers the archaeologist an unusual opportunity to develop the link between artefact and gender studies.

AR1 DISHING THE DIRT: A FRESH LOOK AT COPENHAGEN'S URBAN WASTE AND ITS TREATMENT IN THE 17TH AND 18TH CENTURY

Camilla Haarby Hansen, Inger Wiene, Ed Lyne

MUSEUM OF COPENHAGEN

A series of large scale urban excavations conducted across Copenhagen's cityscape in recent years, have yielded a wealth of information relating to the handling of urban waste, and its reuse as in-fill, during the 17th and 18th centuries in particular. These large-scale dumps of urban refuse were excavated from such locations as decommissioned medieval moats and reclaimed harbour fronts, where excellent conditions for preservation have meant that a vast assemblage of organic waste has also survived.

In attempting to gain the fullest possible picture regarding the processes that lead to the waste being dumped in these locations, or perhaps more accurately, the procedures that revolved around its collection elsewhere, it became clear that contemporary documentary evidence would be essential to the proper understanding of these assemblages. Furthermore, in order to interpret the displaced material, and to gain an understanding of the city inhabitants from whose homes and workshops the waste came from, it would be necessary to establish what kind of material culture people from various levels of society were likely to have owned. This could only be done by examining a very valuable historical resource: the inventories made when people died. The challenge of marrying the archaeological remains with relevant historical documentation, a process by which it is hoped to put the waste material back in place, will be discussed and evaluated in this paper .

AR8 GEOGRAPHICAL AND CULTURAL NETWORKS IN EARLY IRON AGE CENTRAL ITALY

Francesca Fulminante

UNIVERSITY OF ROMA TRE

My current project employs a network approach to explore urbanization processes in Early Iron Age Latium Vetus and Etruria (11th/10th-6th century BC).

Geographical networks have been used to identify network centrality indexes, which showed that river routes are more important for settlements during the Bronze Age, while terrestrial routes are instrumental for the development of proto-urban centres into central places in the Early Iron Age. It also showed that the models generally work better for Latium Vetus than Etruria. This probably explains why the smaller but also more compact and more hierarchical region of Latium Vetus eventually prevailed on the larger and more heterarchical Etruria.

When cultural networks have been considered, the application of network centrality indexes showed that, as expected, proto-urban centres act as central places for the circulation of models and information; and a general increase in the degree centralization and betweenness centrality from the Bronze Age to the Early Iron Age and the Orientalizing Age and generally higher values for metal production and fine ceramics.

There have been issues surrounding the variability of information from different archaeological investigations and sites. However the results of this work are consistent with the current historical and archaeological interpretation, thus confirming the validity of the network approach but also highlighting the need for more tailored and specific methodologies than the simple centrality measures.

AR5 BOLLARP REVISITED – THE COLONIZATION, DESERTION AND RECOLONIZATION OF A FARM IN THE SMÅLAND UPLANDS.

Ådel Vestbö Franzén

JÖNKÖPING COUNTY MUSEUM

The small farm Bollarp was situated at about 330 m.a.s.l. at the top of the Småland Uplands, in an area dominated by forest, bogs, small lakes and a shifting topography. During the time-span ca 1200-1940 three phases of inhabitation and cultivation can be traced, interrupted by areas of desertion. The earliest phase occurs between ca 1200 and 1400 AD. A farmhouse from this period is under excavation and ¹⁴C-dating from clearance cairns provides evidence for arable farming. Between 1550 och 1630 AD the farm was recolonized and a new farmhouse was built. This house and its surroundings has been excavated and has revealed new insight to every-day life on a small farm. The economy was based on animal husbandry and forging, although small scale arable farming was present. The findings and the house construction doesn't point towards an impoverished existence, but rather to a "middle-class" way of living. Between 1810 and 1940 a soldier's croft forms the last settlement in Bollarp. The houses were still standing ca 1995, but was thereafter demolished in connection with afforestation.

During the phases of desertion the land was used by the neighboring village. Maps from the early 18th century shows how kilometers of wooden fences enclosed meadows and pastures. The farm was deserted, but the land-use was never abandoned. The three phases of settlement mirrors the historically known phases of demographical increase. The phases of colonization and desertion in Bollarp also exemplifies the long-terms dynamics of outlying land.

AR2 HUMAN ECOLOGICAL ADAPTIVE CYCLES AND LITHIC TECHNOLOGY VARIABILITY DURING THE GRAVETTIAN IN SOUTHERN IBERIA.

João Marreiros¹, Nuno Bicho¹, Juan Gibaja²

¹ICAREHB, ²CSIC. INSTITUCIÓN MILA I FONTANALS

Ecology adaptive models, when applied to archaeology, have shown that environmental oscillations had a major impact on hunter-gatherer dynamics. Recently, such impact has been associated with demographic, socio-cultural and therefore technology organization and variability during the Upper Paleolithic.

Unlike the traditional perspective, based on new data, a new lithic technological and tool design organization has been discussed for the Gravettian of Southern Iberia. Based on the review of the most important chrono-stratigraphic sequences in this region and lithic technological data, we argue that the origins and expansion of Gravettian industries in this territory, as well as their geographic and diachronic phases, are associated with major climatic fluctuations, characterized by distinct lithic technological systems and innovation in the archaeological record.

These data likely represents different social-cultural entities, economic systems and settlement strategies that reflect early human ecological adaptations. Such approach might represent a new insight to interpret human technological and socio-cultural behavior during the onset of Upper Paleolithic industries in Western Eurasia.

AR2 ADAPTATION AND RESILIENCE IN MEDIEVAL EUROPEAN SOCIETIES TO SEISMIC RISK – AN ARCHAEOLOGICAL APPROACH (ARMEDEA PROJECT)

Paolo Forlin, Chris Gerrard

DEPT. OF ARCHAEOLOGY, DURHAM UNIVERSITY

Behind the *cliché* of fragile societies, terrified by the wrath of God and prone to the strength of Nature, medieval populations demonstrated flexible, complex and pragmatic ability in responding to environmental hazards such as earthquakes, floods and extreme weather events. A new Marie Curie funded project named Armedea (Archaeology of medieval earthquakes in Europe, AD 1000-1550) is now collecting and analysing systematically the archaeological evidence related to medieval seismic effects in Europe. This research is shedding new light on strategies adopted by the medieval communities in terms of resilience and hazard mitigation of seismic risk. Thanks to a comparative approach, based on GIS analysis, we are highlighting in detail those responses, which in several seismic prone regions -such as Cyprus, Azores, Greece and Italy- prove the activation of adaptive cycles to the recurrence of earthquakes.

The poster introduces the preliminary results of this research, focusing on the typology of those reactions, and emphasising some case studies where new evidence has been individuated through fieldwork. The response of these societies was complex, ranging from cultural and cult-related practises (collective worships and processions), to archaeologically recordable evidence such as building and infrastructure reinforcements and restorations, or settlement strategy choices (temporary or definitive site abandonment, creation of short-term settlements, settlement reoccupation).

AR5 THE LOPAR PENINSULA (ISLAND OF RAB, CROATIA): A REDISCOVERED ANCIENT POTTERY MANUFACTURING REGION

Ana Konestra

INSTITUTE OF ARCHAEOLOGY, CROATIA

A team from the Institute of archaeology (Zagreb, Croatia) has been investigating since 2009 the pottery production of the Lopar peninsula in Roman times. The discovery of an isolated kiln has led to the unravelling of a whole ancient landscape previously never identified. Starting from the kiln site, we identified a network of rural sites that dotted the peninsula, traditionally presenting scarce traces of ancient habitation. The discovery of a second, seemingly larger kiln site on a whole new location, has given rise to several questions such as the availability of natural resources, the distribution of products and the overall economic organisation of the island and its pottery production, of which a faint trace has remained in local traditions and the historical record. Can this data help us reconstruct an economic network where island landscapes played an equally crucial role as their mainland counterparts? Or could it point out to a close economic collaboration between the two realities, each playing a crucial role in the production-consumption process?

AR6 RAW MATERIAL SELECTION, HUMAN MOBILITY AND LITHIC TECHNOLOGY ORGANIZATION DURING THE EARLY GRAVETTIAN IN IBERIAN PENINSULA: THE CASE STUDY OF VALE BOI AND CUETO DE LA MINA

João Marreiros¹, Marcel Bradtmöller²

¹ICAREHB, ²DEPARTAMENTO DE GEOGRAFÍA, PREHISTORIA Y ARQUEOLOGÍA, UNIVERSIDAD DEL PAÍS VASCO

During the Pleistocene, human lithic technological adaptations in different geographic and diachronic phases has been seen as result of two major factors: 1) raw material selection (e.g. choosing rocks with difference on both structure and hardness) and variability (e.g. size, quality and quantity); and 2) techno-cultural traditions (i.e. persisting concepts). Therefore, although evidences for the preservation and transmission of technological methods might be easier to identify in the archaeological record, the influence that raw material characteristics might had on technological choices and strategies is more difficult to pursue.

In this poster we focus on two case studies from the Gravettian of Southern and Northern Iberia: the archaeological site of Vale Boi (Cape St. Vicente, Portugal) and Cueto de la Mina (Asturias, Spain), in order to study major technological differences that characterize this two geographic and technological facies. While in general subsistence strategies and site function are connected to the pattern of settlement and land use/mobility, it is of special interest, how the lithic raw material procurement could be interpreted regarding to these results.

Although, local availability of raw material seems to be thereby quite similar for the Gravettian occupations in CdM and VB, results show that techno-cultural traditions and lithic *chaîne opératoire* choices influence raw material selection, and therefore human settlement, mobility and ecology.

AR1 THE CESSPIT AND BEYOND: DEALING WITH RUBBISH IN MEDIEVAL TARTU, ESTONIA

Arvi Haak

TALLINN UNIVERSITY / UNIVERSITY OF TARTU

Archaeological investigations in medieval town of Tartu, Estonia, have led to identifying several ways of managing "the unwanted". In addition to wooden cesspits located in the yard areas, mostly containing household rubbish and faeces, there is data of dung and excrements transported outside the town area. Several other materials, especially construction waste has been used to level cellars, especially during the post-medieval period. Finally, the fill of the moats has been investigated, consisting of all kinds of waste from the town.

Relying on find analysis from archaeological deposits both inside the medieval town and in the suburb areas, the paper focusses on questions, what practises were connected to the formation, deposition and removal of waste in the medieval town and how did such practices develop. It also seeks to establish the reasons beyond these different ways of waste management – was it mostly determined by the ease of handling, or is any connection to the identity of the discarded objects still observable? What were the reasons behind abandoning a cesspit? What can the investigation of these deposits reveal us about urban life during that period?

The formation of archaeological waste deposits in Tartu and the interactions of the urban inhabitants with waste will be discussed to open up additional interpretations on the realities of urban life in Tartu.

AR13 TERMINOLOGY IN FUNERARY ARCHAEOLOGY

Christopher Knüsel

UNIVERSITÉ DE BORDEAUX

We may think that Henri Duday's (cf. Duday 2006) quip that from reading archaeological publications the deceased was despatched as a sacrifice to accompany the burial of a pot is a dim spectre of the past. But this is sadly not the case- some three decades since Goldstein's (1981) call for a unified approach- biological, cultural, and social- to funerary remains. It is injudicious to lay the blame for this predicament solely on archaeologists because for much of the recent past the dominant research tradition in biological anthropology was concerned only with biological (i.e. morphological) evolutionary change, and this did not depend on understanding the social, cultural, or environmental context of the remains, until comparatively recently. This empirical divergence encouraged archaeologists and biological anthropologists to address parallel rather than synthetic questions. Today, with the advent and development of bioarchaeology and archaeoethnology- and with increased numbers of field anthropologists- it is less common for burials to be used solely to develop a notion of time-successive funerary traditions to support a chronological framework.

So, why do burials still often remain outside of mainstream, larger-scale debates in archaeology, in the history of ideas, and discussions of the developments of the human psyche, beliefs and religion, despite their indisputably highly ritualised genesis? Part of the problem lies with terminological confusion that means it is difficult to communicate clearly and, moreover, to accurately describe burials and their human occupants. This is fundamental to interpretations of them.

AR13 MORE THAN A SINGLE INDIVIDUAL IN A GRAVE: WHICH LEXICON ?

Aurore Schmitt

UMR 7268 ADES

The choice of "collective" burial to inhumate people spread all over Europe from Neolithic to Bronze Age. The history of archaeoethnology in France is directly related to the study of this kind of context. The term "collective" was proposed to clearly distinguish structures and/or deposits in which several bodies have been deposited consecutively, as death successively happened and what we call in French "multiple" which means that the bodies were deposited simultaneously. Those terms are clearly difficult to translate in English because the notion of collective burial is not only based on description and typology, it also implies specific gestures linked to a new conception of the funerary spaces in the Neolithic. Recently, as several French scholars applying archaeoethnology, my colleagues and I decided to publish some of our studies in English. We encountered many difficulties for those collective contexts. We realized that the translation of terms we proposed to describe bone assemblages and burials was very different from the English lexicon (for instance secondary burials and ossuaries). I propose that we discuss those aspects distinguishing the first level of analysis (characterization of a bone assemblage) from the second level (interpretation of this assemblage).

AR13 IS FUNERARY ARCHAEOLOGY THE ARCHAEOLOGY OF FUNERALS?

Estella Weiss-Krejci

OREA INSTITUTE FOR ORIENTAL AND EUROPEAN ARCHAEOLOGY, AUSTRIAN ACADEMY OF SCIENCES

Is funerary archaeology tantamount to mortuary archaeology? Are graves always funerary structures? Can disposal of the dead interchangeably be defined as funerary deposition? I try to argue that in order to gain an understanding of funerals in the past and to create a better frame of reference in mortuary analysis a focus on the meaning of "funeral" and on the distinction between funerary practices and non-funerary mortuary procedures is badly needed. The use of "burial" as a generic term is helpful, but "funeral" and "funerary" should be applied more specifically. A "funeral", or the "funerary cycle", is a period of time during which a characteristic sequence of events occurs. The actions and beliefs of the mourners define its length and structure (Van Gennep's tripartite model of rites of passage remains central). Those who survive the deceased follow a certain funerary protocol, treat and deposit the dead body, take care of the grave and decide what happens with his or her possessions. To lump under the same umbrella the funeral and non-funerary kinds of engagement with the dead could seriously skew our understanding of the funerary rites of any past society.

AR13 TERMINOLOGY FOR THE DISPOSAL OF THE DEAD, OSTEOLOGICAL DISLOCATIONS AND POST-DEPOSITIONAL INTERVENTIONS

Pascal Sellier

CNRS

In addition to an introduction to the round-table, along with the other organizers, Christopher Knüsel and Martin Smith, the terminology topic will be addressed from a strictly archaeological point of view. That is to say that the funerary terminology should not include interpretative (a priori interpretative) elements (often drawn from irrelevant ethnographic or historical data). It should be limited to what can be seen within the archaeological record. In order to avoid corruption by over-interpretation, the terms should be adapted to the description of the disposal of the dead (and only subsequently to the reconstruction of the funerary gestures), the state of the anatomical connections or dislocations, the reopening of the graves and what is usually known as the reduction process and the secondary burial (according to the 1907 Hertzian legacy due to his seminal ethnographical study of two-step-funerals in Borneo). We shall also discuss the notion of what is usually (a priori and sometimes inaccurately) perceived as funerary vs. non-funerary or post-funerary practices.

AR13 NOMINATION FOR MEMBERSHIP OF ROUNDTABLE AR13

Elizabeth Craig-Atkins

UNIVERSITY OF SHEFFIELD

I would like to provide a few examples of terminological issues from my own areas of expertise to illustrate the contribution I would make to this roundtable.

Multiple meanings

The bio-cultural approach was defined as "an investigation of the dynamic relationship between population, culture and the environment, with a greater emphasis placed on individuals, social groups and populations" (Zvelebil 1991: 8). It has become both a method for the analysis of human remains and the archaeological record in concert (Craig 2010), and also the process of human cultural interaction with their environment (Schutkowski 2006). So what actually is a bio-cultural study?

Poor definitions

Some terms are poorly defined One issue derives from a common use and technical use that are not in agreement. For example, 'deviant' burial to the layperson is that of a transgressor, whilst in funerary archaeology can represent any derivation from the norm, including conceivably those of elevated status. Terms may also be defined differently by academics and commercial archaeologists leading to unwitting misrepresentation of each other's work.

Self-contradiction

Finally, there can exist apparent mismatch between the implication of a term and the nature of what it describes. Plain earth burials are rarely 'plain earth' – they can include shrouded burials and indeed all interment which contained organic materials now decayed.

A key component of funerary archaeological research is the exploration of variation in rites. If the terminology we use collapses and masks, or creates false distinction in, these differences the validity of our discipline can be questioned.

AR13 LOST IN TRANSLATION? THE IMPORTANCE OF ARCHAEOETHANATOLOGICAL TERMINOLOGY IN A MOMENT OF GLOBAL EXPANSION.

Liv Nilsson Stutz

EMORY UNIVERSITY

In archaeoethanatology, the description and documentation (verbally descriptive, photography, drawing, etc) of the deposit is an integral part of the process of interpretation. It also forms the record for future reference. For that reason, it is highly important that there is a disciplinary consensus about the terminology we use.

Archaeoethanatology is currently expanding outside of the Francophone archaeological sphere, gaining interest and enthusiasm at an increasingly global scale. As part of this process, it is encountering several challenges. It is picked up and implemented by archaeologists who are not trained in the approach which can sometimes create a loss of strength in the interpretation. Moreover, the translation of French terminology is sometimes done in an isolationist manner creating potential confusion. An often overlooked complication arises when the approach encounters new theoretical frameworks of interpretation, and here lies a clear risk for glossing over the difficulties of translation between different academic languages (descriptive empirical terminology vs interpretative theory supported terminology). The combination of a strong empirical record with new theoretical directions is one of the most promising ways for archaeoethanatology to maintain its strength in the field of mortuary archaeology. Yet this connection is rarely discussed. In this forum I want to stress the fundamental importance, at this particular moment of expansion of the discipline, to initiate a formal conversation about how to take on this cross disciplinary challenge while still maintaining a flexibility between the empirical data and a set of different theoretically driven traditions.

AR13 DEFINING MEDIEVAL POST-DEPOSITIONAL DISTURBANCES

Jennifer Crangle

UNIVERSITY OF SHEFFIELD

Medieval post-depositional disturbance of and interaction with the dead is a much under-researched discipline of osteo and funerary archaeology. Inconsistency and a distinct lack of clarity in the application of relative descriptive terminology further complicates its understanding. Officially, in foundation records and charters pertaining to their establishment, buildings that housed disinterred, disarticulated human skeletal material, were called 'charnel chapels.' Yet, within years of their construction, they were known colloquially by various different terms, including 'charnere,' 'le charnel,' 'carnarium,' 'charnelhouse,' with additional terms added by antiquarians and modern scholars. For example, the room below the church of St Leonard, Hythe (Kent), has, since 1678, been known as; 'Golgotha,' 'bone house,' 'vault,' 'crypt,' 'ossuary,' 'charnel-house,' and 'charnel chapel' (Crangle 2009; 2015). To further complicate matters, many of these terms may equally be applied to alternative structures, with entirely different functions and meanings.

Terminology is also problematic when attempting to decipher post-depositional disturbances and contemporary attitudes towards the buried dead. The term 'intercutting' is frequently used by archaeologists to describe graves that partially overlap each other. Yet, there appears to be no distinction in its application to *graves* that are intercut, and to *individual/s* within them. Equally, there is no universally accepted definition of such disturbances – does post-depositional movement of remains merely constitute 'disturbance,' or ought they be classed as 'secondary burial'? It is hoped that discussion of such matters may result in better clarification and formalisation of relevant terminology, to facilitate in interpreting medieval post-depositional behaviour and interaction with the dead

AR13 STANDARDIZED BUT FLEXIBLE, ACCURATE BUT CLEAR: THINKING AND RETHINKING FUNERARY TERMINOLOGY FOR ARCHAEOLOGISTS

Fanny Bocquentin

CNRS

Define a more standardized funerary terminology in Archaeology is urgent in order to understand each other being part of different schools, different fields or different countries. One of the difficulties is to keep some flexibility in order to be able to describe the great diversity of funerary practices, and not remove subtle differences that might be of first importance. A second difficulty might be the search for accurate terminology and technical language which must keep clarity for everyone, anthropologists and archaeologists, easy to use and unambiguous in its reading.

AR12 INTRODUCTION TO THE ROUND TABLE ON SUBSTANTIAL BENEFIT OR NEUTRAL IMPACT: WHITHER EUROPEAN ENVIRONMENTAL IMPACT ASSESSMENTS?

Gill Hey¹, Karen Waugh²

¹OXFORD ARCHAEOLOGY, ²VESTIGIA BV

The session organisers will briefly explain the background to the session, with a look back at the Guiding Principles for Cultural Heritage in Environmental Impact Assessment which emerged as one of the outcomes of the European-funded Interreg Planarch 2 project in 2006, supported by the EAA. The need to explore and identify common standards in approaches to legislation and the protection of the cultural heritage, in particularly where these are closely related to the planning process and its implementation will be briefly discussed in order to provide a framework for discussion.

AR13 DESCRIBING DATA: THE INTEREST OF A "VOCABULAIRE D'ATTENTE"

Philippe Chambon

CNRS-UMR 7041

The rebirth of archaeology of death, in France, can be traced back to the excavation and subsequent publication of the hypogeum of Les Mournouards II by André Leroi-Gourhan and his team, in 1960 and 1962 respectively. Leroi-Gourhan's work on the Palaeolithic settlement of Pincevent, through its development of the concept of "vocabulaire d'attente" also contributed to this new method of studying burials. The aim is quite simple: to describe the archaeological features, without interpretation, but as a means to that end. In terms of the burials, Jean Leclerc's work at La Chaussée-Tirancourt in the seventies was particularly influential. Such terms like "effet de paroi" and "témoin négatif" were created in order to analyse Neolithic gallery graves. Far more than simple description, this type of analysis is in fact the first step of interpretation. It allows for identifying structures in archaeological data and is the only way to reconstruct an initial grave's story, before resorting to comparative study by means of ethnographical or other archaeological contexts. The need for such a vocabulary is all the more important given that this kind of reconstruction is always a balance between all arguments and never a direct conclusion drawn from one source.

AR13 THE 'BURIAL' PROBLEM

Edeltraud Aspöck

OREA AUSTRIAN ACADEMY OF SCIENCES

Anglophone and German-language terminologies for archaeological evidence with human remains suffer from a conflation of description and interpretation. One example – and maybe at the heart of the problem – is the use and understanding of a 'burial'/'Bestattung' as both, human remains deposited ('buried') in the ground and secondly, as (a stage of) a funeral. However, human remains deposited in the ground may or may not be the result of a funeral and a funeral may or may not involve the deposition of human remains in the ground.

To solve the problem, I suggest a separation of (archaeological) description of depositions of human remains and their interpretation. Interpretations should be based on cultural anthropological concepts. Therefore, a funeral is a rite of passage performed because of the death of an individual. There are also other, non-funerary practices, that involve the handling (and possibly deposition) of human remains e.g. sacrifices, ancestral rites. This makes funerary archaeology part of the larger field of mortuary archaeology.

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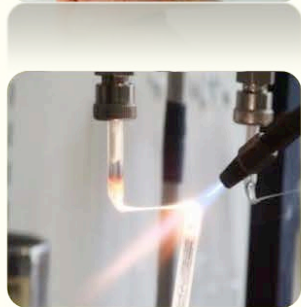
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