



University
of Glasgow



BANE A 2017

Grand Challenges and Blue Skies
in the Study of the Ancient Near East

University of Glasgow, 4-6 January 2017



eQUINOX


OXBOW
books



www.banealcane.org  BANE A2017 www.banea2017.org

BANEA 2017

**Grand Challenges and Blue Skies
in the Study of the Ancient Near East**

University of Glasgow

4-6 January 2017

LIST OF ABSTRACTS

www.banea2017.org

Interdisciplinary Approaches to Water History in the Ancient Near East: Material Remains, Science and Text

Lecture Theatre

Session Organisers: Duncan Keenan-Jones (University of Glasgow, UK) and Jaafar Jotheri (Durham University, UK & Al-Qadisiyah University, Iraq)

Session Abstract: This one-day workshop will enable cross-fertilization between cutting-edge approaches to reconstructing the critical issue of water management across the broad chronological and geographical sweep of the Ancient Near East. Speakers are drawn from across the UK, Europe and Middle East.

1. **Water management system in Third Millennium Southern Mesopotamian Towns**

Eloisa Casadei (Sapienza University of Rome)

Understanding the relationship between water and ancient society still stimulates a vivid discussion both in historical and anthropological debate. Problems such as the control of riverine water through irrigation systems and the management of water in the urban compound have been seen by researchers as key to the rise of complexity during the 4th-3rd millennium BC. However, the archaeological data relating to the organization of water in the settlements are not always sufficient to explain the whole management system. In particular, 4th and 3rd millennium BC temples and palaces show a complex organization of shafts, basins and drains for which a functional reconstruction is still a matter of debate. While the so-called palaces included a sort of household organization similar to the private compound, water-related features inside the temples could play a more symbolic role. Through the analysis of archaeological contexts and spatial analysis inside and outside the monumental buildings, the present paper intends to investigate the function and the organization of water management system carried out in the Late Uruk and Early Dynastic urban landscape.

2. **The Sasanian irrigation system in southern Mesopotamia: the end of natural rivers controlling human settlement patterns**

Jaafar Jotheri (Durham University & Al-Qadisiyah University)

This research focuses on the impact of natural river landscapes on the pattern of human settlements throughout time in southern Mesopotamia. Before the first millennium AD, the geographical distribution of human settlements closely followed the location of natural rivers, i.e. the rivers were the main controlling factor in selecting an area for the construction of human settlements or farms. As a result, wide areas a great distance from the rivers were abandoned as people gathered in limited areas alongside rivers. However, from the early first millennium AD, and mainly during the Sasanian period, this role of the rivers had started to decline and people became more flexible in constructing new canals whenever needed, also reclaiming new land for farming and dwellings. Several new canals had been dug, along with new dams and barrages. There should be several reasons for this revolution in irrigation systems, such as significant, fast expansion in digging technology (whether developed inside southern Mesopotamia or imported from elsewhere) or there was a desperate need to dig a canal and reclaim new land as a result of population increase.

3. **Recording endangered water management in the Middle East and North Africa**

Louise Rayne (University of Leicester)

This paper presents a discussion of how the remote-sensing and GIS based methodology employed by the Endangered Archaeology in the Middle East and North Africa project (EAMENA) at the Universities of Leicester and Oxford has been used to map water management features. The aim of the EAMENA project is to record archaeological sites and to identify those under threat of damage and destruction, and to make this data available via an open-access database. Modern activities such as agricultural intensification, new irrigation schemes, urban expansion and construction projects have significant impacts on the survival of archaeological remains. EAMENA is using Google Earth and also high resolution imagery such as WorldView (spatial resolution of up to 0.3 m) for selected areas. Historical aerial photographs and 1960s-70s Corona images (c.2-5 m) are especially useful when sites have been damaged or destroyed. High resolution images can show specific cases of damage such as bulldozing and

construction. Lower resolution multispectral imagery (Landsat) has been used to map the impact of changes in land use. This paper will discuss EAMENA's work to identify and record ancient water systems under threat from ongoing development, with examples from countries including Libya, Morocco, Syria and Iraq.

4. **The raw material of fiction. Empire building in water systems in the Ancient Near East**

Maurits W. Ertsen (*Delft University of Technology*)

The large-scale, ancient irrigated landscapes we find in south and north Mesopotamia took time to emerge. Labour and resource mobilization were key for both communal and state-led initiatives. Southern Mesopotamian landscapes would have developed through a series of local actions, yielding both crop surplus as urban elites controlling trade, whereas Northern Mesopotamian irrigated landscapes would have been the product of imperial power. I will argue in this paper that whatever we encounter in our archaeological record, we need to start with the premise that it was shaped by daily actions. Production of power spaces – like irrigation systems – is not a process that produces space and social structure like a pre-defined plan, but is a process of cooperation, struggle, conflict, and contradiction, which are shaping within the many engagements between the human and the non-human – between agents of different kinds. In contrast to stressing the undesirable, cumulative effects of small decisions, we should build any understanding on taking the ‘tyranny of small decisions’ as our explicit starting point. The approach I develop would overcome the standard theoretical stalemate on ‘agency’ and ‘structure’ as it acknowledges that society is continuously composed and maintained.

Ertsen, M.W. 2016. “A matter of relationships: Actor-networks of colonial rule in the Gezira irrigation system, Sudan.” *Water Alternatives* 9: 203-221.

Ertsen, M.W. 2013. A poor workman blames his tools or how irrigation systems structure human actions. In: *Objects and Materials. A Routledge Companion*, edited by Casella E.,

Evans G., Harvey P., Knox H., Mclean C., Silva E., Thoburn N. and Woodward K., 40-49, London: Routledge.

Odum, W. E. 1982. “Environmental degradation and the tyranny of small decisions.” *BioScience* 32: 728–729. doi: 10.2307/1308718

Strum, S.S. and Latour, B. 1987. “Redefining the social link: from baboons to humans.” *Social Science Information* 26: 783-802. doi: 10.1177/053901887026004004

5. **Land, Water and Settlement and TwoRains: multi-disciplinary approaches to exploring human/environment relationships in Indus northwest India**

Cameron Petrie (*University of Cambridge*), **Jennifer Bates** (*University of Cambridge*), **Yama Dixit** (*University of Cambridge*), **Charles French** (*University of Cambridge*), **David A. Hodell** (*University of Cambridge*), **Penelope Jones** (*University of Cambridge*), **Carla Lancelotti** (*University Pompeu Fabra, Barcelona*), **Frank Lynam** (*Trinity College, Dublin*), **Sayantani Neogi** (*Ludwig-Maximilians-Universität München*), **Hector Orengo** (*University of Cambridge*), **A.K. Pandey** (*Banaras Hindu University*), **Danika Parikh** (*University of Cambridge*), **Vikas Pawar** (*Maharshi Dayanand University*), **David Ian Redhouse** (*University of Cambridge*), **Dheerendra Pratap Singh** (*Banaras Hindu University*), **Ravindra Nath Singh** (*Banaras Hindu University*)

There has been considerable discussion about the role of climate and environment in the growth and decline of the cities of South Asia's Indus Civilisation, which thrived in the mid-late 3rd millennium BC. To understand the relationship between climate, environment and human behaviour it is imperative to understand the nature of local environmental conditions, assess how these conditions changed over time, and ascertain how past human societies responded to pressures and potential threats. This understanding can only come by examining the interconnections between archaeological evidence and that for climate, hydrology, and sedimentology, which are all too often treated as independent data sets. The Land, Water and Settlement project was an international multidisciplinary collaboration that investigated the interrelationship between ancient climate, environment, hydrology, landscape and settlement systems in Haryana, northern Rajasthan and western Uttar Pradesh between 2008 and 2012. Starting in 2015, the ERC-funded TwoRains project is expanding on this initial research to investigate the degree to which “climate change caused collapse”. This paper presents an overview of the results of these collaborative projects, which combine the use of satellite remote sensing, on the ground survey, archaeological excavation, sedimentology and geoarchaeology as well as palaeoclimate reconstruction.

6. **The landscape of Pasargade: new proposals on interaction between man and environment**

Nabil Ibnoerrida (*University of Naples "l'Orientale, Italy*) and **Hamidreza Karami** (*ICAR-Pasargade World Heritage Site, Iran*)

The Achaemenid Empire left us evidence of the royal empire at Susa, Persepolis and Pasargade. The objective of the Irano-French mission directed by Dr. Mohammad Khani and Dr. Gondet in Pasargade is to analyze all of the archaeological data of the Pasargade plain, through survey and geophysical prospecting, to contribute to the search for possible new evidence in the palatial zone and settlements associated with the Pasargade site. The analysis of the first year has led to a new vision of the hinterland of Pasargade. The data recovered from the recent Irano-Japanese archaeological mission once again raised a new vision from the possible attestation of settlement in connection to the canal system in the Abulvardi plain (located 3 km north of Pasargadae) and in the Tang-e Bologhi valley. The recovered data suggest that there is a canal system north of Pasargadae. Meanwhile, in the Bolaghi area there are traces of a channel dug in the rock (unfinished) that suggest high water engineering related to some important claims of Achaemenid architecture.

7. **Water Clock and Water Management in Ancient Yemen**

Mohammed Maraqtan (*University of Heidelberg*)

The significance of water in the Arabian Peninsula and in particular Yemen can scarcely be overstated. Ancient South Arabians developed techniques of water harvesting and what was to become Yemen had a long tradition of irrigation involving comprehensive hydraulic structures such as the ancient dam in Ma'rib at the fringes of the desert of the Empty Quarter. It also used rainwater harvesting techniques in the mountainous highlands. There were special legal rules for allocation of water for irrigation. We have several texts that give us data about provisions for water distribution and time-measurement for irrigation. Ancient Yemenis used the term *mfr'* (pl. *mfr't*) to measure the time allowed for irrigation. This Sabaean water clock was used by the water master of the ghayl (*qdm, kbr*). The Sabaic term *mfr'* seems to have been the accurate designation for specific "water unit or water measure of the amount of water" that served for the water allocation during a specific irrigation period. The purpose of this paper is to provide an overview of the water clock and water management in ancient Yemen in the context of the epigraphic evidence.

8. **Landscapes, mounds and luminescence: New insights into large-scale irrigation systems using chronostratigraphic sequencing methods**

Lisa Snape-Kennedy (*Durham University*), **Ian Bailiff** (*Durham University*), **Dan Lawrence** (*Durham University*), **Andrea Ricci** (*German Archaeological Institute*), **Kristen Hopper** (*Durham University*), **Eberhard Sauer** (*University of Edinburgh*)

Sediments and soil archives offer a wealth of information for understanding natural and anthropogenic site-formation processes. Large-scale irrigation systems such as canals, qānats and ditches are often difficult to date due to the absence of short-lived carbon material suitable for radiocarbon dating. Recently, scholars have begun to apply optically stimulated luminescence (OSL) of mineral extracts from such contexts to date irrigation systems. In this paper we will present a series of case studies from Azerbaijan and North East Iran, where there is extensive evidence for urbanisation, military investment and centrally planned irrigation networks. In combination with detailed excavation and recording of archaeological sections, we undertook microstratigraphic investigation of sediments coupled with luminescence profiling of a range of contexts with variable mineral sources and depositional environments. Using luminescence methods as a sequencing tool, we can begin to develop new methodologies for understand the evolution of large-scale irrigation systems combined with landscape survey and settlement histories.

9. **Engineering the Water Supply of Byzantine Constantinople: an interdisciplinary project**

Jim Crow (*University of Edinburgh*) and **Kate Ward** (*University of Edinburgh*)

Water supply is a necessity for civilisation and the strategies for supplying water to towns and cities in the Ancient Near East have long been admired and studied. Engineers with experience of hydraulics,

infrastructure and construction are well placed to provide insights into how ancient water supplies operated. Although engineering investigations tend to focus on components of water networks and provide detailed hydraulic analyses, engineers have a range of skills of use when considering archaeological questions on infrastructure and its impact – systems, design and analytical thinking, combined with modern concepts of demand modelling and resource management. We report on our research, bringing together archaeologists and engineers to investigate the water supply of Byzantine Constantinople. An engineering approach has allowed us to move beyond the available archaeological evidence to challenge previous hypotheses on the long distance infrastructure outside the city; to reimagine the complex distribution and management infrastructure within the city; and, to investigate, for the first time, how the construction of over 400km of aqueduct could be managed. Using our work on the water network within the city as a case study, we argue that engineering perspectives could be of benefit to many infrastructure-related archaeological projects.

10. **Bringing Water to Constantinople: Construction Management of Late Antiquity's Largest Infrastructure Project**

J. Riley Snyder (University of Edinburgh) and Simon Smith (University of Edinburgh)

Recent research has shown that the Water Supply of Constantinople was one of the largest construction projects undertaken in the ancient world, requiring as much stone as the Great Pyramid of Giza and five times more manpower than the Baths of Caracalla in Rome. However, with lacking archaeological and textual evidence, many vital questions remain about how this and other great construction projects in late antiquity were managed. Part of a larger research project combining archaeology and engineering, this study employs agent-based modelling (ABM) in order to develop our understanding of the construction processes and organisation of the Water Supply of Constantinople. This computational method has allowed us to systematically explore a range of assumptions that have been made about how projects were managed in the past. Through the integration of data and methods from archaeology, history, ethnography, and modern project management, our aim has been to build coherent narratives that can be visualised in simulation models. From these models, experiments have enabled us to generate hypotheses about the day-to-day construction activities, different levels of agency and major organisational decisions making— aspects of Late Antique and Byzantine construction that have remained mostly speculation in modern scholarship.

11. **Roman aqueduct capacity: a review of the current knowledge and new insights from the study of Byzantine Constantinople**

Francesca Ruggeri (University of Edinburgh), Martin Crapper (Northumbria University) and Jim Crow (University of Edinburgh)

Whilst aqueduct systems from the Hellenistic, Roman and Byzantine periods are well described in the archaeological record, historical information about the flow of water they carried is limited and ambiguous. More recently, various engineering approaches have been employed to address the question of aqueduct flow, including the authors' study of the fourth and fifth century water system of Constantinople. A review of engineering approaches shows that most of the estimated flow rates of Roman aqueducts are upper limits, based on the maximum capacity of the channels. However, this is unlikely to represent the water that would have been generally available to the final users, which also depends on input from springs or other sources, and, ultimately, hydrological issues. One way of reproducing actual flow rates used in previous studies is the analysis of carbonate deposits from channel internal walls; however, this might not always be a feasible approach due to the limited availability of such deposits. Through our current work on the water supply of Constantinople, we demonstrate the complexity of estimating typical aqueduct flow rates and likely seasonal variations, offering new perspective on the understanding of ancient water supply systems.

12. **Geoarchaeological reconstruction of past water management using travertine**

Duncan Keenan-Jones (University of Glasgow), Davide Motta (Amec Foster Wheeler, Pennsylvania), Anneleen Foubert (Université de Fribourg), Glenn Fried (University of Illinois, Urbana-Champaign), Mayandi Sivaguru (University of Illinois, Urbana-Champaign), Ryan Shosted (University of Illinois, Urbana-Champaign), Mauricio Perillo (Exxon Mobil, Houston), Jamie Toney (University of Glasgow), Julia Waldsmith (Schlumberger, Houston), Hong Wang (Illinois State Geological Survey), Marcelo H. Garcia (University of Illinois, Urbana-Champaign), Bruce W. Fouke (University of Illinois,

Urbana-Champaign)

The general lack of reliable, quantitative data on water distribution in many cultures and time periods confounds the investigation of the social control and use of water. Calcium carbonate deposits (CaCO_3 , called travertine) formed by the water flowing in past water systems, are a faithful record of the flow, timing, temperature and chemical and microbial composition of that water. This paper presents studies of travertine from water systems in Petra, Rome and the Bay of Naples that illustrate how travertine can be used to reconstruct the size, date and quality of past flows.

Beneath the Plain Surface: Interdisciplinary and Archaeometric Approaches to Plain Pottery Traditions

Seminar Room A

Session Organisers: *Daniel Calderbank (University of Manchester) and Elsa Perruchini (University of Glasgow)*

Session Abstract: By the 2nd millennium BCE, plain pottery had become a dominant feature of complex societies in both the Near East and neighbouring regions. Explanations for the appearance and growth of these “drab” wares have traditionally favoured a top-down view of centralised regulation; rising populations stimulated demand for pottery vessels, which in turn drove state attached specialists to “economise” in the mass-production of standardised products. Recently, however, the integration of archaeometric techniques, textual evidence, and wider interpretive developments has added necessary depth to this model. Plain pottery is no longer seen as the inevitable outcome of centralised manufacture, but as a complex phenomenon that emerged through everyday interactions between producers and consumers. Focus now falls on the production, function(s), and socio-cultural significance of plain wares, and the ways in which these aspects interplayed with the performance of social identity at all levels of society. This session encourages an interdisciplinary exchange of ideas between anthropologists, archaeologists, and material scientists working in different geographical areas and time periods. We wish to present the vast potential offered by current archaeometric techniques (e.g. X-rays, thin sections, XRF, and organic residue analysis) in enhancing our understanding of the different roles assumed by plain pottery in ancient Near Eastern societies. We particularly welcome approaches relating to technological processes, skill, cultural practice, social identity, socio-political organisation, as well as trade and economy, especially in contexts of social conflict and/or technological change.

1. **The Many Dimensions of Plain Ware Pottery in Late Bronze Age Cyprus: an examination of a potters’ community at Alassa**

Ariane Jacobs (Vrije Universiteit Brussel)

During the LCIIIC–LCIIIA period (13th–12th century BC), Plain Ware Pottery becomes the most common pottery type at the major urban centres in Cyprus. The introduction of Plain Wares on Cyprus has been associated with new consumption practises and technological innovations coming from the Levant and adopted by the local potters since the beginning of the LC period (Crewe 2015). By LCIIIC–LCIIIA this new technology got transferred and adopted within the different settlements, resulting in a new cultural identity or urban style (Crewe 2015). We undertook a detailed analysis of Plain Wares from Alassa because we observed a lack of thorough study on large sets of Plain Wares involving diverse archaeometric methods. Through the reconstruction of the different steps of the production sequence we have characterised Plain Ware pottery production and distinguished local versus non-local production, identified clay recipes, as well as diverse forming/shaping methods and distinct surface treatments. Petrographic, chemical (Pb and Sr isotopic analysis) as well as NAA, mXRF and SEM-EDS analysis were carried out to this end in collaboration with Dr. Borgers, Dr. Renson and Dr. Makarona. Preliminary results demonstrate a number of local/regional idiosyncrasies beneath the plain surface. This observation is evidence pointing to decentralised potting activities and regionalism during a period of increasing standardisation and amalgamation of a common material culture. These are commonly associated with an urban life-style or group identity, increasing interaction and expanding networks.

2. **Instruments of Imperialism? What transport jars reveal about economy and administration in the earliest world empires**

Kamal Badreshany (Durham University)

This project investigates the impact of excessive imperial resource demands on subjugated populations in the world’s first great empires. During the first millennium BC, the Neo-Assyrian and Persian empires controlled the Levant. Iron Age texts suggest there were acute socio-economic impacts caused by

intensive tribute demands and forced migrations. The archaeological evidence, however, conflicts with the written record, necessitating a new methodology to understand how the arrival of empire changed provincial social, political, and economic structures and impacted daily life. New insights have been gained through the analysis of ceramic transport vessels, which were widely used in the Bronze and Iron Ages to move goods for trade, tax, and redistribution. An interdisciplinary, artefact-based examination of over 220 Phoenician amphorae from Lebanon will reveal changes to their modes of production and distribution. This will in turn elucidate how the arrival of imperial authority changed social organisation, trade patterns, and household economies in the world's earliest empires.

3. **Application of Archaeometric approaches to the Uruk Ceramics from Gurga Çiya, Iraqi Kurdistan**

Michael Lewis (University College London)

With the recent influx of archaeological investigation into Iraqi Kurdistan, the once "terra incognita" is now an intensely surveyed region, with dozens of ongoing archaeological excavations each year. Yet it remains that, within the archaeology of Iraqi Kurdistan, archaeometric investigations are still very much in their infancy. There is a distinct lack of petrographic investigation into the regional ceramics, seemingly owing to the riverine nature of Mesopotamia and the problems with petrography in such environments. Yet the proximity of Gurga Çiya to major mountains and geological formations surrounding the Shahrizor Plain improve the outlook for future petrographic research in the region. This paper focuses on the application of such techniques, using, as a case study, a selection of Middle Uruk ceramics from Gurga Çiya, a rural tell site in the Shahrizor Plain, Iraqi Kurdistan. Petrographic analysis coupled with pXRF (portable X-Ray Fluorescence) will emphasise the utility of archaeometric approaches in understanding a range of issues, such as ceramic manufacturing traditions, raw material procurement, mass production and standardisation, as well as trade and exchange, during the Middle Uruk at Gurga Çiya.

4. **Fingerprints and Gendered Social Change in the Tell Leilan Ceramic Industry**

Akiva Sanders (University of Chicago)

The process of urbanization and state formation at Tell Leilan corresponds with the construction of a monumental administrative building with Southern Mesopotamian-style sealings during level IIIId ca. 2600 BCE. This process, however, is not immediately accompanied with a shift from the highly decorated ceramic traditions of the Ninevite V horizon. A shift to the much plainer ceramic styles that characterize Leilan II occurs approximately two centuries later. Since no ceramic workshops have been recovered from these phases of the site, a question arises as to which of these shifts in Leilan's material culture – urbanization or ceramic simplification – corresponded with the radical changes in the relations of production, demonstrated by the large-scale production events listed in Akkadian texts at the site of Umma. A clue to this question comes from a study of fingerprint impressions on Tell Leilan ceramics from the fourth through early second millennium. Using a methodology recently developed in the field of criminology for the study of modern fingerprints, the sex ratio of ceramic producers can be estimated using the distribution of fingerprint ridge densities. Using this method, a major change in the sex ratio of ceramic producers was identified with the process of state formation during Tell Leilan period IIIId, whereas none were identified with the shift in ceramic style during period II. This conclusion suggests that a major reorganization in the social (including gender) relations of ceramic production corresponded with the social reorganization of the site, but not with the stylistic selection of plain over decorated ceramics.

5. **Under the influence: communal drinking, ceramic styles and identity in the 3rd Millennium BC Syrian Jezirah**

Melissa Sharp (Universität Tübingen)

Beer drinking in the ancient world was not neutral but imbued with social meanings. This paper explores drinking practices in Syria during the 3rd millennium BC through ceramic analysis. A comparison of frequencies, type and wares of vessels from household assemblages at six sites in the Syrian Jezirah (Tell Mozan, Tell Bderi, Tell Chuera, Tell Beydar, Tell Brak and Kharab Sayyar), reveals that drinking practices may have been a key marker of regional identity.

6. **Using Pottery to Identify a “Cultural Region”: the case of the Middle Diyala during the 2nd millennium BC**

Valentina Oselini (Sapienza Università di Roma)

The region of the Middle Diyala River can, during the 2nd millennium BC, be considered a crossroads for three different cultural areas: Southern Mesopotamia, Northern Mesopotamia and Iran. During the Middle Bronze Age, it has been considered an area influenced by both the Kingdom of Eshnunna and the Kingdom of Babylon, whilst during the Late Bronze Age it is seen as a province of the Kassite Kingdom. Stratigraphic analysis, pottery sequence, technological analysis, as well as the identification of both local products and foreign traits, all hold potential for defining these cultural markers. In the specific case of the Middle Diyala, it is necessary to define the local features of the pottery assemblage. Tell Yelkhi, in the Hamrin valley, will be presented as a case-study, as it has a continuous archaeological sequence covering the entire 2nd millennium. The pottery from Tell Yelkhi, mainly including plain wares, will be classified into a new morphological typology, whilst the characteristics of clay will be observed both macroscopically and by archaeometric analyses. Moreover, the pottery inventory will be compared with the assemblages from other sites along the course of the Diyala River. The aim of this paper is to recognise the macro-regional features that are fundamental to understanding Tell Yelkhi within a wider political system, as well as to isolate the local tradition suggestive of what we might label a “Middle Diyala Pottery Region”.

7. **Food habits and Identities: preliminary results of organic residue analysis of second millennium BC plain pottery from the Sirwan/Upper Diyala Region**

Elsa Perruchini, Claudia Glatz and Jaime L. Toney (University of Glasgow)

This paper presents the preliminary results of organic residue analysis carried out on ceramic vessels from the site of Khani Masi in the Sirwan/Upper Diyala region of Kurdish Iraq. Recent geophysical prospections and test excavations at Khani Masi have revealed an extensive monumental complex, destroyed in the later 13th century B.C. The site is located within easy access of a series of major crossroads connecting central Mesopotamia with the Iranian highlands and Central Asia via the Khorasan Highway, and with the north Mesopotamian plains along the Hamrin range. Textual evidence suggests that this region found itself in the midst of three competing imperial powers during the later second millennium: Kassite Babylonia, the Middle Assyrian polity, and Elam. Archaeologically, however, we know very little about local cultural traditions and socio-political organisation, or about the nature of local interaction with these neighbouring imperial powers. Khani Masi has yielded large quantities of the iconic “Kassite goblet”. On the one hand, this vessel form is a type-fossil of Late Bronze Age Mesopotamian chronology. On the other, it has been treated as a characteristic trait of Kassite imperialism. Yet little is known about both the function(s) and socio-cultural significance of these goblets in Babylonia and surrounding regions. Through an integrated approach that combines contextual archaeology, iconographic and textual sources with organic residue analysis, the aim of this project is to determine the contents of these vessels and, in doing so, begin to understand the role of food and drink in the negotiation of local identities in this strategic highland-lowland borderland at a time of heightened external imperial interest.

8. **Of Bowls and Beakers: preliminary results and perspectives of the interdisciplinary research on Abu Tbeirah's pottery**

Licia Romano, Vanessa Forte, Giulia Festa, Stella Nunziante and Laura Medeghini (Sapienza Università di Roma)

Abu Tbeirah (AbT) is an Early Dynastic-Akkadian (2450-2250 BC ca.) transitional site, located in Ur region in Southern Mesopotamia. The research carried out at the site since 2012 involves the most recent techniques for the study of material culture, in particular pottery. AbT ceramic vessels are studied through a new methodology based on the integration of compositional and traceological analyses. Particular attention is given to pottery technological study that reconstructs the recurrence of specific choices of production, both during the exploitation of raw materials and the modeling of shape. The integration of archaeometric and traceological data will for the first time help us to define the technological choices of production in detail. Furthermore, the intended function and actual use of pottery vessels from the site of AbT will be inferred following an integrated approach that combines use-wear analysis and residue analysis. The application of a multi-analytical study on AbT pottery production will permit us to exploit the wide informative potential of pottery, as well as the socioeconomic implications of pottery production. In this paper, the methodology and the

interdisciplinary approach will be presented, alongside some preliminary results of our still on-going research.

9. **Sealand Pottery at Tell Khaiber: a preliminary assessment of technology and the transmission of specialised skill**

Daniel Calderbank (University of Manchester)

The Sealand period (c.1700-1400 B.C.) in Southern Mesopotamia was a time of fundamental social change and political fragmentation following the decline and collapse of the central Babylonian state. The defensive architecture exposed in recent excavations at Tell Khaiber, approximately 20km northwest of Ur, speaks to this instability. Despite this, the scholarly consensus on 2nd millennium pottery is one of unbroken continuity of a “Mesopotamian tradition” across the entire region (Armstrong and Gasche 2014). This poses an inconsistency that must be addressed; if pottery production was under the direct control of the state, as is often assumed, how can we begin to reconcile large-scale political upheaval with apparent small-scale material continuity? This paper sets out to provide some preliminary observations on the nature and organisation of pottery production during the Sealand period. Through X-ray analysis of a selection of Khaiber vessels, alongside detailed analysis of form and fabric, evidence for a far more localised assemblage emerges. This assemblage offers valuable information with regards to production techniques, level of skill, and potential methods of knowledge transmission amongst Sealand potters. What is more, such analysis permits us to assess pottery production within a wider framework of emerging localised identities, cultural practices, and economic networks in the midst of significant conflict and change.

10. ***Ina Berg (University of Manchester) – Discussant***

Encounters with Materials and Technologies

Seminar Room B

1. **Obsidian in the Near East: large samples and new insights**

Stuart Campbell, Elizabeth Healey and Osamu Maeda (University of Manchester)

As a technique, the provenance analysis of obsidian artefacts is well established. In many periods, it has been valuable to track the distribution of obsidian across the Near East from a limited number of sources in central and eastern Anatolia and Armenia. However, until recently it was something that tended to be done on small, highly selective samples, providing only a very generalised interpretation. More recent approaches have been able to analyse much larger samples and from a greater variety of sites. This is transforming our understanding of the use of obsidian, with a much greater emphasis on contextual understanding, shorter term change and the exploitation of minor sources. Equally, however, it has emphasised the need to better understand of the sources of obsidian themselves and to develop greater methodological rigour.

2. **Lithic industries in metal using societies: some insights about socio-economic structures of the Southern Levant**

Francesca Manclossi (Centre de Recherche Français de Jérusalem)

Late lithic industries, even if recognized as a component of material culture, have had a marginal role in research. For a long time their production was neglected and considered simply a heritage of prehistoric tradition. However, studies of protohistorical and historical lithic industries have recently increasingly offered new insights into those societies producing and using chipped-stone tools. The description and analysis of lithic transformations, following a diachronic study from the Chalcolithic to the beginning of the Iron Age, permit us to observe how they changed, evolved, remained stable or declined. It is possible to recognize two main processes in regard to the persistence of lithic industries during the metal ages. On the one hand, there is the production of flakes used for ad hoc tools which, from the 4th millennium continued to be used until the beginning of the 1st millennium BCE. This is not only an unspecialized production system used for all domestic activities, but also a social strategy characterized by an increasing technical individuality. Completely different are the socioeconomic mechanisms involved in the other major lithic industry of the metal ages, a blade-oriented technology involved in the manufacture of composite sickles, which reflect different organisation of specialized production.

3. **Stones in the Land of Salt and Clay: Lithic analyses from the 3rd Millennium B.C. site of Abu Tbeirah (Southern Iraq)**

Caruso Stefano (La Sapienza Università di Roma), D'Errico Davide (Leiden University) and Moscone Daniele (La Sapienza Università di Roma)

The aim of this proposal is to present the preliminary data relating to the functional and technological investigations regarding macro-lithic artefacts and chipped stone tools from the site of Abu Tbeirah (Nasiriyah, Dhi Qar Governorate), dating to the second half of the III Millennium. In a historical and geographical area as important as Mesopotamia there is a clear lack of studies regarding the lithic material, especially analyses that make use of methods like experimental archaeology, use wear and technological investigations. Moreover, lithic materials are usually disregarded by archaeologists after the appearance of metals. Hence a contextual approach to stone assemblages can contribute to a better understanding of how production, consumption and discard of stone artefacts were structured within social practice. An integrated approach to lithic analysis can reflect the socio-economic strategies of the Abu Tbeirah community and its degree of integration in specific trading circuits. The information gathered during the six excavation campaigns carried out so far will be used to reconstruct the activities and technological characteristics of the stone materials yielded from the site excavation and initial surveys, in order to shed light on a sphere of craft production which plays an important role in understanding the daily life of the inhabitants of the area.

4. **Introducing the Terracotta Herd: Materials and Methods of Figurine Production**

Nadia B. Knudsen (Tel Aviv University)

The Early Bronze Age zoomorphic figurines of the Levant have been the subject of little scholarly attention and even less relevant published analysis. As the subject of on-going research, the aim is to enhance our understanding of these artefacts through high-resolution analysis of various aspects of their manufacture. The specific focus of this presentation is the figurines from Tel Bet Yerah in the Southern Levant. The theoretical framework of the *chaine opératoire* underpins this study in combination with an experimental programme of figurine replication and reconstruction. The technological and cognitive aspects of figurine production will be introduced, including the acquisition of raw materials, production and some considerations of use-life. Wider considerations and relationship to other groups of material culture are also taken into account. In regarding the figurines, not as artifact in isolation, but as a medium of communication within the totality of their original context, this project intends to seek a coherent narrative of figurine biographies that sheds light on the socio-cultural significance of these diminutive objects within the context of the society that produced them.

5. **Discoverability of Small Things: Historiographies of prehistoric Mesopotamia comparanda**

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

Reporting of small finds in excavation publications and presentations has largely remained unchanged for decades. Examples of complete and remarkable figurines, beads and other small objects are often found at the end of reports as interesting illustrative materials, rather than contextualized diagnostic artifacts. Fragmentary, mundane and duplicative small finds are often not reported upon, remaining undiscoverable beyond visits to museum and excavation depots. These practices have disassociated object biographies of figurines and beads from the lived experiences of the archaeologically known communities that made, used and discarded them. This talk presents a case study of figurines and beads from sites associated with the Halaf cultural horizon (sixth millennium Northern Mesopotamia). Historiographic publication analysis of Halaf material culture reveals a bias toward accessible publications rather than potentially associated comparanda. This paper argues that the Halaf can be better understood if a commitment is made to include fragmented, mundane and tiny objects in the analysis. Data recording and publication offers the potential to increase discoverability and transparency of full excavated assemblages and prehistoric daily lifeways and identities.

6. **Insignificant things? Learning what beads can tell us about Neolithic Anatolia**

Emma L Baysal (Trakya University)

The manufacture and use of beads encompasses a wide range of materials, technologies and social/exchange interactions that arguably make them as important to archaeologists as widely studied artefacts such as chipped stone and pottery. Indeed their use close to the human body and lack of obvious utilitarian purpose makes their interpretation all the more interesting. However, the peripheral position given to beads and other personal ornaments in archaeological analyses and interpretations has generally resulted in the underestimation of their value in answering big archaeological questions. Several years of work on Neolithic bead assemblages from Anatolia has begun to reveal the extent of interconnectedness of different regions, raw material distributions, and the geographic spread of finished products. In addition it has also revealed the introduction and movement of new technologies, product designs and preferences. These previously unknown innovations and connections raise questions about the meaning of personal ornaments and their social role. This talk uses several case studies from western and central Anatolia including Aktopraklık, Barcın Höyük, Çukuriçi Höyük, Canhasan, Boncuklu Höyük and Pınarbaşı to ask what can be learnt from beads, and to argue for their significance alongside other, better known, artefacts.

7. **The spread of technological innovations in food, wine and olive oil production in the Near East from the Neolithic to the Roman era**

Andrea Squitieri (Ludwig-Maximilians-Universität München)

Agricultural product processing constituted an essential component of human societies in the Near East. Since the Neolithic, a wide range of technological devices (tools and installations) were designed for this purpose, with technological choices either culturally specific, or cross-cultural. Moreover, technological devices could either show a short chronological development, or a very long one. This paper will focus

on tools designed for food production, in particular querns and mills, as well as presses for wine and olive oil in the Near East, showing case studies spanning from the Neolithic to the Roman era. In this long period of time, some patterns of innovations can be observed, with the introduction of new devices substituting the previous ones for the same purposes. I will first focus on when and where these innovations occurred, whether they were “abrupt” or “announced” by previous technological solutions. I will assess the spread of these innovations, taking also into account the Mediterranean as a possible area of origin or reception of such innovations. Finally, I will offer an interpretation as to why some innovations spread in specific periods of time and specific areas, and not before or somewhere else.

8. **Gifts of the Nile –materials which shaped the early Egyptian burial tradition**

Joanna Dębowska-Ludwin (Jagiellonian University in Krakow)

In the light of recent field research the famous sentence by Herodotus finds a more profound explanation. The cemetery of Tell el-Farkha, Egypt serves an example as it preserved numerous tombs of the Proto- and Early Dynastic date. Locally abundant materials such as mud, straw, and reed were the base for construction of all typical burial elements of differentiated value, varying according to the amount of work engaged and the level of technological innovation applied. The materials became in fact the basic factor that shaped Egyptian burial tradition influencing the form of canonical graves. A closer analysis of all materials used for an early Egyptian burial shows that the idea of value was much more complex than simply built on the original argument. Foreign resources were highly valued, but technology was also important for the Egyptians and the final effect mattered at least equally, if not even more, than the price and rarity of applied materials. Our excavation project was supported by experimental archaeological undertakings, as well as ethnographic studies which gave us more data to better interpret economical and social meaning of the ancient materials used as structural elements and furnishing for early Egyptian tombs.

Let the Beam Rock: Scientific Analytical Approaches to Ceramic, Clay and Mud-Brick

Seminar Room B

Session Organisers: *Possum Pincé (Ghent University) and Negar Abdali (Heidelberg University)*

Session Abstract: The socio-economic identity of ancient populations is primarily investigated by its material culture, especially when written documentation is absent or limited. Ceramics play an important role in the investigation of this material culture because of their resistance to environmental conditions and postdepositional processes. Besides the conventional archaeological study and classification of ceramics, new analytical techniques have been developed providing elemental and mineralogical information. This session will demonstrate how these analytical techniques can be applied on the study of Near Eastern ceramics and how the use of these techniques can give information about the provenance and manufacturing technology of the pre Islamic ceramics. Moreover, this session will aim to illustrate that based on this information, a more complete reconstruction of the socio-economic interactions between sites and regions in the Near East, and changes in these systems through time can be achieved, which contributes to the study of Near Eastern archaeology in general.

1. **Ceramic Production and Distribution in the Kur River Basin of Iran during the Kaftari Era, ca. 2200-1600 BC**

John R. Alden (University of Michigan) and Leah Minc (Oregon State University)

During the Kaftari Period, roughly 2200 to 1600 BC, Tal-i Malyan (the ancient city of Anshan) in highland Fars was one of the two capital cities of Shimashki and Sukkalmah-era Elam. But while Malyan is at least twice as large as any other site in the region, we had no tangible evidence of the economic relationship between this central city and contemporaneous settlements in the Kur River Basin. As a first step toward rectifying this lack of information, we carried out an INAA analysis of almost 400 Kaftari style sherds from Malyan and four other Kaftari sites to see if ceramics were being exchanged within the Kur River Basin. We also tested about 100 sherds of Qaleh and Shogha/Teimuran types to identify elemental signatures for other areas in the KRB. Our results indicate that ceramics with different elemental compositions, presumably reflecting different production locations, were widely distributed throughout the KRB in the Kaftari era. Malyan had ceramics from all compositional groups, and a more diverse ceramic assemblage than any other site in the basin. We interpret this pattern as indicating that Malyan was at the nexus of a regionally integrated ceramic economy during the Kaftari era.

2. **Clay use and administration in Early Dynastic cities of Mesopotamia, 3000-2750 BC: insights from portable x-ray fluorescence analysis**

Amy Richardson and Roger Matthews (University of Reading)

Clays were a key ingredient used in the administrative practices of the cities of ancient Mesopotamia, in the form of proto-cuneiform tablets, and sealed container and door sealings. The monitoring and documentation of goods by Mesopotamian cities in the late fourth and early third millennia BC provide evidence for the highly organised administration of people, land, and resources. In our preliminary study, collections of proto-cuneiform tablets from Jemdet Nasr, held by the Ashmolean Museum, and clay sealings from Ur, at the British Museum, have been analysed using portable x-ray fluorescence, to examine the evidence for the production and movement of administrative documents. Through characterising the clays used by individual cities, we aim to identify evidence for collaborative endeavours and to investigate the movement of sealed goods. The results from the chemical characterisation of 206 clay artefacts demonstrate differentiated clay use within cities for specific administrative purposes, as well as identifying key distinctions between regional clays. The methods of analysis, the means for differentiating between these closely similar clays, and the wider socio-political implications of the results are examined in this paper.

3. **Smoke 'em if you got 'em? Ceramic sampling of museum collections**

Steven Karacic (Florida State University) and James F. Osborne (University of Chicago)

Destruction of some part of the specimen is often unavoidable for the geochemical analysis of pottery, a point at odds with the need to maintain museum collections, where, in the case of Near Eastern archaeology, much of the pottery available for such analysis is stored. We recently applied a minimally

destructive analytical protocol that combined portable x-ray fluorescence, archival data and selective sampling for neutron activation analysis to pottery stored in the Oriental Institute at the University of Chicago. The study considered the production of Cypriot-style pottery recovered from three Iron Age sites in southern Turkey: Tell Tayinat, Çatal Höyük and Tell Judaidah. It was necessary to remove samples from only a dozen sherds in order to gain significant insights into the social and economic dynamics of the region. Using this project as a case study, we explore the dialogue that developed among the conservators and researchers invested in the project. In this way, we hope to contribute to a broader discussion of stakeholders and the potential for geochemical analysis of pottery in museum collections.

4. **Glaze Technology Transfer from Susa to Persepolis? New Petrochemical Evidence**

Negar Abdali (Heidelberg University)

Achaemenid Period craftsmen manufactured polychrome glazed panels at Susa with their well-known archers, griffins, phylloporphic and geometric motives. A few years later at Persepolis glazed tiles and bricks come into production to decorate palaces and villas. The question arises, on one hand, when we observe that the glaze industry more developed in Susa. On the other, both share a common iconography. After completing their work, did the craftsmen in Susa move to Persepolis to take up production there, or did they just transfer their technology? We sampled Achaemenid glazed bricks from the Susa and Persepolis site museums. SEM and EMPA studies took place in the Steinmann Institute/Bonn University. In this preliminary study we are going to compare the results of those analyses and archaeological studies to answer the question raised above and shed the light on the vitreous industry at these two key Achaemenid sites.

5. **Handheld X-ray fluorescence spectrometry on Neolithic ceramics from the Kur River Basin (Fars, Iran): new insights into their ceramic production and distribution**

Possum Pincé (Ghent University)

This paper presents the results of an archaeometrical study on 70 Neolithic ceramics from 13 different sites in the Kur River Basin (Fars) of Iran. These ceramics are part of the Sumner collection kept at the Penn Museum (USA) and can be attributed to two stylistic groups namely Mushki and Jari ware, which were more or less successive in time (6200 – 4900 BCE). Handheld X-ray fluorescence spectrometry is applied on these selected ceramics to determine their elemental fingerprint and detect differences in provenance and/or manufacturing techniques, which can be related to the site, stylistic group or shape of the ceramics. These results are combined with their archaeological and historical background and compared with the results of a preliminary hXRF study on 26 Kur River Basin sherds from the Vanden Berghe collection (kept at the Royal Museums of Art and History, Belgium) allowing a verification of the hypotheses stated in this preliminary study and gaining a better insight in the production centres and exchange systems of the Kur River Basin during the Neolithic.

6. **Micromorphological characteristics of mud brick in Chogha Zanbil, Khuzestan, Iran**

Moein Eslami (Goethe University)

A variety of different materials has been studied from the chemical and micromorphological point of view. However, very few studies have been carried out focusing on ancient mud bricks. The micromorphological investigation of mud bricks could reveal much information about their manufacture and construction process. It also provides valuable socio-cultural information about the construction system of the mud bricks. On the other hand, the study of the micromorphological features of mud brick leads to a better conservation process, since the building materials are better known. In this study mud bricks from the main Elamite archaeological sites in Iran have been studied. The mud bricks from different buildings in Chogha Zanbil have been micromorphologically described and compared to each other to get an insight into the manufacturing and modification process of earthen masonry in all parts of the site. The results show that, even though all buildings are located on the same fluvial sediment terrace and mostly belong to the same archaeological periods, the manufacturing and modification process differed. In Chogha Zanbil, more sand was added to the materials and the mud stone used as the clay raw materials. Besides this, the gypsum crystals and secondary crystals phase in building materials caused a high rate of degradation in this archaeological site.

Landscapes of Transition

Lecture Theatre

1. **The Uruk Expansion: A Polarising Force in the North Jazira**

Michelle de Gruchy (Durham University)

The North Jazira of the early fourth millennium B.C. (LC1-3) was a connected region with shared ceramic traditions, shared ideologies (eye idols, lion and bear symbology), developing urbanism, and increasing inequality. Then, with the arrival of the Uruk Expansion, connections across the region are severed. Through an examination of the routes combined with a review of evidence from surveys (North Jazira Survey, Hamoukar Survey, Leilan Regional Survey, and surveys around Tell Brak) and excavations (especially at Tell Brak, THS25 and Tell Hamoukar), it is shown how the Uruk expansion physically polarised the region, leading to a cultural division that remains visible into the third millennium B.C. after connections are re-established.

2. **Prosperity based on strategic position: Environmental conditions and their role in the development of the fortress and settlement in Metsamor (Armenia) during the Early Iron Age**

Mateusz Iskra (University of Warsaw)

Metsamor, located in the north-western part of the Ararat Valley, is one of the most notable archaeological sites in Armenia, that has been studied for several decades. Since 2013, excavations inside the fortress and in the lower town have been carried out by a joint Armenian-Polish Archaeological Mission. Currently available data place the heyday of the settlement in the last phase of the Late Bronze Age and the Early Iron Age (13th- 9th century BC). The site owed its rapid development to its exceptional localization: the fortress stands on one of three volcanic hills in that part of the valley, towering over a plain rich in water resources. Easy access to the nearby Shamiram plateau and the higher parts of the Aragats massif linked the valley's community with the highlands. Therefore, any fluctuation taking place in the Aragats massif would also influence the inhabitants of Metsamor. This interrelation is especially visible in the Early Iron Age (11th-9th century BC), when the settlement grew considerably due to an influx of population from the northern regions, when adverse climate changes affected the mountain zone.

3. **The Nessana Papyri as evidence of transition between Byzantine and Umayyad rule in periphery**

Rachel Bernstein (Ben-Gurion University)

The Byzantine town of Nessana is one of the best-documented settlements in the Negev desert, thanks to a collection of papyri discovered in the storeroom of a church in the town. The papyri, dating after the establishment of a military unit in Nessana in the late fourth century CE, give us evidence of administrative, social, political, economic, and religious life in the town until the end of the eighth century. The earlier papyri detail rural life in the province as the Byzantine empire's hold on Palestine starts to loosen. The later papyri are composed post-Muslim conquest, some even by Umayyad officials, and they provide us with a sense of the early administrative transition and challenges. This includes details of how both the Byzantine and Umayyad empires handled the geographic expanse of their respective territories, which was large in range climatically and topographically. Through analysis of the papyri, we enhance our understanding of the changing relationships across these landscapes, particularly within the Negev desert and the Sinai desert, as Nessana is a border town of both.

Community Archaeology

Seminar Room A

Session Organiser: Joanna Rowlands (*University of Edinburgh*)

1. **Reconfiguring community engagement: cultural heritage management in Egypt through applied professional training**

Sara Perry (*University of York*)

Although the theoretical base underlying heritage studies and community archaeology is now well developed, the realities behind implementing these theoretical ideals are often poorly understood and fraught with complication. Actual hands-on training in critical heritage is sparse, and practical, measurable tools for archaeologists and professionals working at the front-lines of public engagement need significant development. With reference to an applied programme for Ministry of Antiquities inspectors and museum practitioners in Egypt (generously funded by USAID), here I outline the steps involved in installing a visitor route and heritage infrastructure at the complex site of Memphis (Mit Rahina), while simultaneously training 80 professionals in heritage and community development. I reflect on our successes, struggles and lessons learned, and propose a specific - yet still adaptable and scalable - model of practice.

2. **Working title: From the ground-up: co-creating knowledge and action for the development of communities**

Aphrodite Sorotou (*University of Glasgow*)

Community development occurs in the everyday realities of people's lives. It is based on a range of complex and intertwined processes of communities' adaptation strategies in given environmental circumstances, prevailing cultural identities as well as hopes and aspirations for their future well-being. This paper aims at discussing the basic principles of community development and why it is timely for archaeologists to try to meaningfully contribute towards people-centered and place-based approaches with other disciplines (i.e. social scientists, heritage managers, ecologists etc) and practitioners. The discussion also draws inspiration of exemplary work conducted for the common good of societies in various cultural contexts in the Eastern Mediterranean.

Thursday, 5th January

Current Work in Iraq

Lecture Theatre

Session Organiser: *Claudia Glatz (University of Glasgow)*

1. **Renewed excavations at Shanidar Cave, Iraqi Kurdistan**

Graeme Barker (University of Cambridge)

Shanidar Cave (Soran Province, Iraqi Kurdistan) has an iconic place in Palaeolithic archaeology from the excavations undertaken in it by Professor Ralph Solecki of Columbia University between 1951 and 1960, in particular because of his discovery of a series of Neanderthal burials. He argued that some of the Neanderthals had died in rock falls but that others were formally buried, including one that pollen analysis suggested may have been covered in flowers, indicators of complex funerary behaviour until then regarded as belonging exclusively to *Homo sapiens* ('modern humans'). Shanidar Cave is cited in virtually every scholarly discussion of the differences and similarities between Neanderthals and ourselves, with the Solecki findings continuously debated and disputed. The cave is also notable in having evidence of occupation by modern humans above the Neanderthal levels, providing an ideal context for investigating their respective lifeways and possible reasons for the Neanderthal demise. Renewed excavations at the site began in 2015, with these questions in mind. The paper presents some of the project's preliminary findings.

2. **Back to the 'hilly flanks'. Epipalaeolithic-early Neolithic excavations in the Chemchamal valley and Bazian area by University of Liverpool EFEC project**

Eleni Asouti, Douglas Baird and Ceren Kabukcu (University of Liverpool)

This paper presents preliminary results from renewed excavation and survey at late Palaeolithic-Neolithic, Turkaka, Palegawra and Karim Shahir. Stratigraphic evidence is integrated with lithic, small find, faunal and archaeobotanical evidence.

3. **Investigating an Early Neolithic special building at Bestansur, Iraqi Kurdistan**

Roger Matthews, Wendy Matthews and Sam Walsh (University of Reading)

In this talk we will discuss the latest results and interpretations regarding an Early Neolithic building dated to 7700 cal BC. Under the plaster floors of its main room we have so far excavated a minimum of 55 human individuals, mainly infants and mainly disarticulated. We will discuss the evidence for demography, disease and funerary practices from this extraordinary structure, which finds its best parallels in so-called 'Houses of the Dead' at Early Neolithic sites such as Çayönü, Abu Hureyra and Dj'ade al-Mughara. We consider the roles such structures may have had in acting as tractors for human communities to make the transition from mobile to sedentary ways of life, during the formation of the world's first villages.

4. **Landscapes of Exploitation. Exploring the specialised landscapes and organisational dynamics of early urban societies in Upper Mesopotamia**

Tim Boaz Bruun Skuldbøl (University of Copenhagen), Carlo Colantoni (University of Leicester) and Mette Marie Hald (National Museum of Denmark)

Urbanisation entails dramatic transformations in societies' organisational and economic practices and use of space. Recent evidence from Upper Mesopotamia shows that urban growth during the Late Chalcolithic period (late 5th-4th millennia BC) transformed the surroundings of developing urban settlements into an urban-edge zone consisting of complex human activities. Destructive exploitation of the landscape is a hallmark of this urban transformation. This paper presents new evidence identified by the Danish Archaeological Expedition to Iraq (DAEI) for early urban development and organisation on the Rania Plain in north-eastern Iraq. Results from five seasons of investigations display clear indications of landscape exploitation and off-site activity areas including industrial sprawl, quarries and urban-scale garbage dumping associated with a number of sites on the plain. This evidence forms the focal point of a brief discussion concerning the nature of early urban development. It sheds new light – confirming a number of previous observations – on how strategies for the exploitation of the landscape were spatially expressed in early urban societies and how this reflects the transformation of communities on the plain.

5. **Excavations at Gird-i Shamlu 2015–2016: A Bronze Age Site in Southern Kurdistan**

Simone Mühl (*Ludwig-Maximilians-Universität München*) and **Alexander E. Sollee** (*Universität Bern*)

The site of Gird-i Shamlu is situated in the center of the Shahrizor Plain in Halabjah province, Iraqi Kurdistan. Its archaeological remains show that this site offers significant information on the archaeological material and history of the 2nd millennium BC. The Middle Bronze Age layers at the site are characterised by the discovery of a new ceramic form, the so called Shamlu pottery, which is named after this site and represents an intrusive element amongst the region's material culture. This pottery follows layers with pottery types known from old Babylonian contexts in Mesopotamia. Changes of the settlement system as well as in ceramic production together with historical information might indicate movement of people between the Iranian Highland and the Mesopotamian lowland. During the latest season in autumn 2016 excavations in the lower town of Shamlu have revealed Early Bronze Age structures and artifacts datable to the Akkadian and Early Dynastic periods. The early 3rd millennium BC architecture was destroyed by a fire and revealing finds of a local pottery tradition with a prolonging Late Chalcolithic repertoire that mixes with eastern Mesopotamian and North West Iranian Early Bronze Age key types. The paper will summarize the results of the 2015 and 2016 excavations and discuss the implications of these results on our understanding of the regional modes of interaction between eastern Mesopotamia and the western Zagros during the 3rd and 2nd millennium BC.

6. **Tell Khaiber: community and control in the countryside of southern Iraq**

Stuart Campbell (*University of Manchester*)

The site of Tell Khaiber is rather small but, in the mid-2nd millennium BC, was also a centre of rural administration. Excavations since 2013 at the site, c.25km north of Ur, have revealed a very large and complex administrative building that dominates the site. The study of this settlement provides an insight into the organisation of the local community, its position within the landscape and the interface between a rather small, rural settlement and much larger-scale, albeit distant, centralised state.

7. **Making Bronze Age communities in the Zagros-Mesopotamian interface: The site of Khani Masi and its regional context**

Claudia Glatz (*University of Glasgow*) and **Jesse Casana** (*Dartmouth College*)

Conceptions of the self are founded on the distinction from an 'other'. A multitude of geographical terms, for instance, express the binary oppositions of settlement and varying types of hinterlands in Mesopotamian texts. The imagination of urban and early state communities in lowland Mesopotamia, however, was also predicated on a more distant, highland antithesis. Knowledge of this highland other – experiential, mythical and deliberately distorted - provided Mesopotamian political regimes' imperial ventures with prestige and legitimacy. Research to date has focused primarily on the rhetoric of highland alterity that has helped construct both ancient and modern notions of Mesopotamian civilisation. In this paper, we take an archaeological approach to exploring questions of the degree, nature and mechanisms of highland-lowland interaction and separation through the lens of local communities and their material production. Our focus is the Sirwan/Upper Diyala River valley, a transitional highland-lowland landscape that binds the two topographical and conceptual spheres and forms the locus of their encounter. In this paper we combine the results of our ongoing regional research in the course of the Sirwan Regional Project and recent excavations at the Late Bronze Age monumental complex of Khani Masi.

8. **Living on the edge of the empires. A case study from the Eastern Ḥabur region, Iraqi Kurdistan**

Paola Sconzo, Jason T. Hermann and **Alexander Edmonds** (*University of Tübingen*)

The findings of the University of Tübingen's Eastern Ḥabur Archaeological Survey (EḤAS), which covers the western end of the Zagros Mountains in Iraqi Kurdistan, serves as a vital case study in settlement transformations, land use, and access in a region influenced by the rise of the Assyrian Empire during the 10th-7th centuries BC. This dramatically diverse physical environment, featuring river valleys and wadis, rolling plains, and narrow canyons cutting up into rugged mountain chains, is characterised by a high permeability at both the local and superregional level. Preliminary analysis of results from the first

four years of the EHAS suggests that there was dramatic change in the way that these landscapes were settled beginning at the end Late Bronze Age into the Iron Age. These observed transformations in settlement patterns are examined drawing from the historical-philological record, the distribution of diagnostic ceramic styles, and through route network analyses. These interpretations are then considered in the context of results from neighbouring regional studies.

9. **Archaeological Survey in a Mesopotamian-Zagros Ecotone: Interim Results of the Sirwan Regional Project, Garmian Province, Kurdistan Region of Iraq**

Jesse Casana (Dartmouth College) and Glatz Glatz (University of Glasgow)

Since 2013, the Sirwan Regional Project has worked to document the rich and largely unexplored archaeological landscape of the Upper Diyala/Sirwan River Valley and its tributaries, a study area encompassing diverse environmental and topographic zones. This paper compares and contrasts the settlement and land use histories of the upland Zagros foothills and the lowland Middle Diyala Basins in two distinct phases: the Bronze Age and the Parthian/Sasanian period. In the third and second millennium BC, the largely localized material culture of earlier periods gradually gave way to an assemblage heavily influenced by southern Mesopotamian types, even as the spatial organization of settlement in rainfed uplands and irrigated lowlands remained distinct. By the Parthian and Sasanian periods however, the agricultural landscape was transformed through the construction of large-scale irrigation works, corresponding to a historic peak in settlement density, preserved today as extensive ruins and relict field systems. The differing trajectories of change in settlement dynamics and land use practices illustrate the complex ways in which environmental constraints, agricultural technologies, and prevailing political economies intersected in shaping the settled landscape.

10. **The Peshdar Plain Project 2015 & 2016: Investigating a Major Assyrian Settlement on The Empire's Eastern Frontier**

Karen Radner, Janoscha Kreppner and Andrea Squitieri (Ludwig-Maximilians-Universität München)

Since 2015 the Peshdar Plain Project, directed by Karen Radner (LMU, Munich) and conducted under the auspices of the Sulaymaniyah Antiquities Directorate, has completed 15 weeks of fieldwork at major Neo-Assyrian sites in the Bora Plain (Peshdar district, Autonomous Kurdish Region of Iraq) and exposed almost 1000 m² of buildings, streets and production areas. Geophysical survey, pottery survey and excavations indicate that the "Dinka settlement complex" extended over an area of ca. 60 ha, including the seemingly distinct sites of Gird-i Bazar and Qalat-i Dinka. A qanat system may also be connected to this complex. The project was inaugurated in 2015 after the chance find of a Neo-Assyrian tablet dated to 725 BC at Qalat-i Dinka, indicating that the area was part of the Border March of the Palace Herald that guarded the empire's frontier. ¹⁴C dates from Gird-i Bazar confirmed the Neo-Assyrian dating of the site. Bioarchaeological and material data provide rich new information for many aspects of life on the eastern frontier. A particular highlight is also the rare opportunity to synchronize Assyrian and Western Iranian pottery cultures. Both cultures shaped local pottery, and the pottery kilns uncovered in the excavations further elucidate their production.

11. **Settlement and Water Management on the Erbil Plain, Kurdistan Region of Iraq**

Jason Ur (Harvard University) and Nader Babakir (Directorate of Antiquities, Erbil Governorate, Kurdistan Region of Iraq)

Since 2012, the Erbil Plain Archaeological Survey (EPAS) has been recording sites and landscape features within a 3200 sq km survey region, with Erbil at its centre. The region has proved to be an extraordinarily dense archaeological landscape, with density approaching 1 site per square kilometer. This presentation will highlight our three seasons of research, with particular emphasis on settlement and land use at the time of the Neo-Assyrian empire, when the Erbil plain was part of the imperial core. It will describe a range of probable Neo-Assyrian water features and the project's drone-based field recording techniques.

12. **The Qalatga Darband Archaeological Project**

John Macginnis (British Museum) and Kamal Rasheed (Sulaymaniyah Directorate of Antiquities)

The site of Qalatga Darband lies approximately 8 km east of Rania in Sulaimaniya province in Iraqi

Kurdistan. It is situated just to the west of the Darband-i Rania, the pass where, though now subsumed into Lake Dokan, the Lower Zab flows from the Peshdar into the Rania Plain. In antiquity the site commanded both the road and the river going through the pass, including a crossing from the site of Murad Rasu on the southern side. Archaeological investigations at Qalatga Darband were inaugurated in the context of the Iraq Emergency Heritage Management Training Scheme, a programme funded by the UK government and delivered through the British Museum aimed at offering intensive training to Iraqi archaeologists to help equip them for the challenges facing them in the years ahead. Fieldwork commenced in September 2016 and is expected to continue through to 2019. The occupation at Qalatga Darband itself dates primarily to Hellenistic and Parthian times, periods hitherto barely explored in this region. The site will be studied in conjunction with investigations at Murad Rasu, the surface material of which attests to a longer period of occupation, including from the Assyrian through to the late Parthian period. The overall aim of the project is therefore to reconstruct the history of settlement occupation and imperial defenses of this strategic location through the full span of the first millennium BC.

Landscapes of Transition and Big Data Approaches

Seminar Room A

1. **Mobility, control and the persistence of highland occupation in southern Caucasia**

William Anderson (Federation University)

Fortified landforms in elevated positions were a characteristic feature of the southern Caucasus highlands during prehistory and into the medieval to modern periods. Their distribution, development and nature can often be related with strategic systems of defence and control implemented by local polities and imperial states. This recognition has tended to focus attention on particular Bronze and Iron Age phases, portraying the establishment and use of these places through the lens of political history. However, multi-period occupation of certain landscape positions can equally be connected with enduring agro-pastoral strategies, routes of movement and cultural associations that outlast short-term political events. Recent ground surveys in the highlands of the upper Kura River valley, southern Georgia, have identified occupation sites on ridges and hilltops whose usage over long timespans may derive from their suitability to facilitate and control movement at different physical scales and dimensions. The longevity of these 'gateway' sites, yet apparent changes in their function, indicates their recurring importance in diverse political and cultural circumstances.

2. **Changing Dynasties – Changing Landscapes? A look at political change and settlement patterns during the Arsacid and Sasanian periods in Southeast-Iran**

Fabian Sarga Eberhard Karls Universität Tübingen

This paper will present data gathered during the first two seasons of a survey project in the South of Kerman province, Iran. As this region has barely been archaeologically explored and constitutes one of the border lands of both empires, the material should give new insights into the archaeology of these periods. I will explore whether significant shifts in the area's settlement patterns happened and can be related to the succession of the Arsacid to the Sasanian dynasty. For example, in the Susiana plain earlier surveys have shown a period of intensified urbanisation under Sasanian rule. While major urban sites are not present in the Southern Kerman region, it will be interesting to look at a possible impact of political changes in a rural setting and whether an increase or decrease of agricultural or other artisanal sites can be reconstructed from one period to the next. Additionally, it should prove interesting to explore the pre- and antecedents, that is the transition from Achaemenid to Arsacid times and from the Sasanian to the Early Islamic period.

3. **Empires and Urbanism: Dealing with large scale settlement data in Middle Eastern Archaeology**

Dan Lawrence and Kristen Hopper (Durham University)

In the last few years two major projects based at Durham University have generated extremely large scale settlement datasets. The Fragile Crescent Project brought together survey data from across the Northern Fertile Crescent, including parts of Syria, Iraq, Lebanon and Southern Turkey, to investigate processes of urbanisation during the Early Bronze Age, as well as the long term settlement trajectories of this region. The Persia and its Neighbours Project operates at an even larger scale, seeking to investigate the frontiers of the Sasanian Empire from Oman in the South to Georgia in the North and including further datasets from Syria, Iraq, Iran, Azerbaijan, Turkey and Kuwait. This paper will discuss some of the approaches taken in Durham to deal with highly variable survey data, to make comparisons and interpretations at multiple spatial and temporal scales, and to integrate these datasets with others. We will also discuss some of the results from both projects and show how the integration of information can lead to new interpretations, but also new questions and avenues for future research.

4. **Hearing the land: animated landscapes in Medieval-Modern Cyprus**

Michael Given (University of Glasgow)

After decades of varying systematic and intensive survey, we are still struggling to interpret survey data in a way that transcends description and reductive models such as 'settlement patterns'. This is exacerbated by the challenge of expressing the connections and interactions of all the players in the landscape, across the old dichotomies of cultural vs natural, living vs non-living, human vs non-human. My suggested solution to both of these problems is to investigate sound as a medium for communication,

interaction and relation in past landscapes. By listening to the aural symphonies and dissonances that animate the landscape, I intend to redraw the connections between people and more-than-human others in our shared world. I will demonstrate this by listening to a range of communicative sounds in landscapes of the Northern Troodos Mountains in Cyprus in the Medieval–Modern period. These sounds create very specific times, places, and relationships: territorial bird song; flocks of belled goats, each with its own symphonic identity; a family reaping with bells on their sickles; the grinding (and stopping) of water mills; church bells and muezzins sounding in the same village. Even artefact and site distribution maps indicate characteristic and communicative sounds, allowing archaeologists to reanimate the intensely connected landscapes of the past.

5. **Big data, big issues: assessing data quality estimation for the integrative and cross-disciplinary analysis of human-environment interactions**

Francesca Chelazzi (University of Glasgow)

Since the 2002 ‘Side-by-side survey’ workshop, the debate about working in a comparative format progressively gained some popularity in Mediterranean archaeology; today an increasing number of scholars is aware about the urgency of comparing regional datasets in order to produce wider landscape narratives.

This is not only a theoretical perspective, but also a concrete necessity: urban and rural changes are strongly transforming our landscapes and the only legacy at our disposal is often a heterogeneous corpus of old reports, survey projects, casual discoveries and rescue excavations. Furthermore, an incessant policy of cuts has been lashing numerous European universities during the last decade so that second-generation analysis is today a territory to explore by an increasing number of young scholars. Before even beginning a second-generation analysis, a striking doubt rises at centre of the methodological issue: can we rely on datasets collected in the past by someone else? And, if yes, how can we compare regional datasets in a wider and cross-disciplinary attempt? These questions often act as deterrent and interesting soon-to-be studies in landscape archaeology die even before birth. This paper aims to discuss how computational analysis can help us introduce certain standardization in our datasets, which is the precondition for every thematic and qualitative investigation on the humans-environment interactions. In other words, the first step is to quantify, weight and evaluate the informative qualities of our legacy data.

6. **Making the data more human: the pre-processing of data as a way toward a ‘hybrid archaeology**

Simone Bonzano (Freie Universität Berlin)

In the last decades, computers and dedicated software became archaeologists’ favourite fellows. We used them for databases and GIS or as real-time support in the field in excavations and surveys. This comes with a risk. Computer and software often lead us - in the best-case scenario - to think and to elaborate as machines, by applying algorithms, models and flow-charts as programmers and developers; in the worst-case scenario, on the other hand, we run the risk of getting dragged by their own binary code. Their predominant quantitative approach risks overshadowing the central qualitative part of our research. However, the recent development of new methodologies and advanced software help us mitigate the gap between quantitative and qualitative approaches, providing a more human-driven look at the data. This is not a trifle problem to overlook: it lies at the centre of our comprehension of the human past, to prevent abstractions about networks and models. This paper concerns two different approaches: the use of modelling as an interpretative tool (i.e. seasonal mobility in the Near East) and the use of non-SQL databases as a way to create mind-maps of data (i.e. using graph-database as Neo4j to relate different data).

7. **Quantitative experiences in Near Eastern Archaeology: current issues and possible future perspectives**

Alessandro Di Ludovico (Sapienza – Università di Roma)

Quantitative and digital approaches have been introduced in Near Eastern archaeology a long time ago, but, in general, one cannot affirm that they have actually been integrated in the common research experiences. Some types of computer applications, for example, are often - still today - considered just experimental methods for research works to which the ordinary approaches (the “traditional” ones) do not pay any attention, or tools that can provide the research activity some “glamour” or a very precise and beautiful graphic apparatus. On the other hand, and partly because of this, archaeologists who

develop (often in a very early phase of their career or education) a strong interest in any aspect of Information Technologies run the risk of being marginalized or considered few more than technicians. Sometimes the main problems at the basis of this situation may seem to be the specific and advanced skills necessary to use a large part of the computer aided tools and electronic instruments, as well as the kind of narcissistic isolation in the scientific world, which affects those scholars who have acquired such abilities. There is, anyway, a much wider cultural issue that gives shape to such conflicts and the mental frames from which they spring. In this contribution the history of the use of IT in the archaeology of the ancient Near East will be critically outlined and some proposals for a new debate will be expressed. The aim is to encourage the search for innovative approaches in which quantitative methods would really be, when needed, a part of the scientific reasoning, and not just a decorative element or the path to “funny” and isolated experimental works.

8. **Curious Travellers – retrieving context and imagery for monuments, sites and landscapes threatened by conflict**

Andrew S. Wilson, Vince Gaffney, Chris Gaffney, Richard Bates, Eugene Ch’ng, Richard Cuttler, Gareth Sears, Tom Sparrow, Edward Faber (University of Bradford)

The AHRC-funded Curious Travellers project (www.visualisingheritage.org) is a data-mining and crowd sourced infrastructure to help with digital documentation of archaeological sites, monuments and heritage at risk. It provides a priority response to the globally important challenge of sites that have been destroyed or are under immediate threat from neglect, cultural vandalism, conflict and natural disasters, creating 3D models from image data. The project was initiated in the wake of escalating destruction seen across sites in the Middle East. Given the increased inaccessibility of these regions and to limit additional risk to archaeologists and members of the public in-country, we have chosen to develop the project around extant imagery sourced from individual donors, archive collections and by scraping images from the web (<http://theconversation.com/your-tourist-snaps-can-help-preserve-threatened-heritage-sites-for-the-future-65610>). By calling upon archaeologists and other heritage professionals with knowledge of the region through our project forum, we are seeking to focus efforts at a site and landscape scale, develop targeted campaigns and reintegrate context and meaning with the help of an Arabic-language historic environment structure that serves as an important legacy of this work and aid to management, conservation and rebuilding in a post-conflict era.

Routines, Memory and Performance

Seminar Room B

1. **Mud-floors and embedded information: micro-debris analysis at the site of Abu Tbeirah (Nasiriyah, Iraq)**

Susanna Cereda (University of Vienna)

Excavations carried out in the last five years by a “La Sapienza” University of Rome and Iraqi team at the site of Abu Tbeirah (Nasiriyah, Iraq) exposed a large multi-phased mud-brick building dated to the Early Dynastic - Akkadian transition. This structure (Building A) presents a great internal articulation, with rooms probably hosting different activities and meeting different purposes, but a more specific understanding of how the spaces were used is still needed. In this paper the author will present the results of a micro-debris analysis carried out on the material residues embedded within the mud-floor of “Room 5”. Artefacts and ecofacts comprised between 10 and 1 mm were sorted and counted, and their distribution subsequently plotted in order to identify specific patterns connected to the use of space and past activities. The aim of this contribution is, thus, to show how such high-resolution techniques can help to investigate lived spaces, and how they ultimately contribute to the exploration of performance through the less visible traces of daily life practices.

2. **A commonplace oddity? Fire treatment of the dead in ancient Kaneš**

Yağmur Heffron (University College London)

Ancient Kaneš (modern Kültepe near Kayseri in South-central Anatolia) is rightly famous for many things, among which are the numerous in-house burials of its residents, often accompanied with far wealthier collections of grave goods than contemporary graves in cemetery sites elsewhere in Anatolia. Due to its unique status as the head-office for the Old Assyrian trade network in Anatolia, Kaneš housed a highly heterogeneous mix of local and foreign residents, whose practices of cultural hybridity continues to generate great scholarly interest. Funerary practices of this mixed community draw even greater attention for formulating questions around the negotiation of local and foreign religious identities. This paper revives mortuary evidence from the site that is over half a century old, to collate seemingly anomalous cases in which certain grave occupants have received fire treatment around the time of burial. The question whether the ‘light toasting’ of the dead reflects regular or exceptional practice, will be explored both against the historical background of religious affiliations attested in texts, as well as a critical appraisal of field methods and recording strategies which may independently account for the presence or absence of relevant data.

3. **Performance and the Body in Middle Bronze Age Levantine Palaces**

Carl Walsh (University College London)

Palaces are social arenas in which the performance of specific forms of behaviour and gesture often formed integral aspects in the construction of social identity and commonality amongst ancient court societies. However, relatively little study has been made on the way that courtly body culture, etiquette and performance, the pomp and ceremony of court life, can be reconstructed from the material, artistic, and architectural records during the Bronze Age in the eastern Mediterranean. In this paper I put forward an anthropological and sociological approach that employs a holistic analysis of palatial architecture, decoration and semi permanent features (such as furniture, basins, hearths, and standards), in examining the social reception spaces of Levantine Middle Bronze Age palatial buildings at Tell Kabri, Ebla, Qatna, Alalakh, and Tilmen Höyük. By focusing on the ways these features interacted with the human body and could construct specific forms of behavior (such as ways of walking and sitting), it is possible to begin to reconstruct the theatrical and performative body behaviours that would have formed integral elements of courtly identity, hierarchy, and social memory. In this manner we can start to restore some aspects of the pomp and drama of court life during the Bronze Age.

4. **A consumer age: Specialty oils in decorative juglets and their role in negotiating social identity in the Middle and Late Bronze Age eastern Mediterranean**

Lesley Bushnell (University College London)

Modern theory on branding and advertising explores the consumption of brands in the creation of social identity. Some of these theoretical perspectives can be applied to understanding the production and consumption of various products in Bronze Age society, particularly those used in routine rituals and

performances. For example, small decorative containers, known as juglets, containing small quantities of specialty oils, were consumed in some regions of the eastern Mediterranean during the Early and Middle Bronze Age, the earliest being Cyprus and Palestine. They were associated with burials rites and other ceremonial practices and their consumption, and in particular, the display of such consumption seemed to have had a role in the construction and/or confirmation of group social identity. This is backed by the archaeological record which shows that juglet use was routine; at least one juglet was present within each burial regardless of status, gender or age. Archaeological data also informs on the regional and diachronic stylistic preferences and, in addition, can track spread of the consumption ideology to Syria and Egypt where new group preferences can be distinguished. By the Late Bronze Age the consumption of juglet specialty oils may have been used to construct a more personal identity. With the imports of new and very distinctive juglets, the visual difference in these 'brands' may have been exploited to negotiate personal identities outside the social group, for example, a new sub-elite class who had access to foreign goods. An industry of production and export of these innovative products, firstly in Cyprus and later in the Aegean, fuelled this consumption and display in a circular process of productive consumption. This paper will explore these perspectives, drawing on an archaeological database of over 16,000 juglets and interpolated with textual and iconographic evidence of the period.

5. **Routine and performance of an imperial encounter: Egypt and Palestine in the 2nd millennium B.C.**

Angela Massafra (University of Glasgow)

Routine practices and performances are an important tool to understand the creation of social identities and are particularly useful in contexts of cultural encounters. In the study of the Ancient Near East, though, culture contact and the related practices have been approached through unilateral perspectives such as acculturation studies and World System theories. Over the past decades, however, has emerged a new scepticism of these dominant narratives. Southern Palestine provides a suitable case study to discuss the challenges and opportunities of a different approach. Through a study of routine and performance at key sites under the Egyptian authority I aim to provide a more balanced account of the cultural dynamics resulting from this encounter and address questions related to the negotiation of identity, resistance and hybridization

6. **Symbols as active conveyers of meaning: Kudurrus of Southern Mesopotamia in the Second and First millennium BC**

Silvia Ferreri (University of Cambridge)

How does art negotiate with its religious and political setting? How and why do representations of gods change? How and why do we associate specific artistic styles with ethnic groups and/or political systems, and are these associations correct? How do minorities deal with homogenizing political entities such as empires? To answer these questions, my research focuses on kudurru (i.e. Mesopotamian boundary-stones) production in Kassite and post-Kassite periods aiming at shedding light on their role as tools of political propaganda and markers of identity. By means of examples, I show the potential of a comprehensive approach to the analysis of kudurrus, especially when traditional philological, text-based approaches are substituted by analyses based on the pluridimensionality and polysemy of symbols. Iconology, semiotics and textual analysis are jointly employed to provide interpretations of kudurrus' imagery centred on the observer and his background. The interplay between symbols on the stones and their literary and religious referents is taken as a starting point for a reappraisal of kudurrus as a class of materials that can add to our understanding of Kassite art and society and its transformations through time.

7. **Figurines: meaning and performance**

Josef Mario Briffa SJ (University College London)

Studies on the figurines of the southern Levant during the Late Iron Age tend to focus on the female figurines, connecting them with fertility and maternity, or proposing a possible apotropaic function. It is hard to provide a solid theoretical basis for these explanations, and these studies generally lead to an impasse. This paper takes a step back from the standard narratives. The performative value of the figurines is discussed, and potential social meanings are explored with an input from semiotics. The figurines, therefore, are not seen as static objects to be looked at, but as a figurative miniature world where the persons and communities who made and used them engage with social meanings through performance, a miniature world that included not only female figurines but other anthropomorphic types, animal figurines and miniatures of inanimate objects like chariots and furniture.

8. **It's Child's Play: Reconsidering Toys as a Material Category**

Benjamin Hinson (*University of Cambridge*)

This paper outlines an archaeological methodology for considering play within ancient Egypt. Today, childhood is associated with a discrete material culture, of which toys form a predominant part. Broadly, a 'toy' is a category of object, an item given by adults to children. They are often smaller versions of actual items, and often, even if unconsciously, serve a pedagogical purpose. They may structure and reinforce social norms, gender roles, or develop physical skills. In this respect, toys are often objects of socialisation. They can be defined in opposition to tools; toys allow children to mimic adult actions without real-world consequences, reflecting modern Western ideas of childhood as a time of recreation free from consequences or responsibility. Within ancient Egypt, there are no confident examples of what would today be classed as toys. However, this does not mean that ancient Egyptian children did not play; it means that current archaeological methodologies fail to recognise what constituted play, its materials, and its purposes. This paper will discuss how to understand play within the Egyptian material record. Play incorporates two spheres of activity: that structured by adults, and that by children themselves. As to the first, rather than involving specific material, play and learning were enacted through engagements with the same objects as adults—rather than a discrete material world created specifically for them—and through work. As to the second, play structured by children independently of adults, discussion will consider how this can be traced archaeologically. It will be argued that archaeology needs to move away from ideas of toys as a material category, rather as a 'concept' which spans material boundaries.

9. **Tells: Persistence and Emergence**

Bruce Routledge (*University of Liverpool*)

Tell (or more properly tall = تَلْ) is an Arabic word with many Semitic cognates appropriated by archaeologists as a technical term to refer to occupational mounds. Tell is linked to Near Eastern Archaeology in that it has been imposed on sites in adjacent non-Arabic speaking regions but not to all occupational mounds around the world. The small body of conceptual literature reflecting on tells is primarily concerned with the Neolithic of Southeastern Europe and Central Anatolia and in this sense is parochial. More typically, the tendency has been to treat tells externally as points in space with singular relationships to the landscape and internally as a sequence of moments in time. Neither of these perspectives addresses how tells both endure and emerge. On tells the past continues to exist quite literally as the ground beneath one's feet. At the same time, tells are always changing, with distinct modes and temporalities of deposition, up to and including the activities of archaeologists, bulldozers and Salafist extremists. In this paper I will use examples from the site of Tall Dhiban, Jordan to consider what might be gained from changing our interpretive perspective on tells from sequence to persistence and emergence.

10. **The rosette motif as a mode of non-verbal communication: An analysis of the motif's deliberate concealment in the contexts of ritual consumption and elite feasting**

Cheryl Hart (*University of Wales Trinity Saint David*)

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. 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 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. From this perspective, I believe that the iconographic rosette motif - as a vehicle for non-verbal communication - signified a deep and far-reaching concept throughout the Bronze and Iron Age cultures of the Eastern Mediterranean. Although certain contextual usage, for example in tombs or palaces, meant that the motif was inherently hidden from general view, the wider iconographic use of the rosette -as a means of non-verbal communication - meant that it would have been visible to, and understood by, the populace of the Eastern Mediterranean cultures. However, evidence suggests that in some contexts, in particular that of ritual performance or elite consumption, the motif was being deliberately concealed, thus invisible. In this paper, I intend to analyse the role of the rosette as a symbolic element of feasting and ritual consumption and, through comparative data from contexts in which the motif appears to have been deliberately concealed, I will question who the

intended audiences or recipients of the 'message' being communicated by the rosette actually were.

11. **'Feeding Hattusha': Archaeobotany and Agriculture at the Hittite Capital**

Charlotte Diffey (*University of Oxford*), **Reinder Neef** (*Deutsches Archäologisches Institut*) and **Amy Bogaard** (*University of Oxford*)

During the 17th century BC the establishment of the Hittite capital Hattusha included the construction of a large-scale underground crop storage facility. This silo was subsequently destroyed by fire in the early 16th century, preserving hundreds of tons of cereal crops and associated weeds in situ. The discovery of this complex in the late 1990s offered a unique opportunity to assess directly the agroecology of the farming system that produced crops mobilised by the Hittite state. This direct evidence is an essential complement to existing documentary evidence for Hittite farming, which provides a state-biased and fragmentary picture at best. This paper will present preliminary archaeobotanical results from the large underground silo, as part of collaborative work between the School of Archaeology at Oxford and the Deutsches Archäologisches Institut in Berlin. Using methods refined in the ERC-funded AGRICURB project at Oxford, this material has been interpreted through stable carbon and nitrogen isotope analysis of cereal remains, combined with functional ecological analysis of the weed flora, as two independent means of inferring specific crop husbandry conditions and agricultural practices. It is hoped that this work will shed light on the ecology and politics of food production at Hattusha, and the wider nature of Hittite agriculture.

12. **Down on the farm in Mesopotamia: undiscovered 'local' donkeys**

Jill Goulder (*University College London*)

An aspect of my PhD thesis work, on the impact of the adoption of working donkeys and cattle in 4th- and 3rd-millennium BC Mesopotamia, relates to the zooarchaeological and other potential reasons for underestimation of the presence and role of the short-distance transport donkey in the social and economic transformations of the period. Factors include the low representation of donkey remains, the difficulties of identifying equid species and domesticated donkeys, and the prevailing ox-focused models of early working-animal use, featuring ploughing and carts. Donkeys may well have been domesticated initially for short-distance (rural) pack transport, and it is their chief employment in developing regions today. Modern analogy suggests strongly that the donkeys mentioned in 3rd-millennium BC texts as used for ploughing were employed year-round for short-distance pack, for household and farm use and for transfer of goods to nodes and urban areas. Numerous studies of the use of working animals in modern sub-Saharan Africa and elsewhere underline the social and economic transformatory role of donkeys through their transporting of water, fuel, crops, fodder, construction materials, raw materials for centralised manufacturing, and goods to 'railheads' – in Mesopotamia, collection points for canal or river transport as well as for long-distance pack-donkey caravans.

Archaeology of Islam in the Near East: Old Ideas and New Perspectives

Seminar Room A

Session Organiser: *Andrew Petersen (University of Wales Trinity Saint David)*

Session Abstract: Whilst there is a vast amount of important research still being carried out in relation to the material culture of the ancient Near East the archaeology of the Islamic periods has suffered both from restricted funding and the on-going conflicts in the region. However, the investigation of past Islamic societies has arguably never been more important both for understanding the roots of the present situation and also to protect a spectacular and diverse heritage which is under threat. Whilst extremist groups have destroyed ancient Muslim shrines and mosques in Syria and Iraq warfare from Aden to Aleppo has destroyed numerous historic buildings and sites. Although damage to archaeology can not compare to the human tragedy the erasure of the pre-modern Islamic heritage has long term consequences for the cultural and intellectual development of the region. The aims of this workshop are both to present the results of recent fieldwork and also to discuss how archaeology can inform our understanding of historical developments in the region. The scope of the workshop extends not only the archaeology of Muslims but also to the material culture of other groups living under Islamic rule or adjacent to Islamic states (e.g. the Crusader states).

1. **A study of south Jordanian Islamic holy sites located near ancient structures**

Päivi Miettunen (Finnish Institute in the Middle East, Beirut)

Visiting shrines and other holy sites has been a popular practice throughout the Islamic world. Among the best known places, that attract large numbers of pilgrims, are tombs of prophets, as well as shrines of important Sufi figures. But there are also numerous smaller sites, often known only by the people living close to these shrines. Yet, in the lives of the people visiting these sites, the "smaller" saints play just as important religious role as the more popular saints.

The location of a shrine is often determined by practical reasons: the saints have been buried in or near the area where they lived. Some shrines have a longer history behind them, with connections to historical events, traditions, or even natural formations. In this paper I will focus on four holy sites in Southern Jordan. The sites are very different in their popularity, history and architecture, but they all share two elements in common. Firstly, they are located on, or near, a mountaintop, and secondly, they are in the vicinity of older structures. I will describe the history and traditions connected to these sites, and discuss possible reasons for their shared features. This paper is based on my dissertation fieldwork, conducted among the Bedouin communities in Southern Jordan.

2. **Silken shrouds: Thoughts on new evidence concerning burial customs in the eastern Islamic world**

Jochen Sokoly (Virginia Commonwealth University in Qatar)

The paper will consider a small group of garments and textiles recently exhibited at the Metropolitan Museum of New York during the exhibition "Court and Cosmos: The Great Age of the Sejuqs" and how these might expand our hitherto limited knowledge of burial customs in the early Islamic east, particularly Iran and Central Asia. Of particular importance is a complete funerary suite consisting of a mantle, a cushion and face cover, all woven in a patterned silk compound weave, which was shown in New York for the first time. Given our limited knowledge of Islamic burials in general, this suite is very interesting as it contrasts with burial evidence from Egypt, where we find predominantly linen outfits with limited use of silk in the period leading up to and including the Fatimid dynasty. Some of the questions discussed include the lack of archaeological data concerning Islamic funerary customs, role of silk in Islamic burials, possible differences in the Arab/Mediterranean tradition and the Turkic tradition. Far from offering concrete answers, the paper rather tries to open up new discussion that might illuminate an area of research that has received little attention.

3. **Islamic views on the archaeology of human remains**

Lewis Turner (University of Wales Trinity Saint David)

The paper aims to address the social, religious and historical implications of exhuming human remains in an Islamic context. Looking at the different forms of the *Sharia*, a view will be reached as to when and

where it is ethically suitable to excavate human remains. In addition the paper will consider modern day examples of where the Sharia isn't followed and whether this produces a grey area for archaeologists working in Islamic countries. Is there a compromise that could be reached between archaeologists and Muslim beliefs and customs?

4. **The archaeology of Muslim burial in Qatar**

Andrew Petersen (*University of Wales Trinity Saint David*)

An unusual grave located at the abandoned medieval and early modern settlement of Ruwayda in northern Qatar poses a number of interpretative problems. The grave is located in an isolated position on the beach and is surrounded by a rectangular enclosure. Anthropological evidence of the human remains awaits possible further excavation and exhumation. For the present the only means to attempt to understand the grave is within the context of archaeological evidence from other Islamic settlements in Qatar. Although there have been few documented archaeological excavations of Islamic period burials in Qatar there are a number of cemeteries and groups of graves which may provide some insight into the significance of this burial.

5. **The Islamic archaeology of the Otrar Oasis Kazakhstan**

Giles Dawkes (*University College London*)

For the past two seasons, the CAA has been investigating some of the mudbrick cities of the seventy or so known in the Otrar oasis on the Syr-Darya river. The oasis was a hydraulic civilisation, dependent entirely on the management of flood waters to irrigate. In terms of scale and antiquity, it was akin to the other great river civilisations of the Old World. However, its history is almost completely unknown in the west, and can be considered a 'lost civilisation'. This paper presents the preliminary results of the multi-disciplinary fieldwork.

6. **The Malwiyya at Samarra: Pioneering architecture or Abbasid folly?**

Benjamin Dale (*University of Wales Trinity Saint David*)

The Malwiyya – or Spiral Minaret – found near the river Tigris at the second Abbasid capital Samarra, is a towering example of experimental architecture. Although the spire may still cast shadows both literal and figurative over the city of Samarra today, the impact of the Malwiyya appears to be somewhat minimal at first glance: few other examples are immediately evident in the Islamic world and beyond. This does not appear to be because of any structural faults or architectural inadequacies. Not only has the structure survived for many centuries long after its abandonment, it has survived direct attacks in recent decades. The time of the Abbasid Caliphs was one of rapid cultural progress and change as incredibly wealthy rulers strove to find an outlet for vast amounts of newfound wealth at the head of an empire larger than that of Rome. Caliph al-Mutakkwil was, in many ways, no different: the city of Samarra consists of many opulent prestige projects of which the Malwiyya was one. Considering other sites built within the Abbasid Empire, it seems pertinent to ask the following: was the Malwiyya at Samara an Architectural Pioneer or an Abbasid Folly?

Mesopotamia and Beyond

Lecture Theatre

1. **Tell Abu Salabikh: Glyptic in Context**

Harriet Martin

Abu Salabikh seals and seal impressions total about 360. Approximately 60% are seal impressions from the ED IIIB Ash Tip (ASE 4 1994). This paper will look at the remaining glyptic which ranges in date from Jemdet Nasr to early Akkadian. Of the seals, almost 60% are ED III-Akkadian in date while 40% are JN-ED II. Of the seal impressions only 5% are ED III-Akkadian; 95% are JN-ED II. The paper will review the dating of the contexts in which the glyptic was excavated. The great majority of the ED III-Akkadian seals and impressions were found near the mound surface, either in graves, in pits or as surface finds. It is probable that most of the habitation strata of these and later periods have eroded away. We argue that three areas of excavation (the 4100 Potter's House, the 6H82 House, and the Eastern Houses around 6G37) pre-date ED IIIA. Chronologically Level IC in the Area E Central Unit sits on the cusp of the change from late ED II to early ED IIIA. The dating of the Area A Southern House is more problematic.

2. **Kassites east of the Tigris**

Tim Clayden (*University of Oxford*)

For over a century it has been given in the field of Kassite studies that they originated somewhere to the east/north east of central Babylonia. This thesis is based largely on the evidence of the neo-Assyrian period and of accounts of the career of Alexander the Great where a people who are to be identified with the Kassites are stated to have been in the Zagros mountains. This paper examines the archaeological, linguistic and epigraphic evidence for Kassites in the trans-Tigridian region in the Old Babylonian and late Old Babylonian periods. The core conclusion is that the evidence for an eastern genesis of the Kassites is very sparse and has yet unequivocally to be demonstrated. It also highlights the interesting possibility that the relationship between the Kassites and the Hurrians in the pre-late 15th century BC was closer than previously suspected and requires further examination.

3. **The Early Stages of the Kingdom of Judah**

Yosef Garfinkel (*The Hebrew University of Jerusalem*)

State formation of the Kingdom of Judah is a matter under heavy debate. Some scholars completely reject the biblical narrative regarding the 10th, 9th and even the 8th centuries BC. In the past some suggested that the process started only in the late 8th century BC after the destruction of Samaria. Today it is quite common to claim that the process started in the late 9th century BC, after the destruction of Tell es-Safi (biblical Gath). Since 2007 fresh data had been uncovered in three sites: Khirbet Qeiyafa, Lachish and Khirbet Arai, all located in the Judean foothills, one to two days walk from Jerusalem. The lecture will present the results of these excavations and how they are contributing to the rise of the Kingdom of Judah.

4. **Archaeology in Afghanistan: recent discoveries, current state of research, new developments**

Warwick Ball

Since a series of coups in the late 70s culminating in the Soviet invasion in 1979 brought archaeological field work to a halt, Afghanistan has been in a state of almost continual upheaval. There was a brief resumption of very limited fieldwork in the early 21st century, but increasing instability has halted even this. One would reasonably expect therefore the field to be virtually moribund. However, the sheer quantity and quality of new discoveries in and research on Afghanistan over that period has been overwhelming. Aramaic documents detailing the activities of Alexander the Great, for example, a hoard of over two tons of coins (the largest coin hoard ever discovered in the world), a new Greek inscription, a Sasanian rock-relief that revises conventional views of Iranian history, over 150 new documents written in Bactrian, excavations of extensive Buddhist monastic complexes, to name just some. There has been a huge number of new publications, with more being planned including a new scholarly journal on Afghanistan soon to be launched (to be published by Edinburgh University Press).

Recent Work in the Levant and Egypt

Seminar Room B

1. **Visual Art of Ancient Hebrew Seals as a Window to Understanding the Biblical World**

Meir Lubetski (Baruch College, City University of New York)

Representational art can transmit content that cannot be fully expressed in words. Thus, iconography is a vital resource for comprehending historical material. The icons, therefore, are not mere illustrations, but rather they are relevant to explaining the cultural milieu from which they emerged. Hebrew seal stamps present a treasure trove of unexplained data to shed light on biblical contiguity. My aim is to introduce iconic seal specimens that throw light on a variety of biblical narratives that require more clarity. The challenges, here, then, lie in the integration of textual and iconographical art unearthed in archaeological excavations. It will add a fresh dimension to the archaeological approach in which routines shape and socialize community and individual minds in public and household settings.

2. **A Day at the Seaside: The Kubba Coastal Survey Project, Northern Lebanon**

Jennie Bardbury (University of Oxford)

Until recently, the northern coastal strip of Lebanon had largely escaped the impact of mass urban sprawl and development. It therefore represents one of the only remaining coastal areas with relatively well-preserved archaeology. Unfortunately, this situation is rapidly changing, with new beach bars, green houses and industrial units being constructed along this coastline at an unprecedented rate. The Kubba Coastal Survey project aims to provide a baseline of archaeological data from which to assess the heritage resources of this region and in doing so provide a wider and deeper chronological understanding of this coastal landscape. This paper will present findings from this project which began in Summer 2016. By using remote sensing techniques, alongside field survey, it will consider how activity, utilisation and perceptions of this region may have changed over time, from the Palaeolithic to the early 20th century AD. This paper will also discuss the techniques being used by the project to document and monitor the threatened heritage of this region, and outline the initial steps that are being made to work with local heritage groups to enhance already existing frameworks for sustainable tourism and development.

3. **Fieldwork at Koubba, North Lebanon 2015-16: one of many pathways to 'complexity'**

Graham Philip (Durham University)

This paper reports on work undertaken by a joint research project involving Durham and the American University of Beirut around the village of Koubba in Northern Lebanon during 2015 and 2016. The evidence from Koubba is then set in the framework of our growing understanding of the archaeology of Lebanon during the 4th and 3rd millennia BC, which is then contrasted with the timing of, and pathways to, complexity discernible elsewhere in the dry-farming zone of the Middle East.

4. **New excavations at Amarna's cemeteries: difficult demographics and uncomfortable questions**

Mary Shepperson (University College London)

Ten years of work on Amarna's South Tombs Cemetery has revealed a lot about the health and life experiences of ordinary people at Amarna, indicating surprising hardships in workload and diet. In 2015 excavation began at a second large non-elite cemetery. The North Tombs Cemetery excavation is intended to gauge how representative the South Tombs burials are of Amarna's people. The preliminary results of this first season of work show marked differences from the South Tombs Cemetery and raise some difficult questions about society and the organisation of labour at Amarna. The North Tombs Cemetery burials appear to represent a very specific portion of the population; a group characterised by youth, illness and poverty. Preliminary results suggest an age profile tightly constrained to around 7-25 years with no infants and few mature adults. Initial study of the bones suggests these individuals endured an extremely heavy workload and high incidents of injury and illness. Burial goods and practices show a lack of care and material provision, even by the modest standards of the South Tombs Cemetery. The possibility of extensive and intensive child labour at Amarna is something which must now be considered.

Friday, 6th January

Archaeology in and of Conflict

Lecture Theatre

1. **Conflict as cultural interaction: the case of Urartu**

Dan Socaciu (University of Liverpool)

The Anatolian Iron Age kingdom of Urartu borrowed elements from neighbouring cultures in order to create its own. The Assyrian influence on Urartu is significant: the first Urartian inscriptions use the Assyrian script, language, and formulary and clear Assyrian influences can be seen in Urartian art. This exchange was not unidirectional, but the Urartian influences on Assyria are harder to identify and analyse. Their interaction developed in an apparently hostile context: both the earliest contact and the subsequent relations between the states of Urartu and Assyria had conflict as their basis. This paper will explore the cultural interaction between the two neighbouring political entities and the way that this interaction was born out of their military conflict, inserting the case study in a broader view of conflict as a medium of cultural interaction.

2. **“Against Him May Celestial Tarhunza Come Fatally”: Early Iron Age northern Syria at war, c. 1000-650 BCE**

Thomas James (University of Liverpool)

The primary goal of this presentation will be to explore the textual and monumental iconographic evidence available for reconstructing the military histories of the states which existed in Early Iron Age northern Syria from c.1000-650 BCE. Although sites such as Carchemish and Zincirli have been known archaeologically for over a century, the history of warfare in the era has usually been told through the eyes of their more famous contemporaries, such as the Neo-Assyrian Empire, instead of their own sources. This presentation plans to challenge this orthodox view by presenting the monumental iconographic remains of six major sites in the region, several of which have been significantly impacted by the events of the current war in Syria, along with information from the conflict related Luwian, Aramaic, and Phoenician texts of the region in order to better understand the cultural values which drove their overall conduct of warfare. This will include analysis of the reasons they cited for justifying wars, the grand strategic tasks the political structures of the region wished to accomplish, and the role(s) armed forces served in northern Syrian societies.

3. **What remains of conquest? Measuring the impact of the Mongols on the cities of Central Asia and the Caucasus**

Katie Campbell (University of Oxford)

The westward Mongol Expansion of the early 13th century is one of the major events in Eurasian history, but is mainly understood through the historical sources, rather than archaeological evidence. Arguably the greatest impact of the Mongols can be examined through study of the cities which they encountered as they moved westwards, which archaeology is well-placed to investigate. This paper will briefly summarise the historical sources which frame our current understanding of the Mongol conquests and outline a strategy for archaeological investigation of this event and its aftermath, using case studies from the Caucasus and Central Asia. Methodologically, it will suggest means of defining and quantifying the ‘archaeological signatures’ of conquest and how these might inform an interpretation of the scale of political and social disruption, as well as how such an impact might be measured between sites with very different histories of excavation, available data-sets and accessibility, something which is particularly pertinent to current research in the Near East and Central Asia.

4. **Satellite imagery-based monitoring of archaeological site damage in the Syrian civil war**

Jesse Casana and Elise Jakoby Laugier (Dartmouth College)

Since the start of the Syrian civil war in 2011, the rich archaeological heritage of Syria and northern Iraq has faced severe threats, including looting, combat-related damage, and intentional demolitions of monuments. However, the inaccessibility of the conflict zone to archaeologists or heritage specialists has made it nearly impossible to produce accurate damage assessments. This paper presents interim results of an effort, undertaken in collaboration with the American Schools of Oriental Research and the

US Department of State, to monitor looting, destruction, and other forms of damage to archaeological sites using recent, high-resolution satellite imagery. Leveraging a large database of archaeological and heritage sites throughout the northern Fertile Crescent, as well as unlimited access to continually updated satellite imagery from Digital Globe, this project has developed a flexible and efficient methodology to log observations of damage in a manner that facilitates spatial and temporal queries. With more than 5000 sites carefully evaluated, results reveal unexpected patterns in the timing, severity, and location of damage, helping us to better understand the evolving cultural heritage situation in Syria and Iraq, and offering a model for future monitoring efforts.

5. **ISIS and heritage destruction: A sentiment analysis**

Emma Cunliffe (Durham University)

The use of heritage destruction by the so-called Islamic State (ISIS) has garnered international media attention - and widespread condemnation - across the English-speaking world. Whilst some of their heritage destruction propaganda is in English, most is in Arabic, leaving questions unanswered about what they are doing, why, and whether it is successful. There has been little available evidence to support the theories circulating.

This paper presents the preliminary results of an innovative analysis of the sentiments displayed in 1.5 million Arabic-language Tweets relating to heritage destruction and ISIS over a 9-month period. It seeks to gain a deeper understanding of why ISIS destroy heritage, and what effect their propaganda has across the Arabic-speaking world. This study is the result of a partnership between the Universities of Oxford and Durham, and the Voices from the Blogs team at the University of Milan, using a unique form of sentiment analysis specifically designed to evaluate large datasets, making this study the first large-scale assessment of responses to heritage destruction.

6. **Archaeology and the Iran-Iraq war in Basra province: The case of Charax Spasinou**

Mary Shepperson (University College London)

During the Iran-Iraq war, the Iraqi army sought to defend the city of Basra by creating lines of defence extending to the north and south. In the utterly flat landscape of southern Iraq, mounded archaeological sites were favoured as defensive positions, representing the only high ground. As a result, many of the ancient sites in Basra province were damaged during the conflict. The site of Charax Spasinou lies 40km north of Basra. The city was founded by Alexander the Great, reaching its height during the Parthian period when it covered around 5 sq km, surrounded by a huge city wall. During the mid-1980s, Charax became part of the Iraqi defensive lines and recent archaeological work at the site has revealed the war's impact; gaps were cut in the ramparts to accommodate tanks and artillery, large pits were dug for fuel and ammunition storage and deposits were bulldozed into defensive earthworks. This paper looks at the conflict damage at Charax but also considers the importance of the tangible evidence it holds about a major conflict from which little reliable documentary evidence survives.

7. **Negotiating power relations via ancient heritage: The example of Egypt**

Christian Langer (Freie Universität Berlin / University College London)

The looting of archaeological sites in regions of conflict such as Egypt, Iraq, Libya and Syria has dominated disciplinary discourse in the past five years. This is no surprise given that violent conflict has contributed to this and laid bare how archaeological research depends on political stability in the area. However, another aspect of ancient heritage as a contested space has not been part of critical discourse: its potential to negotiate contemporary power relations. The example of Egypt demonstrates how ancient heritage is not simply prone to falling victim of violent conflict but can rather be a theatre of violence and the negotiation of power relations by itself. The revolution of 2011 has revealed that Egypt's ancient heritage is a contested space between different stakeholders of Egyptian society—symbol of which are the famed (post)revolutionary graffiti of Tahrir Square. In this presentation, I aim to give an outline of how the ancient heritage of Egypt has been a contested space between colonialism, nationalism and authoritarian government since the French invasion of 1798. Implications for the future study of Egypt's ancient heritage will be addressed in concluding remarks.

8. **Who Should Be the Decision-Makers in Post-Conflict Times?**

Nour A. Munawar (*University of Amsterdam*)

Destruction of cultural heritage has escalated in Syria and Iraq as the ongoing armed conflict has spread to ancient cities. The destruction in Syria and Iraq has deliberately targeted archaeological monuments dating from the prehistoric, Byzantine, Roman, and Islamic periods, with no distinction being made of the cultural, historical, and socio-economic significance of such sites. The violence of this conflict is not, of course, limited to the destruction of cultural property, and has first and foremost served to create a humanitarian catastrophe. More than 10 million people have left their homes and have been internally displaced or sought refuge in neighbouring countries (Turkey, Jordan, and Lebanon). Others have made their way through the Mediterranean to reach northern Europe, stirring up political tensions and debates about the rights of migrants and refugees. In this paper I will explore attitudes to cultural heritage among displaced peoples and refugees. The destruction and re-purposing of monuments in their former homelands, such as Daesh's attempts to turn churches into mosques, are heavy-handed attempts to re-write history by erasing physical evidence. Nevertheless, I will suggest that a strong sense of identity and cultural heritage remains in the memories of the displaced. How can these memories be sustained? Can they be put to use to maintain identities through transnational networks? I argue that it is important that the local population is fully incorporated into the re-construction process when the war ends, and that they are given back the right to decide how their country should be re-built. This will be a complex process, however, and given the wide-spread dispersal of displaced people we will need to devise new ways to allow these war-survivors to provide evidence to future decision-makers and donors.

9. **The least we can do: international failure to protect West Asian antiquities**

Donna Yates (*University of Glasgow*)

In this paper will discuss how international antiquities protection policy continues to fail. By discussing current heritage disasters in Syria and Iraq and comparing them to previous disasters in the same region, we will consider the question: are we making the same mistakes over and over again? Are researchers driving our global policy responses to the looting and trafficking of antiquities or is the media? As we will see, this lack of innovative policy has profound effects on the sources of looted antiquities but few effects on the market. We will conclude by thinking about what effective regulation of the market might look like.

Micro, macro and mega: new approaches to the question of Neolithisation in the Near East

Seminar Room A

Session Organisers: *Robin Bendrey* and *Joanne Rowland* (University of Edinburgh)

Session Abstract: The number of approaches that have been taken to the question of Neolithisation are as great as the issues embedded within the term itself. The purpose of this session is to find out where we are today with regards research into the processes by which we understand the mechanisms of exchange and transfer of knowledge that lead to Neolithic communities, and crucially, to look at the different outcomes of these processes at inter-regional, regional and site specific scales. The scale of absolute time surrounding the processes of Neolithisation is also integral, and this will be examined by looking at an inter-site level to monitor change as a community adopts aspects that we regard as Neolithic, as well as inter-regional level to question why elements seem to be adopted earlier in some areas and later in others. Intertwined with this is the question of local environment, and the extent to which this impacts upon the emergence and even non-emergence of Neolithic settlements within the archaeological record.

1. **On research into plant domestication across the Near East and how plant aDNA is forwarding this work**

Robin Allaby (University of Warwick)

2. **Mountain ecology, early goat husbandry, and human sedentarization in the Neolithic Zagros uplands**

Robin Bendrey (University of Edinburgh)

The emergence of Neolithic lifeways involved a number of radical and inter-related transitions, including humans' relationships with their environments and also their relationships with one another. The emergence of new institutions, including modes of food production, storage and consumption, variously supported and helped negotiate the social tensions brought by larger communal aggregations of people associated with farming and greater degrees of sedentism. Early animal husbandry in the Near East is thought to have developed gradually, evolving from hunting strategies and the intensification of relationships between humans and wild animals into the management of, at first, morphologically unchanged animals. Current evidence indicates goat husbandry emerged in potentially diverse centres across the Near East around the late ninth/early eighth millennia BC, with one of these key centres being the uplands of the Zagros Mountains. Mountains are characterized by marked altitudinal and seasonal variation in environmental variables which contribute to elevation clines in diversity and composition of ecological communities. This paper presents a simplified mountain ecology model of the seasonal movement and structure of medium-sized herbivore communities and compares this to regional published zooarchaeological quantitative data to explore the questions of seasonality of site occupation, human sedentarisation, and the emergence of animal husbandry in the Neolithic Central Zagros.

3. **Climate and Neolithic communities in the Near East: Assessing potential effects of Early Holocene rapid climate change events on societies on an inter-regional, regional, and site specific scale**

Pascal Flohr (University of Reading, University of Oxford), *Dominik Fleitmann*, *Roger Matthews* and *Wendy Matthews* (University of Reading)

Climate is often cited as a factor in socio-economic changes, such as those observed during the millennia-long process(es) of Neolithisation in the Near East. Relatively short-lived climate 'events' of <300 years in duration with rapid (less than a decade) onsets provide suitable case studies to assess effects of climate, as it will, arguably, be more difficult to adjust to those than to more gradual transitions. Two such periods of climate change are the so-called 9.2 ka and 8.2 ka events, during which large volumes of meltwater deposited in the oceans caused substantial hemispheric to global cooling and aridification. The most pronounced of the two, the 8.2 ka BP event, has in the Near East been linked to the widespread abandonment of communities, migration causing the spread of the Neolithic, as well

as local adaptation. We re-assessed the impact of these climate events on Neolithic societies by studying the chronology of the archaeological changes; while synchronicity is not evidence for causality, it is a key pre-requisite for linking climate to society. We assessed all available radiocarbon-dated sites in the region, and looked at the evidence at a mega (Near Eastern-wide), macro (regional), and micro (site-specific) scales. We have concluded that the evidence so far does not support a large-scale regional response to climatic events; rather such climate as a factor for change should be studied through a bottom-up approach.

4. **The origins of the Neolithic Lower Egyptian pottery reconsidered: Some new thoughts on the old case**

Agnieszka Mączyńska (Poznań Archaeological Museum)

Ceramic containers appeared in northern Egypt together with Levantine domesticated plants and animals during the 6th millennium BC. For this reason pottery is treated as a part of the “Neolithic package” and the southern Levant has been very often indicated as a place of origin for Egyptian pottery technology. The Levantine provenance of Neolithic domesticated plants and animals from Lower Egypt is now widely accepted, however in my opinion the adaptation of other aspects of the Neolithic societies in northern Egypt, including pottery production, should be analyzed within a wider context. The appearance of pottery in Lower Egypt could be closely related to the new subsistence strategies, but the idea of clay containers could be transferred to Lower Egypt from a number of different directions. This presentation focuses on the Levant and the Egyptian Sahara as possible sources of Lower Egyptian ceramics. Egypt has a special geographical position, being a part of the Near East and also the African continent. Its communities and societies that lived in the deserts, along the Nile Valley and in the Delta were influenced from many directions including the Near Eastern and Africa. They developed and sometimes were forced to transform by many internal and external factors.

5. **Networks of knowledge: scales of chronology and clay technologies in the Eastern Fertile Crescent**

Amy Richardson (University of Oxford)

Increasing awareness and understanding of clay technologies expanded the lifeways available to the Neolithic people of the Zagros Mountains. This was not the discovery of a new material, but the introduction of new ways of considering and shaping the earth. Over the course of the Early Neolithic, dynamic interactions with clay became embedded in the lifeways of the inhabitants of the Eastern Fertile Crescent and across Southwest Asia. With innovation came a stronger understanding of the potentialities of the material. At almost every site in Neolithic Iraq and Iran, across hundreds of kilometres, people took to shaping clay to alter their living environments, and making small figurative and geometric objects. Close examination of human actions in making things with clay at a site-scale highlights individual innovative practices that contributed to local and regional networks of material practice. Since Schmandt-Besserat’s investigations in the 1970s into the development of Neolithic clay practices, improved chronologies have afforded a more nuanced understanding of the pace of the spread of ideas through engagements with networks, which facilitated the exchange of knowledge across the Neolithic world. This paper addresses these chronologies of clay use through multi-scalar approaches to innovative practice embedded in time and space.

6. **Re-assessing change during the Neolithic at Merimde Beni Salama: environment and adaptation in the western Nile Delta**

Joanne Rowland (University of Edinburgh)

The history of research into the Egyptian Neolithic settlement of Merimde Beni Salama stretches back to 1928, when it was discovered during a regional survey of the West Nile Delta. It has only been during the renewed investigations since 2013 that the regional focus has really re-emerged, with much of the earlier research focusing on the Neolithic settlement itself. Sedimentary cores taken in 2013 have already helped to building up a profile of the environment immediately around the Neolithic settlement, which helps to make clearer the reasons why this location was particularly suitable at the end of the 6th and beginning of the 5th millennium. Taking this as a starting point, the aims that will be discussed in the paper, are the most appropriate methods with which to look at the two questions of: 1) what were the social as well as environmental conditions in the area immediately before the earliest Neolithic settlement, and 2) what changing environmental and social conditions helped to shape and were shaped by the life of the settlement through the 5th millennium BC. Question 1 will help to lead towards a

better understanding of interactions between those already present in the area and, it is assumed, some groups of new settlers who started to introduce domesticated species; this, within an improved environmental framework, will help to clarify why the Neolithic emerges relatively late in the Delta, and why it emerges where it does. Question 2 aims to re-identify change over time at Merimde, currently assigned to phases I-V, and assess the impact of a changing natural environment upon this, as well as the hypothesised social interactions that are reflected through changes in the organisation of the settlement, structures within it, as well as in the cultural assemblages.

7. **Bifacials, Blades and Bladelets in the Neolithisation of Lower Egypt**

G. J. Tassie (*University of Winchester*)

During the fifth millennium cal BC new types of lithics appeared in Lower Egypt. The bifacial tools, such as concave-based arrowheads, denticulated bifacial sickle blades, bifacial axeheads, bifacial adzeheads, partially polished bifacial axeheads, bifacial gouges, and bifacial knives have been found at Merimde Beni Salama, Omari, Sais and sites in the Faiyum. These Neolithic assemblages are predominately flake-based, however, various types of blades are also found at all these sites. Although the bladelets, that are usually attributed to the Epipalaeolithic Qarunian contexts in the Faiyum, appear to be present in much higher quantities in the earliest Neolithic layers of both Merimde and Sais. Several of these bifacial tool types emerged in the Western Desert prior to their appearance in the Nile Valley and Faiyum sites, some in the seventh and others in the sixth millennium cal BC. Those that appeared in the seventh millennium cal BC predate the introduction of ovicaprines from the Levant, whereas others seem to coincide with their introduction. However, once mixed farming practices occurred in Lower Egypt the use of bifacial tools not only greatly increased, but new variations emerged. Although there are both intra- and inter-site technological variations that are explored in this presentation, the reasons and direction of the spread of the various tool types will also be examined. The transformative effects of human-material culture relationships will be considered on a regional scale. The advent of the Neolithic resulted not only in new human-plant and human-animal relationships, but new human-material relationships that had unintended consequences resulting in an increasingly coherent, structured, and narrowly focused social world.

Consuming cloths: textile values in the Near East and adjoining regions (9000 to 500BCE).

Seminar Room B

Session Organisers: *Susanna Harris* (University of Glasgow) and *Toby C. Wilkinson* (University of Cambridge)

Session Abstract: Ancient textile production involved a wide range of complex technologies, from collecting and processing fibres, threads and weaving, to all manner of finishing such as bleaching, dyeing and applied techniques. Understanding the technological aspect of textiles requires detailed and specific studies, for which considerable advances have been made in textile research in recent decades. Equally significant is our understanding of textiles' consumption, i.e. their wider role and value in the social lives of ancient communities. The rich potential of textile technology and the ANE texts, many of which provide clues on modes of circulation of textiles, prompts fresh examination of topics such as: the role of the aesthetic of textiles in creating social identities, their value in perpetuating, personifying or transforming power networks, and their visual transmission across technologies. These issues can only be addressed through engaging detailed specialist textile knowledge with broader research agendas around cultural change, continuity and difference. In this session we invite speakers both from the textile specialist perspective and outside strictly 'textile' fields to review the current or potential contribution of textiles (large or small) to answer the grand challenges of research. For example, how did developments in textiles contribute to changes in social structures? What role did fibres and textiles play in the creation and circulation of wealth? Or, how did textile aesthetics substantiate the pursuit of power?

1. **Woven wealth: what is a valuable textile and how do we identify it?**

Susanna Harris (University of Glasgow)

Textiles in archaeology have been studied predominantly in terms of the technology of production and the social identity of clothing. Recently scholars have recognised the expense of textiles in terms of labour and resources, which addresses the question of value largely through an economic perspective. We may ask more broadly; why were textiles valued, what for, by whom, and were some textiles valued more highly than others? In this paper I suggest five principle ways that archaeologists can recognise the value of textile through the material record; through materials with affordances, in terms of expense and exclusivity, as artefact biographies, as items with conspicuous, sensory appeal and in terms of fungibility. By addressing value, rather than wealth or prestige, we open up questions as to how textiles were valued across social matrices, according to changing ambitions during the life course and through the biography of the textile. Textile value will be explored through archaeological evidence in the Near East and Mediterranean Europe from 1000-500 BC

2. **Where did colors go? Looking for the colorization of textile and its implications between the Neolithic and the urbanization in the ANE (Early Halaf - Late Chalcolithic period)**

Sarah Dermech (Université de Strasbourg)

Based on several observations such as the lack of colors (mostly paintings and pigments) in the architecture, graves and in the material culture (with the possible exception of ceramics) starting at the end of the PPNB until the LC period, we propose the following hypothesis: their quasi disappearance tends to indicate that they were used on organic materials now disappeared. On the other hand, the growing importance of textile and cloth production during these early periods has been shown. We suggest that colors (dyes) were then used to adorn cloths and textiles, until they were found again in monumental architectural context of the LC period. The tell Uqair temple's wall paintings (Late Uruk period) depicting some human characters wearing "elaborated" garments whereas other had "simple" garments indicate that these were used as social markers, the wealth of which was certainly emphasized by colors. It is possible that this phenomenon started as early as the Halaf period.

3. **Dressing up the town: textiles and the spatial expansion of urban life**

Toby C. Wilkinson (*University of Cambridge*)

The relationship between urban societies and textiles, in particular the mass-production of textiles, has often been noted, but it is usually treated as a passive indicator or index of complexity rather than an agent of change in itself. This paper will argue for a deeper active role for textile production, exchange and consumption in transformation of societies in the Near East over the long term and in particular as a possible primary or at least powerful agent in the spread of urban life outward from the traditional Mesopotamian core.

4. **Urbanism, Landscape Archaeology and...Textiles? Settlement patterns and social organisation during the Late Chalcolithic and Early Bronze Age in the Northern Fertile Crescent**

Dan Lawrence (*Durham University*)

The earliest textual sources in the Northern Fertile Crescent, such as those from Ebla and Tell Beydar, emphasise the importance of textile production to these emerging polities, and particularly the vast herds of sheep and goat which must have been involved. Cuneiformists have long recognised the importance of these to the political economy of early states, epitomised in Gelb's observation of the Eblaite polity as 'an empire...built on the back of simple shepherds' (1982). However, there have been few attempts to understand the implications of this for the wider landscape. This paper will use landscape data compiled through Durham University's Fragile Crescent Project, alongside climate proxy data and textual sources, to examine changes in settlement patterns at a variety of scales during the Late Chalcolithic and Early Bronze Ages. This period saw the emergence of the first urban centres in the Northern Fertile Crescent, alongside major expansions and contractions of settlement in the Syrian steppe zone. We argue that the shift from flax to wool as the raw material for textile production, alongside the development of institutions capable of bearing risk, facilitated a change in the scale of agro-pastoral activities which could be sustained. Textile production was of central importance in the development of large urban centres, their associated polities and the wider social changes which occurred during the so-called 'Second Urban Revolution'.

5. **Egyptian textile production, the view from Gurob: a 'harem palace' or a royal administrative and distribution centre in the Faiyum?**

Jan Picton (*Petrie Museum*)

Building on earlier attempts to readdress the identity of Gurob as a harem palace leads to a re-examination of the role of the textile workers at the site. Were they 'just' some of the many imported non-royal women kept busy in textile production as often suggested, or was this a major centre of industrial scale textile production as supported by documents and archaeological evidence at the site? The quality of textiles recovered, and the quantity of fine blue-banded cloth, suggests the production of 'royal-linen' from the 18th Dynasty to the latest years of the New Kingdom.

6. **The Manufacture and Use of Textile Production Tools at Tell Tayinat: Reconstructing an Early Iron Age Production System**

David Lumb (*University of Toronto*)

The 12th - 10th centuries BCE in the northern Levant were characterized by continuity and change. Recent excavations at the site of Tell Ta'yinat in the Amuq valley of southern Turkey have uncovered multiple lines of evidence for the production of textiles. This presentation will situate a review of this evidence within the broader historical and cultural contexts of the Early Iron Age in the northern Levant. I will describe the varying lines of identified evidence that together point to much, if not all of the *chaîne opératoire* for Iron Age I textile production. In doing so, I consider the multiple craft industries that came together to produce the compilation of tools and techniques used in the many stages of textile manufacture at the site. It is anticipated that the specific steps and sequences involved in local textile production can be empirically established in order to provide a solid basis from which to address interpretive challenges surrounding questions of *technological choice* and subsequent questions regarding the nature of regional and interregional interactions. The goal of establishing a comprehensive and local *chaîne opératoire* based on empirical data from Tell Ta'yinat will be considered alongside the methodological and theoretical challenges encountered by the author.

7. **Making meaning and reinforcing roles: the consumption of manufacturing**

experiences as a mechanism for social reproduction

Neil Erskine (University of Glasgow)

As a time-consuming day-to-day routine, textile production provided the context for the lives of many ancient individuals. Consequently, it represents a lucrative evidentiary base from which to investigate the meanings producers ascribed to the world and how these developed or endured through time. Problematically, the production and consumption of textiles are most often tackled as distinct topics, with considerations of meaning largely confined to the latter. Where production's meaning sees attention, it is generally restricted to negotiations of identity. However, given production is itself an act of consumption, of raw materials, time, and of meaningful experiences, this separation seems inappropriate, and given that everyday routines frame and direct how individuals understand the world and how these understandings persist through time, investigations of the meaningfulness of production must go far beyond identity. This paper attempts to tackle these problems by drawing on the work of Deleuze and Guattari to investigate the specific experiences of a craftsman and infer the consequences for the meaning and value they attach to the production process, the products made, themselves, the world around them, and their place in it. Utilising the archaeological evidence of textile production in an Iron II dwelling at Tel Halif, Israel, alongside textual evidence for the meaningfulness of textiles in the contemporary Southern Levant, I show how the meaning embedded in textile production not only served to teach identities, but to reinforce roles within an ideological social superstructure and so represented a mechanism for social reproduction.

8. Defining the value of wool in the Iron Age: The case of textiles from Timna (Israel)

Margarita Gleba (University of Cambridge), Orit Shamir (Israel Antiquities Authority), Vanessa Workman (Tel Aviv University), Naama Sukenik (Israel Antiquities Authority), Erez Ben-Yosef (Tel Aviv University)

The ancient copper mining district of Timna Valley has produced some of the earliest and most numerous Iron Age wool textiles in the Near East. During the 2013 and 2014 seasons of the Central Timna Valley Project, organically preserved textiles and cordage were found at Site 34 inside a metallurgical complex and nearby gatehouse. These materials are an important addition to the textile finds from previously excavated sites of the Arabah Expedition, Site 200 and 30. Sites 34 and 30 have recently been dated by high precision radiocarbon analyses, and appear to have been occupied in the eleventh–tenth centuries BCE (with a longer occupation at Site 30 from the late twelfth to the ninth centuries BCE). Preliminary analysis of 20 samples from a variety of textiles resulted in identification of distinct sheep wool and goat hair fibre profiles that differ from the several contemporary wools analysed across Europe and the Near East, and allows for the first time to discuss the differences in raw material quality and its likely value, as well as preferences in technologies of production and patterns of consumption.

Scientific Chronologies in South-west Asia: From Archaeological Questions to Technical Basis

Seminar Room A

Session Organiser: *Piotr Jacobsson (British Institute in Amman)*

Session Abstract: There is a relationship, which changes through time, between the technical state of scientific chronologies and the viability of archaeological questions. The uncalibrated, imprecise, and sometimes inaccurate early ¹⁴C determinations from Tell es-Sultan (Jericho) could transform our perception of the Neolithic in the 1950s but their contribution today would be negligible. The archaeological questions of today, with their desire to combine complex theoretical perspectives with very fine empirical detail (as seen in the session themes of this meeting), often require the ability to construct centennial or sub-centennial chronologies. Therefore larger, more precise and more reliable data sets are necessary for the complex archaeological questions of the 2010s. However, fulfilling these demands in south-west Asia can be challenging. This manifests itself in a number of fields, from the difficulty of dating bone in the arid and semi-arid environments, through the frequent need for sampling approaches capable of identifying markers of contextual integrity invisible to the naked eye, to the interpretive challenges posed by longevity and magnitude of many of the excavated sites. The session explores this tension between the demand for certain types of chronologies and the technical challenges arising in the field and in the lab through papers focusing on:

1. The nature and scope of archaeological questions asked of the scientific chronologies
2. The technical means of addressing these questions, ranging from improved sampling methods to developments in sample preparation
3. How the connection between these two aspects of chronology building can be made more explicit.

Through developing a better mutual awareness of these three themes more conscious and effective approaches to chronology building can emerge.

1. **A new radiocarbon chronology for Abu Salabikh, Iraq**

Maciej M. Wencel (*University of Oxford*)

Abu Salabikh is one of the most significant archaeological sites of the Early Bronze Age Southern Mesopotamia. Excavations at the site revealed long occupation sequences, providing us with a good record of transition from prehistory to history. Abu Salabikh was also the findspot of one of the richest collections of the earliest human literature. Despite the site's overarching importance for our understanding of the formative periods of Mesopotamian history, only a couple of questionable radiocarbon dates are available. A number of new ¹⁴C measurements were performed on charred cereals from a variety of contexts as a part of a doctoral project. The new dataset provides a unique opportunity to develop an absolute chronology for the first half of the 3rd millennium BC.

2. **Establishing synchronicity between climate and culture using quality-checked dating evidence: the New Reading Middle East Radiocarbon Database**

Pascal Flohr, Dominik Fleitmann, Wendy Matthews, Roger Matthews

(*University of Reading, Department of Archaeology and Centre for Past Climate Change*)

When attempting to establish if climatic change was a factor in social, economic, or political change as observed in the archaeological and historical record, it is foremost key to establish if the climatic and cultural changes occurred at the same time. Synchronicity is of course no evidence for any causal relationship, but it is the essential first step to take. In order to determine if two Early Holocene cold and arid climate events, the so-called 9.2 and 8.2 ka events, were synchronous with various socio-economic changes in Neolithic farming communities in the Middle East, we set up the New Reading Middle East Radiocarbon Database (so far available from Flohr et al. 2016, *Quaternary Science Reviews*). Radiocarbon dating evidence was compiled from existing databases and the literature. The Access Database allowed us to query the data so that only quality-checked, reliable dates could be selected for analysis of site occupation duration. This approach led to significant new conclusions, such as the resilience of early farming communities to potentially the most severe climatic event of the Holocene.

3. **Shells and Radiocarbon – Dating of difficult archaeological sites in the Eastern Mediterranean and Middle East**

E.A. Hill (Queens University Belfast)

Terrestrial and marine mollusc can provide us with a wealth of palaeoenvironmental and taphonomic information about archaeological and palaeoenvironmental sites. Molluscs present an attractive material for radiocarbon dating a whole swathe of archaeological and palaeoenvironmental sites across the Middle East, North Africa and Mediterranean where otherwise choice materials such as charcoal or bone are unavailable or poorly preserved. Recent published studies (e.g. Pigati et al., 2010; Hill et al., 2016) have demonstrated that a number of species of terrestrial shell can be suitable for ^{14}C dating both for palaeoenvironmental purposes (e.g. Pigati et al. 2010), on long archaeological cave sequences (e.g. Douka et al., 2013 Hill et al., 2016) and on items such as shell artefacts (e.g. Douka et al. 2013; 2014). This paper will look at a number of case studies where the dating of shell in archaeological contexts for a variety of purposes has been extensively explored, particularly the Haua Fteah in Eastern Libya, various locations on Malta and Shanidar Cave in Iraqi — Kurdistan. Each of these sites offers a different perspective on the technical use of shells, the benefits and the limitations involved in using shells for dating within archaeological contexts particularly for Late Pleistocene and Early Holocene archaeology.

4. **The mystery of the ghost Chalcolithic at 'Ain Ghazal and the Khirokitian buildings at Kalavassos-Tenta, or what is pre-treatment and why does it matter?**

Piotr Jacobsson (British Institute in Amman)

Three things happen to a ^{14}C sample between submission to a radiocarbon laboratory and production of a "number". These are: pre-treatment, transformation into a measurable form, and the measurement process itself. Pre-treatment covers the physical and chemical processing of a sample that ensures that the material that is measured for ^{14}C is related to the archaeological question asked when the sample was submitted. For most charcoal samples this involves chemical steps to remove carbonates and decayed organic matter both of which can cause the radiocarbon age determination to be "inaccurate". In case of bone, the usual procedure is to extract the collagen (the organic component), most often by dissolving the inorganic matter and concentrating the remaining solution. However, poor collagen preservation in south-west Asia means that often this method does not work, which at times leads to the use of the inorganic fraction of the bone that can produce inaccurate results. The talk will look at the pre-treatment issues of these common classes of datable material and how they play out in specific south-west Asian contexts, such as in the case of the dating inaccuracies at Kalavassos-Tenta on Cyprus, or the presence of ^{14}C determinations pointing to the Chalcolithic at 'Ain Ghazal.

5. **Taphonomy, pise and plateaus: a Bayesian radiocarbon chronology from WF16, a Pre-Pottery Neolithic site at Wadi Faynan, Jordan**

Karen Wicks (University of Reading)

A pre-requisite for understanding the transition to the Neolithic in the Levant is the establishment of a robust chronology, most notably for the late Epi-Palaeolithic and Pre-Pottery Neolithic A (PPNA) periods. This presentation describes the key findings of a recent paper by Wicks et al. (2015), who undertook dating analysis of the Pre-Pottery Neolithic site of WF16, southern Jordan. Drawing on a sample of 46 AMS ^{14}C dates, a novel Bayesian approach was used to quantify an old wood effect to constrain the chronology for a number of individual structures at WF16 and for the settlement as a whole. Other dating challenges known to affect early Neolithic archaeological sites in arid, erosional environments are considered, such as sediment redeposition, bioturbation and plateaus in the calibration curve. By using Bayesian approaches, controlling for the old wood effect and with meticulous attention to stratigraphy and context, this study demonstrates that 'meaning' can be derived from the ^{14}C dates coming from archaeological sites with these problematic characteristics.

Poster Abstracts

1. **Innovative multi-scalar approaches to understanding complex urban settlement processes Recent work by the DAEI on the Rania Plain, Iraq**
Tim Boaz Bruun Skuldbøl (University of Copenhagen), Carlo Colantoni (University of Leicester) and Mette Marie Hald (National Museum of Denmark)

This poster presents a brief overview of the Danish Archaeological Expedition to Iraq's (DAEI) high-resolution approach to exploring the complex social and spatial transformations of early urbanism. Effectively investigating ancient urban landscapes is challenging. The DAEI employs an innovative multi-scalar approach to probe, delimit and reconstruct urban settlements and their specialised landscapes. This type of approach is well-suited to the challenges of investigating urban landscapes undergoing social and functional transformations, determining socioeconomic organisation and for establishing a fine-resolution chronology of the urbanisation process. The approach combining interdisciplinary methods used by the DAEI to explore the anatomy and temporal development of early urbanism includes: remote sensing (satellite and UAV imagery) and surface inspections supported by systematic soundings and geological coring, soil and C-14 sampling. These methods are complementary and effective means of corroborating new insights. The result is a fine-grained level of detail that provides a new understanding of the nature of the specialisation of landscapes in early urban societies and challenges common assumptions of the efficacy of established methods when used in isolation.

2. **From stone to metal: dynamics of technological change in the Southern Levant (4th-1st millennia BCE)**
Francesca Manclossi (Centre de Recherche Français de Jérusalem)

The shift from stone to metal has always been seen as one of the main technological transitions in the history of mankind, especially in the Near East where technological progress has been seen as an indicator of the rise of civilization. In this scenario, the development of metallurgy was more attractive than lithic technology, which for a long time was neglected. However, although the first metal objects appear during the Chalcolithic, flint tools continued to be produced and used through the Bronze Age and the beginning of the Iron Age. The coexistence of these two large scale technologies for more than three millennia represents a complex phenomenon, which can be analysed from different perspectives recognizing the various factors in the history of technology, and the trajectories and the rhythms of technological change: 1. the specific evolutionary path of the objects, technologies and techniques and 2. the socio-historical contingencies which explain the success or failure of a technique. Using a technological approach, the comparison between the chipped-stone production of the metal ages and their contemporaneous metal tools allows us to observe which dynamics, mechanisms and modalities explain the disappearance of flint industries in terms of their relationship with the development of the metallurgy.

3. **Geoarchaeology and public buildings at the site of Arslantepe (Malatya, Turkey)**
Susanna Cereda (University of Vienna)

Palaces, temples and other public buildings have always been fascinating research contexts in archaeology, because of their high symbolic and cultural values. But especially in prehistoric contexts, few if anything is known about the way these spaces were actually "used", nor about the nature of the actions performed there. In this poster the author will present the geoarchaeological approach adopted in her PhD for the analysis of various public buildings belonging to different protohistoric phases of the site of Arslantepe (Malatya, Turkey). The assumption behind this approach is that sediments contain valuable information about their depositional and post-depositional histories, including the traces of past human actions. Mud-floors will thus be sampled and investigated by means of micromorphological and chemical analyses in order to retrieve and disentangle such embedded information. Through a deposit-oriented methodology the aim of this research is to better understand the way public spaces were used (nature of actions, cyclicality, spatial variations, etc.) and to gain possible insights into performance and behavioural patterns of their users.

4. **Anatomy of a Bronze Age Neighbourhood at Tell es-Safi/Gath**
Tina Greenfield (University of Manitoba, Canada), **Haskel Greenfield** (University of Manitoba, Canada), **Shira Albaz** (Bar-Ilan University), **Andrea Squitieri** (Ludwig Maximilians Universität München) and **Aren Maeir** (Bar-Ilan University)
Recent excavations of the Early Bronze Age domestic neighbourhood at Tell es-Safi/Gath (c. 2850-2250 BCE) have yielded new finds that appear to be representative of a merchant or traders sector of the early urban settlement. Trade at Tell es-Safi/Gath with its southern Levantine neighbours is nothing new, however, recent discoveries such as multiple equid burials under the Early Bronze houses, copper artifacts, "Abydos ware" ceramics, and Egyptian-styled beads are suggestive that the inhabitants of this neighbourhood had an established trade route with Egypt. Artefactual analyses and results are integrated and presented in this poster in order to illuminate our further understanding of the roles Canaanite inhabitants performed within one of the largest Early Bronze urban settlements in Israel.

5. **Ace of Bayes: Modelling ¹⁴C Chronology of a Neolithic and Aeneolithic settlement at Monjukli Depe, Southern Turkmenistan**
Ilia Heit (Freie Universität Berlin)
In the last decades Bayesian statistics have been proved to be a reliable and effective method for the analysis of radiocarbon determinations in terms of precision and estimation of duration of dated events. In the years 2010-2014, large series of ¹⁴C samples were collected at the Neolithic and Chalcolithic settlement of Monjukli Depe (southern Turkmenistan) that provide an excellent basis for the application of Bayesian analysis. At the same time they call into question the validity of elements of the existing chronology of early village societies in the Kopet Dag region. The analysis allows the refinement of the chronology of Monjukli Depe and in light thereof makes it possible to propose statements about the duration of specific structures or estimations of intervals between phases. Starting from the modeled data, a revised chronology for the Neolithic and early Aeneolithic periods (6th – 5th millennia BCE) in southern Turkmenistan is proposed.

6. **From Clay- to Stone-Architecture-The development of 'Steinbau I' at Tell Chuera, Syria**
Patrick Biedermann (University of Liverpool)
Tell Chuera is located in northern Syria, between the rivers Balikh and Khabur at the southern margin of the fertile crescent. During the Early Bronze Age the tell had a round shape, a size of up to 65 hectares and was divided into an upper- and a lower part by an inner city wall. The upper city is characterised by a palace and various temples, some of them are located in between domestic architecture, others, like Steinbau I, form a part of a large temenos. The temenos consists of three monumental stone buildings, all can probably be seen as temples, whereas Steinbau I is the largest of them and the main temple of the temenos. Furthermore Steinbau I is one of the hugest temples in antis in Northern Syria with a length of 27m, a width of 15,5m and a height of around 6m. Whereas the first temple in this area was built of mud bricks, the temple terrace was (re-)built using massive limestone after a destruction layer. The actual focus of research is to investigate the construction development of Steinbau I.

7. **Recent Artifacts from Jerusalem Illuminating the Biblical Period through the Second Temple Period**
Edith Lubetski (Stern College for Women, Yeshiva University)
The poster will focus on the latest archaeological finds found in and around Jerusalem that illuminate the Biblical Period through the Second Temple Period. The poster will display a selection of artifact images with a short description of their significance.

8. **Appropriation and Emulation in the Earliest Sculptures from Zincirli (Iron Age Sam'al)**
Virginia R. Herrmann (University of Tübingen)
Monumental structures clad in relief-carved stone orthostats unite the fragmented political and

ethnolinguistic landscape of the Iron Age Syro-Hittite kingdoms. This building practice passed down from the Hurro-Hittite Late Bronze Age evoked a collective memory of legitimate authority and was important for the construction of royal sovereignty. This poster presents a reassessment of the date of orthostats found in the South Gate and Citadel Gate of Zincirli, Turkey (Iron Age Sam'al), applying a seriation approach to the comparison of their stylistic details and iconographic themes and motifs with sculptural groups from other sites (especially Karkemish). The conclusion that the South Gate orthostats date to the early tenth century B.C.E. and are thus older than the ninth-century re-foundation of the city suggests that they were recycled from an earlier Neo-Hittite site. The Citadel Gate orthostats are found to creatively recombine elements from both Zincirli and Karkemish sculptures. The appropriation of architectural spolia in the South Gate and the emulation or imitation of older works in the Citadel Gate reveal a dialectic between the embrace and rejection of the Hittite and Neo-Hittite past and traditional sources of authority by the founders of the new Aramaean dynasty of Sam'al.