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KEYNOTE ADDRESS

**New Light on an Administrative Device from
the Dawn of Writing in the Ancient Near East**

Presented by Christopher E. Woods, Associate Professor of
Sumerology, University of Chicago, Oriental Institute

Followed by wine reception

PAPERS

The Search for hidden landscapes in the Shahrizor

Mark Altaweel (University College London)

While remote sensing and satellite imagery have enabled some perspective of past landscapes in other parts of Mesopotamia, in regions such as the Shahrizor, where landscape taphonomy and high sedimentation via alluviation are evident, offsite features and settlement and landscape relationships are far more difficult to reconstruct. Recent work, by University College London, University of Munich and University of Heidelberg in the Shahrizor valley, is beginning to utilize a range of paleoenvironmental analyses to determine climatic, land use and ecological characteristics starting in the early Holocene. Evidence for very different landscape conditions than today's setting are beginning to emerge, while evidence for intensive cultivation and settlement location provide a picture of the region and its economic underpinnings during the Holocene. Complimentary to this, the integration of settlement survey data and computational models allow the process of settlement distributions and urban patterns to emerge in relation to paleoenvironmental events. Techniques, only beginning to be applied in Mesopotamia, offer the potential to reveal the region's past social-environmental setting. This presentation provides a summary of recent works in this type of research and future directions are given that highlight key potential findings in forthcoming work.

Archaeological survey in Marshes Area of Southern Mesopotamia: Challenges and Opportunities

Amer Al-Zubaidi (Dhi-Qar Province Archaeology Office)

In this presentation I will concern on the latest archaeological surveys which have been carried out in the marshland of southern Iraq by the Iraqi teams. In fact, there are many types of challenges have faced the archaeological teams before and during their survey in this huge and dangerous land. In the same, however, time there are pretty results and discoveries are comes from these works which motivate the teams to continue doing this survey.

The challenges and difficulties were not only fluctuations of water level from week to week and from season to season, but also road roughness, lost the ways, wild animals attacks, difficult to get workers and suitable accommodations for the teams. However, several teams were worked for three seasons in the marshes and they have got unique and incredible results.

In fact more than 30 archaeological sites from different range of periods were observed, registered and well documented for the first time. Different types of pottery, objects, buildings and cuneiforms were also found during these surveys.

In conclusion, there are many archaeological sites in the marshes are not documented until now because it is under the water level of marshes or it is difficult to reach. Moreover, working in marshland is different from other area in Iraq and it needs long suffering, more efforts and funds.

Discrepant chronologies: the potential and challenges of intensive survey in the South Caucasus highlands

Will Anderson

A new archaeological survey project in Aspindza-Akhaltzikhe districts, at the upper reaches of the Kura River in southern Georgia, is among the first in the Caucasus region to employ systematic surface artefact survey techniques. As well as intensive survey, the Landscape Archaeology in Georgia (LAG) project has documented sites found during general survey, known from previous investigations and using information offered by local informants. Already after the first season, there are notable trends in the typochronology of material culture from different parts of the study area's diverse environment. These raise questions not only about field methodologies and the qualities of information that they yield, but also about long-term landscape history in a highlands context. Artefact collections from intensively surveyed fields date mostly from Late Iron Age onwards, and especially from the medieval and post-medieval periods; the region's plentiful Bronze Age remains are visible in the form of barrows, earthworks and eroded exposures containing pottery and lithics, but are not strongly represented in the ploughsoil. This paper will consider reasons for the differential distribution of artefacts and the questions these raise. Alongside intermediate, geomorphological factors and site formation processes, artefact distributions seem to result from past occupation and practices that include the repeated use of certain routes of movement and long-term habitation and modification of particular locales.

The Lion and the Volkswagen: simultaneous pasts of ancient statuary at Zincirli in southeastern Turkey

Christoph Bachhuber (The Free University of Berlin)

In this paper I follow the biography of one ancient monumental object, as it was discovered and re-discovered in a village located on top of an archaeological site in southeastern Turkey. The village and the archaeological site are both called Zincirli. The object was first discovered by German archaeologists 100 years ago, followed by people from Zincirli village 20 years ago, and then by me, excavating with an American-led team in 2007. In 2006 we were alerted to the existence of a stone Volkswagen that remained underground. I uncovered something very different in 2007: an Iron Age lion statue. The biography of the Volkswagen lion reveals simultaneous pasts that exist at the village of Zincirli, and at the archaeological site of Zincirli. These simultaneous pasts are potential sources of tension between Zincirli the village and Zincirli the archaeological site, and also between heritage and archaeological approaches to the past.

House and community at Neolithic Boncuklu

Douglas Baird, University of Liverpool

There have been extremely variable interpretations of the relative role of community and household in social, ritual and economic interactions in Neolithic communities. The evidence of the site of Boncuklu in central Anatolia is considered in relation to this question.

Identifying late Halaf in the Syrian Jazirah

Ellen Belcher (John Jay College/City University of New York)

The Halaf was a term created in the late nineteenth century CE to identify a material culture which has been further refined chronologically by the results of subsequent excavations in the Khabur River upper flows and headwater areas of northeastern Syria. This was an area of intense craft production at late Halaf settlements as well as intense archaeological activity in the last century. At least seventy-five very similar clay figurines were found at five sites in this region, representing the greatest concentration of this type within the Halaf horizon.

Different hands manipulated clay within these nearby but separate Halaf communities in virtually the same way visually and technologically. This figurine type is well known Halaf imagery, representing nude female (and sometimes male) bodies in the seated or squatting pose, often with arms supporting and presenting very large breasts and decorated with painted stripes, dots and washes and clay appliqué. Recent analysis of these figurines suggests a need for deconstruction of the ways that these figurines are identified, contextualized and interpreted in archaeological literature. This paper asks how these figurines represented Halaf social identity of the Syrian Jazirah in the sixth millennium BCE and how this figurine type became entangled with twentieth century CE constructed narrative of the Halaf as a diagnostic identifier.

This paper presents research aimed at tracing token development throughout the Neolithic. By focusing on the initial appearance of tokens, my research seeks to re-evaluate the validity of current interpretations and address questions such as why tokens are only found at some sites (significant quantities are found for example at Jericho, 'Ain Ghazall and Gesher in the Southern Levant) yet are absent at others, what the characteristic features link these settlements

together, and how they might have been utilised in these early village communities.

Mapping and modelling the 'Invisible Dead': Reconstructing demographics in the ancient Near East

Jenny Bradbury and Graham Philip (Durham University)

The reconstruction of ancient demographics has traditionally drawn upon estimations of settlement size, remote sensing techniques, census data and anthropological analogies. These focus on the analysis of 'living' populations and there have been relatively few attempts to understand and examine these models in relation to 'mortuary' populations over the long term. Whilst it is often assumed that formal disposal of the dead was the norm in the past, an analysis of long term changes in burial practice in the Levant indicates marked temporal and spatial discontinuities. Some periods and regions have produced so few burials that the practice appears to be the exception rather than a norm. While these patterns might once have been dismissed as reflecting the uneven pattern of fieldwork, this view is no longer tenable. Drawing upon work carried out as part of the *Fragile Crescent* and *Invisible Dead Projects* (Durham University) this paper will reconsider the variable significance of the dead in relation to past populations. Can we identify specific regions or periods in the archaeological record where modelled 'living' demographics tell a completely different story to those derived from contexts with human remains? If so, why might this be the case and how can mapping and modelling the 'Invisible Dead' help us to explore big issues such as long term settlement trends, the emergence of urbanization and concepts of the individual within the archaeological record?

Beyond survey boundaries: Satellite remote sensing-based classification and dating of archaeological sites in the northern Fertile Crescent

Jesse Casana (University of Arkansas)

While regional analyses of settlement patterns have been a foundational component of archaeological interpretation for decades, the painstaking requirements of ground-based reconnaissance have necessarily limited the scale of even the most ambitious projects. The growing power of aerial and satellite-based remote sensing to reveal archaeological features now offers the possibility to explore past settlement and land use at much greater scales than previously possible, beyond survey boundaries and across national borders. In the Near East, declassified, 1960s-era CORONA satellite imagery has proven to be a key resource for identification and mapping of archaeological sites and features, largely because it preserves a picture of the landscape prior to recent urban expansion, agricultural intensification, and reservoir construction. Whereas most past efforts to utilize CORONA imagery in archaeology have focused on individual sites or small survey areas, my research team has recently developed new methods for efficient geometric correction of the imagery and has produced a CORONA image database covering the entire Near East. This paper presents results of ongoing research that seeks to exploit the phenomenal potential of this resource through the systematic mapping of all visible sites and features across the northern Fertile Crescent, a study area of 300,000 km². Morphological analysis of more than 20,000 sites within the region, combined with remote sensing-based modeling recent and paleo-environments, now reveals previously unrecognized trends the spatio-temporal distribution of cultural modes of settlement in the Near East and offers a model for similar regional-scale research in other parts of the world.

The temple, the state and capacity measures in the late third millennium.

Sarah Clegg (University of Cambridge)

In his RIA article 'Masse und Gewichte' Powell discussed a number of Early Dynastic and Akkadian period texts that attest to a capacity system known as the 'offering gur'. I will offer a reinterpretation of these texts and this system. However, I shall focus primarily on how the use of the 'offering gur' system changed during the Ur III period, and how this can be used to understand both the ideological significance of metrology and the changing relationship between the palace and the temple during the late third millennium BC.

Round or Square: Does it Really Matter? : a view from the Neolithic of Cyprus and northern Levant

Constantinos Constantinou (University of East Anglia)

This paper will examine a long-standing debate which, according to the views of the current presenter, has not been studied in detail; at least within the field of Archaeology. This debate concerns the social and economic implications of two distinct building shapes, round and rectangular. After examining and commenting on the results and methodology of analogous research (but, exclusively anthropological) carried out by Kent Flannery (1972) and Sidel (1993), this paper argues that the introduction of different building shapes, at least in the case of the Eastern Mediterranean, was not the result of a different established social and economic *life-style*, as previous research maintained. Unlike previous research, it is believed that the focus of the research should

now shift *intra muris*, rather than drawing general conclusions stemming from the physical characteristics of the two building shapes.

Therefore, round buildings from Cyprus, and rectangular ones from the northern Levant have been studied spatially in order to reconstruct the various activities undertaken during their use.

Identity, social networks and material environments in the Epipalaeolithic and early Neolithic of the Near East.

Fiona Coward (Bournemouth University)

In this paper I will demonstrate how social network analysis (SNA) can inform on the social changes which accompanied the shift from a mobile hunting-and-gathering way of life to a more sedentary, village-based and ultimately agricultural lifestyle which occurred over the course of the Epipalaeolithic and early (pre-pottery) Neolithic in the Near East. The causes of this process, and its implications for human society, economy, the environment and even for the brain, have long been the subject of lively debate. One influential theory sees this change as a dramatic step-change in human lives, as the small, fluid and largely kin-based groups characteristic of hunter-gatherer groups become increasingly larger, more permanent and more complex societies, but to what extent can this be documented in the archaeological record? Analyses using SNA of a database of material culture from well-dated sites across the region provide a new perspective on the issue and demonstrate a number of important temporal trends in the relationships between sites over this period. This paper will outline these trends and their potential implications for social change at the time, and will go on to consider ways in which the use of SNA might be developed and enhanced to address these issues in more sophisticated ways in future.

How the Hollow Ways got their Form (and kept it): 5000 years of Hollow Ways at Tell al-Hawa

Emma Cunliffe and Michelle de Gruchy (Durham University)

The importance of the linear valleys, known as hollow ways, in relation to early settlement interaction in the North Jazira in Iraq has become increasingly apparent with recent improvements in remote sensing. Although they are present in large areas of the Middle East, their formation and use is still poorly understood. Despite substantial landscape change, some linear valleys are estimated to be at least 5000 years old, and yet are still visible today. Whilst some work has been done to quantify the importance and effects of environmental variables relating to hollow way formation, this paper will demonstrate a new methodology for quantifying individual variables against the preserved hollow ways. Cultural variables, in particular the importance of situational social hierarchies, will be assessed for the potential role in hollow way formation. Was it necessary for travellers to visit the local headman before travelling through a territory? Route formation and use can provide vital insight into many aspects of early society, including social structure, trade and exchange to name a few. However, the data on which this evidence is based is vanishing before our eyes. This paper will then examine the extent to which modern cultural impacts have affected the data we are so reliant on and discuss the impact this may have on future analyses.

Searching for Musasir: The Rowanduz Archaeological Program

Michael Danti (Boston University)

In June–July 2013, the Rowanduz Archaeological Program (RAP) conducted its first season of archaeological excavations and surveys in

the areas of modern Rowanduz, Soran, and Sidekan in the Zagros Mountains of northeastern Kurdistan (Erbil Province). Excavations at Qalaat Lokan (Rowanduz area) and Gird-i Dasht (Soran area) coupled with archaeological surveys are being used to develop an archaeological chronology and to reconstruct long-term patterns in human occupation in this virtually unexplored region at the northeast outlets of the Rowanduz Gorge (Gali Ali Beg). The occupational sequence revealed thus far spans the Neolithic to the modern era. Emergency salvage excavations and survey in the Zagros Mountains along the Topzawa Çay at the cemetery of Ghabrestan-i Topzawa and the burned settlement of Gund-i Topzawa (Sidekan area) have revealed a strong early Iron Age presence in this region — likely part of the early Iron Age kingdom of Musasir/Ardini. Investigating relations between the Neo Assyrian Empire and the buffer states located to its northeast represents a major RAP objective. Preliminary results indicate excellent preservation of archaeological sites but low surface visibility and low densities of surface artifacts. These factors combined with the highly localized ceramic assemblage, the difficult terrain, and inadequate remote sensing datasets present ongoing challenges to documenting human occupation in the region. In the coming years we will adapt our methods to meet these conditions.

The changing identities of *Laodicea ad Libanum*/Tell Nebi Mend

Bettina Fischer-Genz (Marie-Curie Fellow, Université de Saint-Joseph, Lebanon)

Between 1975-1995 archaeological excavations have been conducted at *Laodicea ad Libanum*/Tell Nebi Mend by the UCL Institute of Archaeology under the direction of Peter Parr. The Hellenistic and Roman material from these excavations reveals a well connected settlement of the Hellenistic period with access to international trade networks. This paper wants to explore the changes that occur in the material culture from the Hellenistic to the Roman period, when a

substantial lower city develops at the foot of the mound. The question of the social identity as well as the place of Laodicea ad Libanum within the regional political and economic networks of the northern Beqaa under Roman rule will be addressed.

Reconstructing past water management with plant stable isotopes: possibilities and applications of a novel technique

Pascal Flohr (University of Reading), Gundula Müldner (University of Reading) and Emma Jenkins (Bournemouth University)

Past water management practices, such as irrigation, have often been linked to socio-economic changes, but evidence for water management remains elusive. A promising technique in this respect is carbon stable isotope analysis of archaeobotanical remains. This method is based on the well-established correlation between water availability and plant isotopic composition.

The research presented in this paper focused first on improving the empirical basis of the method. Cereal crops were experimentally grown under different irrigation regimes at three locations in Jordan to test the effects of different amounts of water input in relation to other environmental variables. The suitability of charred archaeological grains for isotopic analyses was tested by charring and burial experiments. It was concluded that the method can be applied to archaeological samples for the reconstruction of past water availability, albeit with limitations.

This paper will present evidence for these conclusions and show how the method can be applied to archaeological samples. For the latter, the case studies of Tell es-Sa'idiyeh and Tell esh-Shuna, both in the Jordan Valley, are used; stable isotopic analyses of grains of these sites have given valuable insights into the development of water management in this region from the Chalcolithic to the Iron Age.

Cylinder Seals as Prestige Items in the Early Bronze Age Levant

Hermann Genz (American University of Beirut)

In the Early Bronze Age Levant there is no congruency at all between the known cylinder seal impressions on pottery and the actual cylinder seals, which suggests that they belong to completely separate functional categories.

While the seals used for marking pottery were probably made of organic material, the small number of cylinder seals found in Early Bronze Age contexts were mostly made of precious and/or imported materials such as lapis lazuli or hippopotamus ivory. A detailed study of the available evidence therefore suggests that they clearly fall into the category of prestige items.

In this presentation the iconography and contextual information of Early Bronze Age cylinder seals from the Levant will be studied to investigate their role for the development of elites in an emerging complex society.

New Agendas in Remote Sensing and Landscape Archaeology In the Near East: Introduction

McGuire Gibson (University of Chicago)

Tony Wilkinson stands as a pivotal figure in the field of landscape archaeology. The pioneering work of Poidebard, Jacobsen, and Adams and his students in the Near East, paralleling developments in other parts of the world (e.g., Viru Valley, Peru) did not have the benefits of both Wilkinson's training in and utilization of

geography/geomorphology/ecology, or the availability of satellite imagery. The adoption of remote sensing by archaeologists has revolutionized our field, making available a record of the landscape that is not subject to the constraints placed on earlier access to aerial photographs and maps by governments that viewed such instruments as highly dangerous. Great strides have been made in the past two decades in interrogating the landscape through a variety of techniques. The range of topics to be presented here today gives a fair idea of the span of interests and approaches that Wilkinson has ignited in others.

Donkeys into the limelight: new insights from ethnography for study of the social and economic impact of the early systematic use of working animals

Jill Goulder (University College London)

References to donkeys in the Ancient Near East often centre on their first domestication rather than on the social and economic implications of their systematic employment as an invaluable and low-maintenance resource, for both long-distance pack and local transport. There has meanwhile been some academic discussion of the consequences of the introduction of animal ploughing, but the treatment often seems influenced by Western models of semi-industrialised temperate-zone clay agriculture: the use of cows and donkeys for ploughing is widespread in many developing regions today, but is rarely discussed as an option in the Ancient Near East.

There is a growing body of very recent ethnographic work on the increasing use of working donkeys and cattle in Africa in particular. In some regions there has been a direct transfer from hoe agriculture and human portage to use of working animals, with the opportunity (with careful caveats) to study uptake processes and problems and to draw tentative interpretations relating to working animal use in the 4th and 3rd millennia in the Near East. In this paper I report on work in progress

on analysis of this new material, highlighting the new priorities and considerations in adoption of working animals by households, and discussing the physiological and behavioural irreducibles of donkeys and cattle which affect their utilisation and comparative value for work.

Seeing is believing: Painting and Meaning and Çatalhöyük

Eloise Govier (University of Wales Trinity Saint David)

In this paper I move away from recent interpretations of the wall paintings at Çatalhöyük which have tended to focus upon symbolic meanings trapped in the images (Hodder and Meskell 2011). Instead I propose a causal relationship between pigment, palette, painter, and painting to suggest that this entangled relationship between person and things created a potent form of agency. My argument focuses upon the act of painting rather than the symbolic content of the artwork, and instead of talking of histories and memories I suggest that the treatment of the paintings, along with the associated tools used to create such images, implies that this was a powerful and potentially toxic act that was carefully controlled by the community. To argue this case I highlight discrepancies in the archaeological record which indicate that the paintings may not have been 'seen' in the traditional sense, and instead I explain that engaging with the paintings was a multi-sensoral experience that was far more complex than interpretations have thus far afforded the works.

The political economy of a Neo-Assyrian provincial city: a zooarchaeological perspective

Tina Greenfield (University of Cambridge)

Large-scale and long-term (13 seasons) excavations at the site of the Late Assyrian provincial capital of Ziyaret Tepe in southeastern Turkey have exposed a variety of buildings and depositional contexts across the site.

These are considered representative of the social, economic and political structure of the Assyrian Empire (900-612 BCE). Differences in availability and access to resources between archaeologically different and behaviourally distinct areas of sites (e.g. low versus high status, public versus private, domestic versus industrial and administrative) allow investigation of the nature of the political economy in imperial settlements cities at a level of detail not previously investigated. Zooarchaeological data will be used to infer aspects of the economic and social behaviours at the site not traditionally considered. The results will enable a reconstruction of the extent of the political economy in an ancient Near Eastern empire.

Ancient Flower Power? An Analysis of the Iconographic Rosette Motif as a Means of Non-Verbal Communication

Cheryl Hart (University of Wales, Trinity Saint David)

My PhD research, which investigates the prolific use of the rosette motif in the Near East, Egypt and the Aegean regions during the Bronze and Early Iron Ages, utilises a multi-disciplinary approach to the visual interpretation of the motif, encompassing archaeology, art history, anthropology, and even studies into human perception and cognition,

in order to examine the role of this particular motif from a broad contextual and conceptual background.

The role of art as a visual code of communication has long been examined with symbols found on material forms being vehicles for the non-verbal communication of complex ideas to others. Braithwaite, being primarily concerned with non-verbal systems and their symbolic qualities, states that symbols and symbol-systems have the capacity not only to express and communicate but, through their political and ideological dimension, can also be used covertly to disrupt established relations of dominance. The use of material culture as symbols of power provides archaeologists with access to the strategic patterns involved in the creation, maintenance and collapse of power among cultural groups. In order to justify the interpretation of visual images it is important to address questions of cultural meaning and power through a 'critical visual methodology' which considers the visual in terms of cultural significance, social practices and power relations in which it is embedded. Material culture studies owe much to semiotic theory which views all cultural processes as being those of communication; semiotic approaches stressing how fundamental concepts could be visibly encoded in artefacts, objects and art.

Taking the perspective, in my examination and analysis of the rosette motif, to be that of a means of non-verbal communication, I intend to demonstrate in this paper, through comparative data derived from the prolific visual depictions of the rosette, both similarities and differences in its cultural and contextual use within the Near East, Egypt and the Aegean. Through the analysis of this evidence I aim to show that, as a means of non-verbal communication, the rosette motif represents a concept rather than simply an 'image', illustrating this point with a specific case study from the Near Eastern iconographic repertoire.

The Inclusion of Women into Unskilled Archaeological Labour in Zincirli Höyük, Turkey

Yağmur Heffron (University of Cambridge)

The University of Chicago's Expedition to Zincirli Höyük in southeastern Turkey, ongoing since 2006, has been following the traditional configuration of fieldwork projects in the Near/Middle East, namely, relying on hired labour for the greater part of earth removal whilst trained archaeologists carry out more specialised excavation, produce detailed field records and supervise the workforce. As in most other projects in Turkey and neighbouring countries, this workforce consists exclusively of men; small numbers of women being hired for 'lesser tasks' in the dighouse, typically for sherd-washing. In 2012, the Zincirli project hired women for the first time for excavation in the field. Change in social dynamics was immediate and conspicuous. The younger men who had previously displayed a tendency for disruptive behaviour adopted a more deferential attitude. Performance improved in those men who sought to display prowess, though others were visibly distracted in the presence of young women. Older women established an unspoken authority regarding higher standards of behaviour. A gender-based division of labour formed naturally, whereby men took on the 'hard, masculine' jobs of picking and shovelling; and women showed preference for the more 'delicate, feminine' tasks such as cleaning or, sweeping.

The changing social dynamics, new patterns of task division, and the more effective allocation of different levels of ability/expertise, also began to transform the performance of the archaeologists. This paper will present the preliminary results of detailed field observations, questionnaire-based surveys and semi-structured interviews carried out during the 2013 field season in Zincirli, for a systematic examination of how women's inclusion into hired archaeological labour can affect field practices on organisational, methodological and interpretative levels. It also calls into question how rural conservative patterns of gender inequality are perpetuated by the hiring preferences of archaeological projects, traditionally excluding women from fieldwork.

Ur Project

Birger Helgestad (British Museum)

The Ur Project is a dynamic new collaboration between the British Museum, the Penn Museum, and in the future hopefully also the Iraq Museum. It is digitally reunifying the remarkable finds from the city of Ur in a state-of-the-art online facility. All artefacts are being photographed and described, the cuneiform tablets are being translated, whilst the original excavation photographs, the archives, plans, and other documents, are being scanned and indexed. All this data will be made freely available in an open neoteric database. The unification of this diverse information in a single resource, from photographs of Agatha Christie, to excavation diaries and the find spots of individual artefacts, will enable research that has hitherto been impossible. This paper will introduce the project, deliver an update on its progress, and outline our future goals and ambitions. The second phase of the project started in July 2013, it is titled "Ur of the Chaldees: A Virtual Vision of Woolley's excavations", and it was made possible by \$1.28 million in lead support from the Leon Levy Foundation.

Complexity and regionality: upper Mesopotamia and the different trajectories towards the formation of social complexity as seen from settlement pattern analysis

Marco Iamoni (University of Udine)

The formation of complexity is a key issue in ancient Near Eastern studies that has been the focus of much attention in recent years. On the basis of a number of case studies from both S and N Mesopotamia (in particular from the Upper Euphrates and Syro-Iraqi Jezirah), it seems that during the Late Chalcolithic multi-level settlement hierarchy

emerged, with large urban centres which work as “main poles” around which minor settlements are located. This model seems to work more or less in all of the investigated Mesopotamian case studies (though with minor changes according to the specific region of the Ancient Near East under examination). However, recent data from the Upper Eastern Tigris area in Iraqi Kurdistan seem to suggest the occurrence of an alternative mode of socio-economic development: the evidence appears to be in partial agreement with other models, but the outcome seems to have been radically divergent. The purpose of this paper is to discuss the first indications of this process, taking into consideration also the evidence from adjacent regions in Upper Mesopotamia and to propose a preliminary explanation for its singularity.

Little and large: spatial variation in the representation of animal bones across the Early Neolithic site of Bestansur, Iraqi Kurdistan

Ingrid Iversen and Robin Bendrey (University of Reading)

The spatial patterning of artefacts across a site can tell a story of the nature, location and intensity of activities. Employing microarchaeological techniques as part of an excavation enhances the potential for identifying areas used for specific activities, allowing us to identify differences within and between spaces. The combination of macroartefacts with the microdebris fills in the picture further. In this paper we analyse the distribution of bones, both large and small, and are able to reach some preliminary conclusions.

Extensive (and intensive) sampling over four seasons at the Early Neolithic site of Bestansur, Iraqi Kurdistan, is allowing us to examine the animal bones at a range of different scales, and from a large number of spatially and functionally diverse contexts. The spatial patterning amongst the macro-faunal remains allows an understanding of activities involving animals at the site level. It highlights the importance of having representative samples of animal bones from all major areas of the site;

an assemblage limited to or heavily biased by one particular area would give a skewed picture of resource use. From the site-level perspective we are able to 'drill down' into a detailed understanding of variability in spatial use based on the patterns in the microdebris. The nature of the micro-bones, whether fragments or whole microfauna bones, also shows some distinct patterns.

Short-lived sites of the Cypro-PPN.

Piotr Jacobsson (University of Glasgow)

The paper discusses Bayesian modelling of three short-lived Cypriot Pre-Pottery Neolithic sites: *Ayia Varvara – Asprokremnos*, *Ayios Tychonas – Klimonas* and *Krittou Marattou – Ais Yiorkis*.

The first two sites, *Asprokremnos* and *Klimonas*, fall within the ranges of the late PPNA. Both have statistically identical radiocarbon determinations, however, presence of tangs on the projectile points from *Klimonas* may imply that it is younger than *Asprokremnos*. Based on this information two scenarios are possible. In the first one *Klimonas* and *Asprokremnos* overlap and we need to account for the presence of the typological differences on the island at the time. In the second scenario *Klimonas* is younger than *Asprokremnos*. If this is true, it narrows the evolution of the early stages of the tanged projectile points to a single generation in the first half of the ninth millennium cal BC. Under both models, the most probable durations of both of these sites do not exceed 20 years.

Ais Yiorkis happened during the transition from the Middle to Late PPNB on the Levantine mainland. The calibration of the individual dates suggests an activity which lasted in excess of 500 years. Nevertheless, consideration of the samples in light of other recent research from Cyprus narrows the duration of the site to a maximum of 120 years. The new model places the activity at *Ais Yiorkis* at the time of the emergence of distinct Cypriot life-ways and gives us hints as to their formative stages.

Dating ancient rivers in the Mesopotamian floodplain

Jaafar Jotheri , T.J. Wilkinson and Mark Allen (Durham University)

This study focuses on differences between two methods of dating of ancient rivers: using associated settlements, and using radiocarbon ages of organic material recovered from shallow drilling of ancient river channels identified by remote sensing. Most archaeological studies which have been carried out in the Mesopotamian floodplain have assumed that periods of active river channels are closely linked to the ages of archaeological settlements. Unfortunately, only rarely have absolute dating methods, such as radiocarbon, been applied before to any of these rivers. In this case radiocarbon dating of ancient river sediments will be applied to the rivers of the Tigris-Euphrates river system in southern Mesopotamia. Nine separate ancient rivers or other channels in the Mesopotamian floodplain have been selected for the purpose of this study. All of these selected rivers have been carefully located by remote sensing and fieldwork which took place in the initial part of this study. In addition, the ages of these rivers have been determined from earlier studies, by the ages of settlements associated with them. In the present study, several boreholes have been drilled across each one of these nine rivers, and fifteen samples of organic materials have been taken from these boreholes for radiocarbon dating. As a result, this comparative study has revealed that in most of the nine cases the ages of ancient rivers are older than the suggested ages of their associated settlements. For example, an ancient river west of Najaf has been dated to the Neo-Babylonian period by radiocarbon dating, while the associated sites are of Sasanian and Islamic periods. On the other hand, in the case of a major river near Uruk there is a close similarity between the ages of the same river derived from each of these methods. In no cases have ancient rivers been shown to be younger than their associated settlements.

Tell Sabi Abyad: A Middle Assyrian Pompeii?

Victor Klinkenberg (Leiden University)

With walls preserved up to three meters and thousands of finds preserved on the floors, the Middle Assyrian fortress, or *dunnu*, of Tell Sabi Abyad is a true Shangri-La for archaeologists. In the 75 years of its existence the fortress underwent several major reconstructions until a large destructive fire blazed through the complex. The fortress was home to a vibrant and heterogeneous community. Numerous activities were carried out in the *dunnu* as manifested in the texts, features and artefacts found. In this sense, the Tell Sabi Abyad *dunnu* seems to represent a situation similar to that of the well-known site of Pompeii.

However, matters are certainly more complex than that. For instance, at the moment of the great fire, the elite residence within the fortress was used for grain storage. Also, taking into account that mud brick does not burn very well by itself, it is actually not clear how the *dunnu* turned into an inferno and *why*.

In order to get a thorough understanding of the activities that took place in the *dunnu*, this research comprises of a 3D-GIS based intra site spatial analysis of finds, including the detailed reconstruction of archaeological formation processes.

The *dunnu* of Tell Sabi Abyad: reconstructing movement and sensory perception

Tijm Lanjouw (Leiden University)

The excellently preserved Late Bronze Age settlement of Tell Sabi Abyad – identified as a Middle Assyrian ‘*dunnu*’ – has been excavated almost completely. As such, the site offers us an exciting object for various analyses, which is the purpose of the ‘consolidating empire’ project. In my research I aim to reconstruct the architecture and look at the

settlement using an approach that focusses on the relationship between human beings and the physical environment. Seen from this point of view, one becomes aware of the fact that an architectural complex like the *dunnu* structured human movement and experience in highly specific ways. Using known types of analysis such as space-syntax and assisted by 3D reconstructions, these less obvious elements of life in Tell Sabi Abyad's *dunnu* are explored.

Extrapolating Ebla: Combining Remote Sensing, Survey and Textual Sources to define an Early State

Dan Lawrence (Durham University) and Sébastien Rey (Université de Liège)

Remote sensing in Near Eastern archaeology has primarily been used as a prospection tool for locating new archaeological sites in advance of field survey. More recently, scholars have begun to map sites at a far larger scale, making use of sophisticated algorithms and computational techniques as well as simple visual examination. Whilst these approaches have produced a huge number of potential new sites, in order to make meaningful statements about the past more information is required, particularly in relation to periodization. This paper will present a method through which this problem may be at least partially overcome. Using a regional scale database of surveyed sites developed through the Fragile Crescent Project, we show how particular morphologies of site can be related to particular periods in areas where good survey data is available. Importantly, survey data can also show us the kinds of sites which may be less visible on the imagery, and therefore missing from the remotely sensed record. We can then extrapolate from surveyed to un-surveyed areas to produce a more coherent understanding of regional settlement patterns. We apply this method to a particular site morphology, the high conical tell, which we argue can be linked to the BAD3 settlements recorded in the Ebla texts. Mapping

the distribution of this site type across the Northern Levant therefore provides insights into the nature and extent of Eblaite power.

Ur Schooldays

Nadia Linder (British Museum)

One of the goals of the Ur Digitisation Project at the British Museum is to bridge the gap between philology and archaeology. In this talk a lighthearted look at the daily life of scribal pupils in Ur during the old Babylonian period is taken, combining archaeological and philological data and methods. One of this talk's goal is to illustrate how the life of ancient people did not necessarily differ very much from our modern perception of life - take, for example, the dynamic between teacher and pupil as witnessed in cuneiform texts.

Trying to reconstruct the schooldays at Ur from 3800 years ago using both published and unpublished material, it is then pointed out how "interdisciplinary" projects like this can be used to the advantage of both Assyriology and Ancient Near Eastern archaeology in the contemporary public's perception.

A question of identity: is 72.501 from Tell Abu Hureyra, Syria, an early Neolithic foundation burial?

Theya Molleson (The Natural History Museum) and Theo Arnold-Forster (University of Cambridge)

The stratigraphic context and morphology of burial Tr.E 72.501, Abu Hureyra, is examined in an attempt to ascertain whether it could be attributed to a late Epipalaeolithic (Mesolithic/Natufian) or early

Neolithic context. A secondary burial, it was recovered from the deep excavation of trench E, which reached the abandoned Epipalaeolithic settlement. Tooth size did not distinguish 72.501 from either the late Mureybetian of Mureybet or from Abu Hureyra trench E teeth; whereas molar root form and dental health associate it with the trench E dentitions. Thus, it could be the site's first Neolithic burial and the possibility that it was a foundation burial for the new settlement is proposed.

Ontological Representation of Sumerian Literary Narratives

Terhi Nurmikko (University of Southampton)

The proposed paper will outline and discuss on-going doctoral research into the interpretation and digital publication of Assyriological data in a machine-readable format. The main data set for this research has been the corpus of literary compositions as published by the Electronic Text Corpus of Sumerian Literature (ETCSL, <http://etcsl.orinst.ox.ac.uk/>) and the aim, to represent the narrative content of these inscriptions in ways that will facilitate automated inference and the potential future publication of this data in adherence to the Five Star criteria of Linked Data (<http://www.w3.org/DesignIssues/LinkedData.html>). The paper will focus on those considerations which have been thus-far most dominant in the effort to represent these literary compositions using domain-specific ontological frameworks, namely the CIDOC Conceptual Reference Model (<http://www.cidoc-crm.org/>) and Ontomedia (<http://www.contextus.net/ontomedia>), and discusses the suitability of these existing ontologies to adequately capture and reflect the specifics of Assyriological data and research paradigms. The topic is approached from the inherently interdisciplinary perspective of Web Science, which seeks to take into equal consideration both technical and social motivations, challenges and opportunities. As such, the paper will be of interest not only to those with familiarity with Digital Humanities

projects and resources, but also to those whose areas of expertise involve philology and literary analysis.

Land of Behemoths: social networks and interpretive approaches to political power and political space in the Kingdom of Upper Mesopotamia

Rune Rattenborg (Durham University)

The spatial configuration of political power and the dynamics of territorial control have become important areas of research in the social sciences in recent decades, further stimulated by the increasingly apparent fluidity of formal lines of demarcation and zones of control observable in contemporary world affairs. In studies of state polities historically, however, the state is often perceived of ontologically as a stable, organismic, and spatially undifferentiated entity, owing in part to a teleological perspective that focuses on temporal trajectories and formative outlines, rather than spatial variation and the dynamics of social action.

In re-assessing the socio-spatial aspects of political power of the Kingdom of Upper Mesopotamia, this study draws on theoretical frameworks derived from comparative historical sociology, namely Max Weber (Kalberg 1994) and Michael Mann (Mann 1986), and in particular the focus of the latter on infrastructures of social power as the constituents of social domains. I wish here to consider the spatial extent of state power from the perspective of individual actors and institutions. This focuses on the spatial configuration of political power chiefly in relation to observable degrees of control in institutional economic practices at three historically documented locations within the realm of the state, namely Chagar Bazar, Tell Shemshara, and Tell Bī'a. By discussing and comparing aspects of local economic practices in relation to state power and authority, I argue here that concepts of

social power networks offer a versatile heuristic framework for understanding and interpreting spatial variability and multi-causality in historical inquiry, in particular through its ability to counter absolute notions of space in the study of social action.

Early Islamic water management in the hinterland of Raqqa

Louise Rayne (Durham University)

My research investigates the development of water management systems in the Balikh Valley, Syria. For a brief period Raqqa was the centre of the Abbasid empire; at the same time, water management in the area seems to have intensified. Because this project is interdisciplinary in nature a range of datasets are used, including elevation models and satellite imagery. Remote sensing techniques were applied to 1960s CORONA images and enabled photogrammetrically-derived elevation models to be produced. This data enabled features to be recorded and compared to survey data. By the Early Islamic period sophisticated systems began to appear in the Balikh Valley. The Nahr al Abbara system in the north of the valley makes use of a ridge of slightly higher ground in order to irrigate a large area; by keeping the main canal on the ridge, offtakes can then flow perpendicular to the main canal down a slope. In the Balikh, very low overall gradients could have been a limiting factor without this kind of careful planning. Further south, a very large system of canals shows evidence of flooding, probably caused by occasional high episodic runoff. A complex pattern of channels indicates repeated attempts to control this runoff; this may have begun as early as the Early Islamic period. The city of Raqqa and the Abbasid palaces nearby had separate water supplies. A qanat (subterranean groundwater collecting channel) supplied Raqqa's canal system. However a separate feature appears to have supplied the palaces with water. This originates as an opening channel but becomes a tunnel in order to traverse an area of higher elevation. Water management reached a peak in development and

density during the Early Islamic period: This happened at the same time that Raqqa was the centre of an empire. The presence of the Abbasids was significant; the state possibly directly sponsoring canal construction/modification. The Early Islamic state built on earlier systems, choosing the same locations and re-using some channels, but it was also able to impose new, larger-scale water management systems on the landscape.

New perspectives on the urban landscape and hinterland of Girsu (present-day Tello) in the Early Dynastic period

Sébastien Rey (University of Liège), Camille Lecompte (CNRS) and Laurent Colonna d'Istria (University of Liège)

This paper's primary purpose is to present a general overview of the new research project *Mesopotamian cities and their countrysides* hosted since 2013 at Liège University and led by L. Colonna d'Istria and S. Rey in collaboration with C. Lecompte (CNRS). The interdisciplinary study of Girsu-Lagaš by S. Rey (archeologist) and C. Lecompte (philologist) is the first focus of this project. It is one of a number of periodically contending city-states that characterized Sumer in the Early Dynastic period. It lay in the south-eastern edge of the Mesopotamian alluvium directly facing the ancient coastline of the Arabic-Persian Gulf and bordering rival city states of Umma (present-day Jokha) and Uruk (modern Warka). Although the pre-World War II wide-scale French exploration of Tello (ancient Girsu) produced a wealth of pre-Sargonic religious-political data – that is, large-scale public-cultic elite-related architecture, royal statuary, and cuneiform tablets – and the pioneering surveys of the past century led to the identification of Early Dynastic archaeological sites in the environment of Tello, only a few studies are in fact devoted to its urban landscape and hinterland. Hence, the principal aim of this paper is to reconstruct, through a re-assessment of the pre-Sargonic epigraphic records and a re-examination of the archaeological evidence, including declassified Cold War-era satellite imagery, the city's topographic layout and regional setting in the Early Dynastic period.

Attrition, destruction and survival: Landscape taphonomic processes and the future of near eastern landscape archaeology

Andrea Ricci (German Archaeological Institute, Eurasia Department, Berlin)

Landscape transformations play a crucial role in the preservation or loss of landscape features. Ancient and modern physical and cultural taphonomic landscape processes operate in a gradual loss of data through time. With constant increasing urbanisation and intensifying agricultural practices, more and more portions of land are removed, leaving a biased and misleading record to us. Ultimately this affects the quality of the recovery of ancient human occupation traces. Within the same region divergent taphonomic processes might occur, and opposite patterning of landscape loss or preservation might be observable at very close distances. Drawing examples from northern Mesopotamia, southern Caucasia and eastern Anatolia, this paper applies the key concepts of “landscape of survival” and “landscape of destruction” to investigate examples of ancient and modern taphonomic mechanisms. This study identifies not simply zones where the likelihood of landscape preservation is higher or lower, but aims to shed light on the economic, environmental and political factors behind such transformation processes. The ultimate goal is to suggest some possible future research perspectives for Near Eastern landscape archaeologists, including the application of heritage policies for the protection of parts of landscape.

Hellenistic and Roman Coarse Ware from Cape Karataş (Magarsos?)

Reyhan Şahin (Uludag University)

This study presents Hellenistic and Roman coarse ware pottery from Kap Karataş. The ruins of ancient city (Magarsos?) at Cape Karataş were

discovered in 1811 by Francis Beaufort. After a long period of remission, the field surveys done between 2006 and 2009, the remains of ancient city were searched. These surveys were carried out by a cooperation of Istanbul University and Bern University. A systematic collection of surface material in the direct vicinity of city wall was conducted in the 2007 fieldwork season. In consideration of available sherds from this survey the following points will be examined: The origin of the coarse ware pottery, the chronological distribution of the sherds, the usage purpose of the available pieces, the proportion of fine ware sherds to the coarse ware. The results obtained provide some data about the following aspects: 1) The commercial relations of the ancient city at Cape Karataş to other cities, 2) Occupation history of the Hellenistic and Roman site, 3) The intended purpose of the structures at the occupational history of Hellenistic and Roman site.

The Gorgan Wall's garrison revealed via satellite search

Eberhard Sauer (University of Edinburgh), Hamid Omrani Rekavandi (Durham University/University of Edinburgh) and Dan Lawrence (Durham University)

Until 2006 nobody knew what the interior of the over 30 forts on the Gorgan Wall looked like. Small-scale excavations in the 1970s had revealed some traces of walls, but not enough to reconstruct even a single building. The size and function of any permanent structures, and how much or little of the interior they filled, was a matter of speculation. Were forts perhaps largely empty and only occupied in times of crisis by peasant soldiers? As part of a joint project between the Iranian Cultural Heritage, Handcraft and Tourism Organization and Universities of Edinburgh and Durham, a magnetometer survey by Abingdon Archaeological Geophysics and subsequent excavations proved such assumptions to be utterly mistaken. Eight large buildings in four neatly parallel rows emerged in one fort, each containing 48 rooms at ground-floor level, most probably barracks for a well-organised professional

army. Whilst in some forts one can still see today parallel long mounds, it was only then that the significance of these substantial features was recognised. The interior of many forts had already been ploughed flat by the time this discovery was made. The remote sensing programme of the joint project proved a major asset, as it enabled detecting barracks on CORONA images of the 1960s of which no trace remains above the ground. Moreover, systematic examination of satellite imagery revealed that all then still well-preserved forts contained such buildings, always an even number, with similar patterns also emerging in Upper Mesopotamia – evidence for the Sasanian army being highly organised, perhaps more so than its late Roman adversaries. Remote sensing it appears has the capacity to rapidly reveal the hidden military infrastructure of an empire and totally transform our view of its capabilities.

Symbolic elaboration and an examination into the forager to agriculturalist transition at Boncuklu Höyük, Central Anatolia

Christine Schepens (University of Liverpool)

Boncuklu, aptly named the ‘mound with beads’, is one of the earliest Neolithic village settlements known in Central Anatolia. Discovered in 2001, during the Konya Plain Survey, and excavated from 2006, this site had a stratified sequence bridging the gap of the ninth and eighth millennia BC and providing an opportunity to reveal the forager to agriculturalist transition in the region (Baird 2006:13). What is particularly interesting is that this site has some of the world’s earliest evidence for painted walls, as well as clay and plaster relief, preceding those at nearby Çatalhöyük by over 1000 years. In addition to this architectural elaboration, over 60 decorated portable stone items have uncovered (Baird 2009:10).

What is obvious from research in the Neolithic of southwest Asia, is that there is a significant change in symbolic activity at this time. It has been

suggested that with sedentism, and the subsequent increase of settlement size, village groups now consisted of various families living in close proximity with others not closely related. Alongside contact with surrounding nomadic forager groups, there would have been an increase of social tension previously easy to avoid. As such, the need for a mechanism with which to create a sense of group loyalty arose. It is thought that the increase and elaboration of ornaments, decorative elements, and other manifestations of artistic activity are indicators of innovative new social systems designed to counteract the increasing social tensions (Belfer-Cohen 1991:178).

Boncuklu presents us with an excellent, context rich, case study with which investigate this potential social system. The decorated portable stone assemblage at Boncuklu is made up of 68 items to date (up to and including the 2012 excavation). There are two types of decorated stone artefacts at Boncuklu: plaques and grooved stones. The 28 decorated grooved stones are considered to be shaft-straigheners used in the production of arrows (Kozłowski and Aurenche 2005). These items indirectly suggest hunting activities, though other possible functions include bone point (Esin, Biçakçı et al. 1991:133; Stordeur, Jammous et al. 1996:1) and shell bead production (Tapela 2001:67). By contrast, the 40 decorated plaques have no obvious utilitarian function. Interpretations from artefacts found at other sites are varied and difficult to substantiate, though the most convincing is the suggestion that they are the precursors for seals (Eirikh-Rose 2004:152).

The assemblage excavated to date will be presented, specifically the range of items, their motifs, the difference in treatment between the two artefact types and the contextual implications. Finally, a selection of neighbouring sites will be presented in order to compare and contrast the Boncuklu assemblage within its geographic and chronological context. Within the Boncuklu assemblage, the aim is to observe if there are any patterns in the decoration, use, discard or therefore the potential value of these items. Within a larger regional framework, the aim is to observe how the symbolism of southwest Asia developed in tandem with subsistence changes, and to note any specific systems or relationships.

Re-cycling and Re-using of Royal and Divine Statuary in Ancient Mesopotamia

Christoph Schmidhuber (University of Cambridge)

Recent years have seen a large increase in studies on iconoclasm and symbolic violence directed towards royal and divine artworks in the Ancient Near East. Although acknowledging (and sometimes also discussing) various different motivations for such actions, the debate has been very much focussed on symbolic violence. Starting off with some promising studies on material from the 3rd millennium BC, the aim of this talk will be to investigate the other end of the spectrum, i.e. the re-usage of elements of or even whole statues in other artworks, in order to elucidate the spectral character of intentionality behind such transformative acts. Another issue which has to be addressed is the discrepancy between the notion of statues as eternal, sacred objects in the written sources and those frequent instances seemingly treating these objects as instruments of politics and even, although on rarer occasions, as raw-material.

An Emerging Landscape: The Lower Göksu Survey

Dr Tevfik Emre Şerifoğlu (Bitlis Eren University), Dr Naoíse MacSweeney (University of Leicester) and Dr Carlo Colantoni (Bitlis Eren University)

The Göksu River valley in Rough Cilicia was a channel of communication in several periods of antiquity, linking the central Anatolian plateau with the Mediterranean Sea. The valley was more than simply a thoroughfare however, but a dynamic landscape in its own right, with changing patterns of land use and occupation.

The Lower Göksu Archaeological Salvage Survey (LGASS) is investigating these local patterns of landscape use, building on the work of previous survey projects in the upper areas of the valley as well as on the results of previous excavations. By adopting an explicitly landscape-focused approach, LGASS is developing a new understanding of the relationship between sites and routes – of both inhabiting and moving through the landscape in different periods from the Early Bronze Age to the Byzantine era.

Mitanni who? Cultural continuity in the 2nd millennium BC and Mitanni political strategies at Tell Brak, NE-Syria.

Melissa Sharp (University of Cambridge)

Archaeologists know very little about the Mitanni (c.1600-1400 BC), and even less about what daily life may have been like for those who lived under their rule. This paper analyses the ceramic remains excavated at Tell Brak, in north-eastern Syria, to examine the social identity of the ordinary people who lived there. I study the rim sizes of ceramics from Tell Brak, and compare these to other sites (particularly Chagar Bazar and Tell Sabi Abyad), to explore cultural continuity within the Upper Khabur during the 2nd millennium BC. From this analysis, I present hypotheses about what Mitanni political strategies may have been present at Tell Brak.

Changes in human diet at Tell Barri, NE Syria from the Early Bronze Age to the Islamic period

Arkadiusz Sołtysiak (University of Warsaw) and Holger Schutkowski (University of Bournemouth)

Tell Barri (ancient Kahat) is located on Wadi Jaghjagh in NE Syria, some 8 km north to Tell Brak (ancient Nagar). The site was originally inhabited around the beginning of the Early Bronze Age and for several centuries functioned as a secondary administrative centre in the kingdom of Nagar. After the abandonment of Tell Brak, Tell Barri became the capital city of the kingdom of Kahat, and then, after the Assyrian conquest, turned into an important outpost controlling the southern part of the Jasirah region. The site was continuously inhabited until the Parthian/Roman period, but there are also some traces of the Islamic settlements.

During the past 30 years of excavations at Tell Barri, organised by the University of Florence and the University of Naples, Italy, more than 120 human skeletons were found in domestic contexts and occasionally in small intramural cemeteries. For 72 individuals it was possible to measure carbon and nitrogen isotope ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) ratios from bone collagen and these data, together with values for several animal samples, were used to identify changes in human diet from the Early Bronze Age, through the Middle Bronze Age, Late Bronze Age, Neo-Assyrian and Achaemenian/Parthian period to the modern Bedouin cemetery.

The major change occurred between the Middle and Late Bronze Age, where the $\delta^{13}\text{C}$ values indicate a slightly (but significantly) higher contribution of C_4 plants to the diet in the following periods. This coincides with a clear decline of pig bones in faunal assemblages at other sites in the region. It suggests that the observed effect was related to growing utilization of dry steppe pastures with several C_4 grass

species rather than the direct introduction of any new C₄ crops to plant cultivation in the area of Tell Barri.

Investigating diet and subsistence during the Late Chalcolithic 3 period of Tell Brak through carbon and nitrogen isotope analysis of bone collagen and crop seeds.

Amy Styring (University of Oxford), Arkadiusz Sołtysiak (University of Warsaw), Augusta McMahon (University of Cambridge), Michael Charles (University of Oxford), Mette Marie Hald (National Museum of Denmark), Jill Weber (University of Pennsylvania), Holger Schutkowski (University of Bournemouth), and Amy Bogaard (University of Oxford)

Tell Brak in northeast Syria is one of the world's earliest urban centres. Excavations at the site have revealed monumental architecture and evidence of economic diversification and specialization from the late 5th millennium BC. The major expansion of the site occurred in the Late Chalcolithic 3 period (ca. 3800-3600 B.C.), when the site grew to 130 ha. Such abrupt population aggregation in an area marginal for rain-fed agriculture suggests new mechanisms for increasing the scale and/or centralization of agricultural production in the region. This expansion coincides with a series of mass graves on Tell Majnuna, a 'satellite' mound 0.6 km from the central mound. These graves not only provide evidence of distinctive mortuary practices, and possibly conflict, at a time of fundamental change and potential ecological stress, but also provide an invaluable opportunity to investigate the ancient urban 'food web' through integrated analysis of humans, fauna and plants.

In this study (part of the ERC-funded AGRICURB project) carbon and nitrogen isotope ($\delta^{13}\text{C}$ and $\delta^{15}\text{N}$) values of bone collagen were determined for 57 humans from the mass graves at Tell Majnuna.

Combined with stable isotope analysis of wild and domestic herbivore bone collagen, cereal grains and pulse seeds from the same period, it is possible to estimate the relative contribution of plant and animal protein to the human diet, as well as to investigate crop growing conditions and farming practices. This is one of the first studies where isotope values of humans, fauna *and* plants are used together to reconstruct diet and land use, and the first to assess these relationships in an early urban context in northern Mesopotamia.

Romans and Parthians in Iraq: cultural coexistence, economic interaction and military conflict during the I-III Cent. AD.

Giacomo M. Tabita

The deep diversities between the ancient civilizations attested since the Bronze Age along the River Euphrates's banks were the reason for the Mesopotamian formation of invisible cultural frontiers that cannot be outlined on a map because they both separate and cross the cultural places and the geographic ones. The interfaced cultural areas were defined by the coexistence, interaction and conflict of several ideologies which are at the basis of the fights between Romans and Parthians aiming to the control of the territories on the Middle-Euphrates's area. During the I-III Cent. AD the Euphrates's River was the so-called *Limes* of the late Roman Empire, understood as a dynamic geo-political and cultural border with both military and trading function where was placed Kifrin, a fortified town which was interested by a Late-Assyrian frequentation (VII Cent. BC) and later by the Parthian one (II Cent. BC). When Rome occupied Dura (AD 165), and it obtained the political control on the Euphrates, Septimius Severus (AD 194-199) enlarged the extension of the areas controlled by Rome, overlapping on the limit of the Euphrates, therefore determining the Parthian giving ground on the Euphrates. The strategic advantage obtained by the Romans allowed them also to build the fortified post of Kifrin, seen from a political and military point of view as a means to enforce and to advance the eastern frontier of the empire on the pre-existent settlement. Thanks probably

to its geographical position, the site of Kifrin was the expression of an Arab-Syriac cultural background into a civilizing environment influenced by the western culture; these syncretic cultural factors were the basis of the overlay and the fusion of several and different cultural contributions thanks to different civilizations.

A tale of three cities: digitising the tablets of Nineveh, Nimrud and Ur

Jon Taylor (British Museum)

Three projects, each centred around a different ancient site, illustrate approaches to the digitisation of cuneiform texts in the British Museum. The Ashurbanipal Library Project is a long-term collaboration with the University of Mosul. It has thus far produced high resolution images of the entire Library, now presented in a new digital catalogue. The Nimrud project presents aspects of the cuneiform world to audiences using mobile devices. The Ur Project explores open data technologies to re-unite and re-contextualise all finds from Woolley's excavations.

Central Planning and Urban Emergence in Early Bronze Age Cities of Northern Mesopotamia

Jason Ur (Harvard University)

The dominant interpretive frameworks for the origins of Early Bronze Age (ca. 2600-2000 BC) urbanism in northern Mesopotamia all revolve around goal-oriented actions of powerful elites: planned creation of cities, their palaces, temples and walls; and the creation and manipulation of intensified staple-based political economies based on centralized storage and redistribution. In other words, EBA cities were largely planned by central decision-makers. In proposing an alternative

model, this study employs two approaches that Tony Wilkinson mastered in the course of his career. Empirically, it draws on the full archaeological landscape, including settlement patterns but also off-site features surrounding and between them. It interprets these data through a dynamic modeling lens based on Wilkinson's "Modeling Ancient Settlement Systems" (MASS) project, which attempted to see social evolution as an emergent result of actions of individuals and households, rather than only decisions of kings and other elites. It concludes that urban form in the EBA was a product of social forces outside the concerns (or control) of elite households, and that unambiguous royal interventions in urban structure were reactions to these processes, rather than causative of them.

The plant remains from Sheikh-e Abad: assessing change and continuity at an early Neolithic site in the context of the emergence of farming

Jade Whittam (University of Reading)

The site of Sheikh-e Abad is situated on a fertile plain of the Central Zagros Mountains in the Kermanshah region of western Iran. The location of the site at the eastern end of the Fertile Crescent makes it significant for our understanding of the Early Neolithic period in this region, which in the past has suffered from a lack of archaeological research, especially in comparison to the western Fertile Crescent.

Excavations at the site in 2008 (Matthews et al 2010) recovered plant material from occupation layers at the base of the mound that returned a date of 9,800 cal BC, making it one of the earliest known Neolithic sites in the area today. In total, approximately 2000-years of early Neolithic occupation are represented by c. 10m of deposits that form the archaeological mound and cover the crucial period during which farming communities emerged across Southwest Asia.

Plant remains from the site are well preserved and provide evidence for plant-related activities across the agricultural transition at Sheikh-e Abad. Preliminary analysis of the assemblage has shown strong continuity from the earliest to latest levels with a similar suite of taxa (which includes large and small-seeded grasses, *Scirpus*, small-seed legumes and fruit/nut remains) dominating throughout. That such continuity is evident over time at the site, and within the context of the evolving physical and socio-economic environment of Early Neolithic Southwest Asia, raises interesting questions regarding the sustainability and resilience of practices and plant resources at Sheikh-e Abad. Further analysis (including an analysis of the formation of the assemblage) is helping to address these questions and thus to contribute to wider debates regarding the emergence of farming and Neolithisation process in the eastern Fertile Crescent.

Human Intestinal Parasites from a Mamluk Period Cesspool in the Christian Quarter of Jerusalem: Evidence for Long Distance Contact in the 15th Century AD

Hui-Yuan Yeh (University of Cambridge), Kay Prag (University of Manchester), Christa Clamer (École Biblique de Jérusalem), B Humbert (École Biblique de Jérusalem) and Piers D Mitchell (University of Cambridge).

Here we present the parasite analysis of the contents of a cesspool excavated in the Christian Quarter of Jerusalem. The stone built cesspool was dated to the fifteenth century from pottery fragments found within it. Twelve coprolites (preserved human stool) were identified from the cesspool matrix during sieving. They were prepared with disaggregation and micro sieving prior to digital light microscopy. The results showed that all twelve coprolites contained the eggs of intestinal parasitic worms. While it is not possible to determine how many different people used the latrine in the fifteenth century, it does appear that all those

whose faeces could later be identified as distinct coprolites were infected. Every coprolite contained the eggs of whipworm (*Trichuris trichiura*) and roundworm (*Ascaris lumbricoides*). These are spread by faecal contamination of food. However, some coprolites also contained the eggs of beef or pork tapeworm (*Taenia saginata/solium*) and fish tapeworm (*Diphyllobothrium sp.*). These are spread by the consumption of smoked, salted, raw or undercooked beef, pork and fish respectively.

One key finding of this research is the evidence for long distance travel compatible with pilgrimage or trade, suggested by the presence of these tapeworms. For example, fish tapeworm was common in northern Europe during the mediaeval period, but not found in the Middle East or the Mediterranean world at that time except in crusader period latrines. This suggests that at least one northern European travelled to the Holy Land with fish tapeworm in their intestines and used this latrine.

Niche-Construction Theory and the Broad Spectrum Revolution

Melinda Zeder (National Museum of Natural History Smithsonian Institution)

More than 40 years ago Kent Flannery coined the term *Broad Spectrum Revolution* (BSR) in reference to a broadening of the subsistence base of Late Pleistocene hunter-gatherers in the Near East that preceded and helped pave the way for the plant and animal domestication and agricultural emergence. Set within a demographic density model that projected differential rates of population growth and emigration in different resource zones of the Near East, Flannery's BSR quickly became a global construct linking resource diversification and intensification to imbalances between population and environmental carrying capacity. In recent years the BSR has proven especially attractive to researchers working within an optimal foraging theory (OFT) framework in which diversification and intensification of subsistence only occurs within the context of resource depression, caused by either demographic pressure

or environmental deterioration. This OFT perspective is increasingly being called into question as numerous examples of diversification and intensification are being documented in contexts of resource abundance shaped, in part, by deliberate human efforts at ecosystem engineering intended to promote resource productivity. An alternative approach, framed within a newer paradigm niche construction theory (NCT) provides a more powerful explanatory framework for the BSR in the Near East and elsewhere. Instead of a response to resource depression, NCT frames these developments in terms of a more sustainable and resilient human/environmental relationships that form the foundation of long term co-evolutionary relationships the lead, in the case of some species, to their domestication.

POSTERS

Levantine Neolithic Ground Stone Tools, Repurposed and Redeposited

Philipp M. Rassmann (University of Washington)

This paper discusses how northern and southern Levantine Neolithic ground stone tools were repurposed to serve in capacities and contexts different from those with which they are usually identified. Typically reports of prehistoric Levantine ground stone tools focus on the tools' role as processors of raw materials, especially plant foods, such as grains, seeds and nuts, within a variety of domestic spaces. Recently there have been technical studies that explore the mechanical processes by which the tools operated and how this contributed to the reliance on plant foods and volume of production. However, the incorporation of ground stone tools directly within atypical contexts or architectural features, such as walls and supporting elements, provides compelling evidence for ground stone tools serving non-mechanical functions as well.

To fully understand how the tools were incorporated into these contexts, this paper discusses the evaluation of tool surface modifications that reveal how the tools were reshaped to serve new applications. The result is a picture of tool rejuvenation as a means of preserving highly esteemed or functionally appropriate items within a complex interplay of context and function. This paper suggests that deliberate modification and redeposition served to give the tools a new function and, in some cases, do so in a manner that reinforced the function of the new contexts by associating them with the original function of the tools. Both PPNA and Halaf examples are discussed to illustrate the findings of this study.

A Possible “Grinder” from Tell Arbid, Syria

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The skeleton of a mature adult female was discovered in the Middle Bronze Age strata at the site of Tell Arbid, Syria. Although poorly preserved, osteological indicators of activity were noted in the remains. In particular, osteoarthritis was observed on several skeletal elements including the femur, patella, scapula, radius, phalanges, metatarsals, and mandible. Similar changes were noted in skeletal material from Abu Hureyra and have been attributed to using a saddle quern in a kneeling position to grind grain (Molleson, 1994). Saddle querns have been recovered at Tell Arbid and inhabitants are known to have used them to process grains such as barley and wheat. Although osteological indicators of activity should be used with caution, and other tasks may have led to a similar pattern of osteoarthritis, grains would have been processed daily and it is possible that such a task may have led to the bony changes observed in this individual.

Continuity and change in the crop spectra of Neolithic and Chalcolithic central Anatolia: new evidence from Çatalhöyük West and Çamlıbel Tarlası

Elizabeth Stroud (University of Oxford)

Many have seen the change from the Neolithic to the Chalcolithic in Turkey as a false transition: that the subsistence patterns of the Neolithic continue on into the Chalcolithic with the use of the three main crop

types, wheat, barley and pulses. While this triumvirate of crop types does remain consistent, the actual varieties used show a dramatic change.

There is a distinct change in the use of certain barley subspecies with the onset of the Chalcolithic (6000 BC). Sites show a shift from a dominance of naked barley (*Hordeum vulgare* ssp. *nudum*) during the Neolithic, to that of hulled barley (*Hordeum vulgare* ssp. *vulgare*) during the Chalcolithic. Archaeobotanical material from Çatalhöyük reflects this change, the East mound yielding mostly naked barley, while new research on the West mound indicates the supremacy of hulled barley. This dominance of hulled barley over naked barley is also reflected in new research on material from Çamlıbel Tarlası in the north. Other Chalcolithic sites – Kuruçay Höyük, Oylum Höyük Koructepe, Tepecik, Girikihacıyan and Kumtepe – all display a dominance of hulled barley over naked barley through the Chalcolithic.

Why did such a change occur? Naked barley is easier to process, requiring fewer processing steps compared to hulled barley. In hulled barley the lemma and palea are fused to the grain, and their removal requires significant processing. A change from naked to hulled barley may be socially or environmentally driven. Environmental change may have prompted the shift to hulled barley, though naked barley can also be stress-tolerant. Social reasons may also have driven the change; for example, barley could have shifted from a grain used for human consumption to one grown purely for animal food. Other possibilities include changes in its culinary role, such as the use of hulled barley for fermentation and brewing, the main way hulled barley today is used for human consumption. Perhaps an increase in the requirement for highly glutinous cereal in cooking also contributed to the decline of naked barley, with hulled barley remaining as animal feed.

The actual reason(s) for this change requires further investigation. Stable carbon isotope analysis of barley grain, as well as the ecology of archaeobotanical weed assemblages from both sites, will provide an understanding of the growing conditions of hulled barley, testing the environmental hypothesis. Examination of hulled barley grains for germination evidence is needed to assess the brewing hypothesis, while finds of hulled barley relating to dung-derived deposits may support its

use as animal feed. The discovery of charred masses of cracked barley grains at amlıbel Tarlası, however, suggests that hulled barley was used as a food during this period, and that the reasons behind the change from naked to hulled barley may involve a combination of factors. By understanding the social and environmental context of the cultivation and use of hulled barley during this period, the motivating factors behind this change may be elucidated.

Mycenaean pottery of ine Tepecik

Nur Deniz Ünsal (Uludağ University)

ine-Tepecik, which is located in the province of Aydın-Turkey, is a mound which provides findings of material culture from Chalcolithic period to the Iron Age. Architectural remains of the mound dated to the second millenium B.C., revealed a settlement which has a defense system. Within the ceramic finds associated with the architecture in the settlement, Mycenaean pottery, reflects the Mycenaean culture tradition of pottery of the Aegean world in terms of material-technique, decoration style and also vessel forms. The archaeological excavations of ine-Tepecik which were started in 2004, give the chronological development parallel with the cultures of Western Anatolia, Aegean and Eastern Mediterranean. As well as the domestic ceramics, both locally produced and imported Mycenaean pottery at ine-Tepecik are an important group. ine-Tepecik has the distinction of being the only center now located in the inner parts of Western Anatolia on the basis of quantitative and varied repertoire of Mycenaean pottery. Mycenaean pottery of ine Tepecik can be dated to the LHB1 to LHIIIC period (ca.1320/1300-1190/1090 BC) in terms of decoration style and pottery forms.

Both locally produced and imported Mycenaean pottery of ine-Tepecik which is important for the relative chronology of this period and comparison with other settlement and cemeteries in the region will enable us the creation of a relative chronology and understanding of the Late Bronze Age Mycenaean pottery of ine-Tepecik.

Using the Present to Study the Past: Reaching a Better Understanding of the Neolithic through Phytolith and Geochemical Analysis of Ethnographic Sites in Jordan

Daniella Vos (Bournemouth University), Emma Jenkins (Bournemouth University), Carol Palmer (CBRL), Andrew Garrard (UCL) and Helen Smith (Bournemouth University)

Ethnoarchaeology has proven to be a valuable tool when it comes to identifying past activity areas through soil analysis. The use of space within contemporary households can be directly correlated to chemical, phytolith and other signatures found in the anthropogenic soils they produce, and studying these can help us maximise the information gained from ancient settlements. In the case of the Neolithic in Jordan, the use of ethnographic data carries even more significance since the ephemeral nature of Neolithic sites and bad preservation of their biological remains make them difficult to interpret.

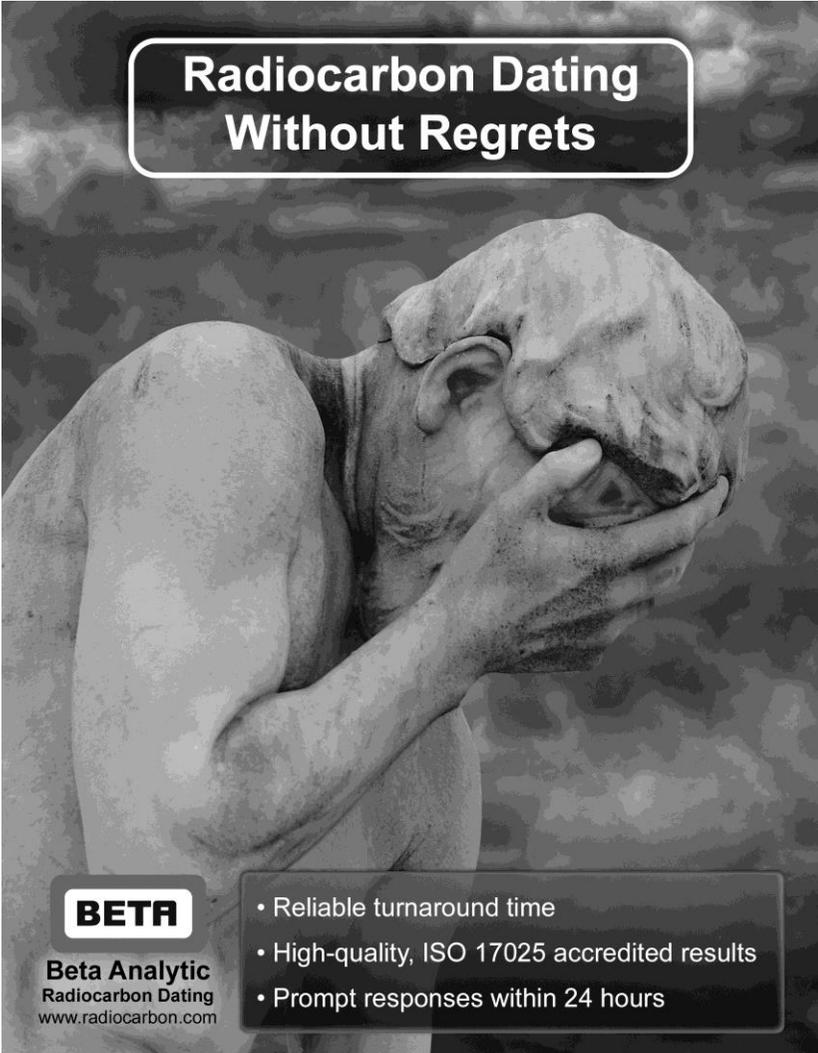
The project presented in this poster aims to reach a better understanding of how phytolith and geochemical assemblages form and explore their potential in differentiating past activity areas. Soil samples that were collected from Bedouin camp sites in Wadi Faynan, Jordan, will be analysed using a combined phytolith and geochemical method in order to better comprehend the formation of the soil signatures characterising activity areas. The combined method will then be applied to soil samples taken from Neolithic sites in Azraq and Wadi el-Jilat, Jordan, so that its efficacy can be assessed. By doing so new insights can be gained on lifestyles during the Neolithic in the Levant, and future studies will benefit from the results of the ethnographic analysis.

A home away from home. New paths to the study of migration and migrant identities in the eastern Mediterranean from the Roman period to the Crusades

By Dr Andrea Zerbini (CBRL) and Justin Yoo (King's College London)

This poster outlines the development of themes for a 2-year research project on the topic of ancient migration that began as a successfully chaired session at the Theoretical Roman Archaeology Conference at King's College London in March of 2013, and will culminate in the publication of an edited monograph (currently in preparation). The authors have also begun working on a comparative analysis of forced migration in the ancient and modern Near East that will lead to a chaired session at the British Society for Middle Eastern Studies (BRISMES) conference in 2014— where both historical and modern migration will be discussed in an attempt to bridge 'time', and disciplinary 'space'.

Mobility and migration have been long-standing concerns for historians and archaeologists alike: whether approached from the point of view of ancient colonialism, trade patterns, or diaspora identities, the study of these topics has been associated with a distinguished branch of scholarship. The emergence of international migration and globalised diasporas in our own time has fuelled an ever growing interest in this discipline with new theoretical perspectives. This poster outlines some of the ways in which new theories and techniques are helping to gain a better understanding of migratory flows and diaspora communities in the Near East.



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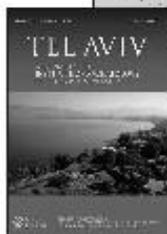
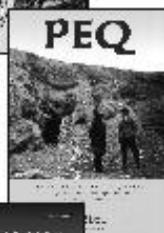
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