

Association for Environmental Archaeology

AEA Newsletter 131

February 2016

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Chair's piece

**Richard Thomas,
AEA Chair**



Environmental archaeology is sexy ... well, newsworthy at any rate. As I write this chair's piece, news is breaking about geometric morphometric analysis of mandibles indicating an independent (but possibly short-lived) domestication event for the cat in China, involving an entirely different species (*Prionailurus bengalensis*) rather than the ancestor of all modern domestic cats (*Felis sylvestris*) (<http://dx.doi.org/10.1371/journal.pone.0147295>).

This was not the only story from January to feature environmental archaeology. Earlier in the month, social media and new channels were abuzz with the latest findings from Must Farm, Cambridgeshire, UK, where collapsed roof timbers and wooden stilts from circular houses dating to the Bronze Age (1000-800BC) were recovered in an exceptionally well-preserved state thanks to a combination of fire and waterlogging (<http://www.bbc.co.uk/news/uk-england-cambridgeshire-35280290>). What caught my attention particularly was the evidence for woodland management, skilled wood-working techniques, the preservation of

textiles made from plant fibres such as lime tree bark and food residues preserved in ceramics.

The final story from January I want to draw attention to is the analysis of starch granules surviving on the surface of grinding stones from a Neolithic cave site in northern Libya (doi:10.1016/j.quaint.2015.11.109). This study demonstrated the continued importance of wild plants after the transition to sedentary farming practices: a narrative that had been previously neglected.

What I find striking in each of these studies is the diversity of the environmental archaeological record and its capacity to cast important new light on the human past.

As an Association we are proud to support environmental archaeology wherever it is practiced and we have lots of upcoming events to tell you about in this issue including the spring conference in Orkney, an autumn conference in Rome and a sponsored day meeting in Dublin (see within for more details). We are also in the process of securing nominations for a three-year membership award to a local archaeological society. Nominations can be made on social media (Facebook and Twitter) or directly to me by email (rmt12@le.ac.uk). The deadline is 30th April 2016.



Cat skull

Extending Histories: from Medieval Mottes to Prehistoric Round Mounds

Extending Histories: from Medieval Mottes to Prehistoric Round Mounds (“The Round Mounds Project” for short) is a new two and a half year-long research project funded by the Leverhulme Trust which seeks to unlock the history of monumental mounds in the English landscape. The project team (see below), led by Dr Jim Leary (Principal Investigator) and comprising researchers from the University of Reading and the Scottish Universities Environmental Research Centre (SUERC), employs a multi-disciplinary approach to the study of monumental round mounds integrating landscape archaeology and analytical earthwork survey with environmental archaeology, geoarchaeology, and a programme of radiocarbon dating.

Neolithic round mounds, the largest and most prominent example of which is Silbury Hill near Avebury in Wiltshire, remain one of the rarest and most enigmatic classes of monument in Britain. Medieval castle mottes, on the other hand, are widespread in England with over 900 known or possible examples listed in the National Record of the Historic Environment. The Round Mounds Project builds upon recent work carried out by Jim Leary at the Marlborough Castle Mound, Wiltshire, which showed the monument to be a Neolithic round mound similar in date to Silbury Hill that was re-used as a castle motte in the medieval period (Leary *et al.* 2013a), raising the possibility that other medieval castle mottes may also have prehistoric origins. The aim of The Round Mounds Project, therefore, is to examine other mottes and determine the date of their construction, sequence of development, and landscape and environmental contexts to test this hypothesis.

Work on The Round Mounds Project began in spring 2015, and during the course of the project, running until late 2017, a total of 20 mottes in England will be investigated. The methodology devised for the project comprises several stages of work:

1. Reconnaissance and site selection based on criteria including the form, size, topographic location, and landscape context of the mounds (see below);
2. The drilling of boreholes through each selected mound

The Round Mounds Project team.

Dr Jim Leary	Univ. of Reading	Principal Investigator
Dr Nick Branch	Univ. of Reading	Co-investigator
Prof Gordon Cook	SUERC	Co-investigator
Elaine Jamieson	Univ. of Reading	Landscape and earthwork survey
Dr Phil Stastney	Univ. of Reading	Environmental archaeology
Dr Elaine Dunbar	SUERC	Radiocarbon dating
Kevin Williams	Quest, Univ. of Reading	Fieldwork and laboratory technician

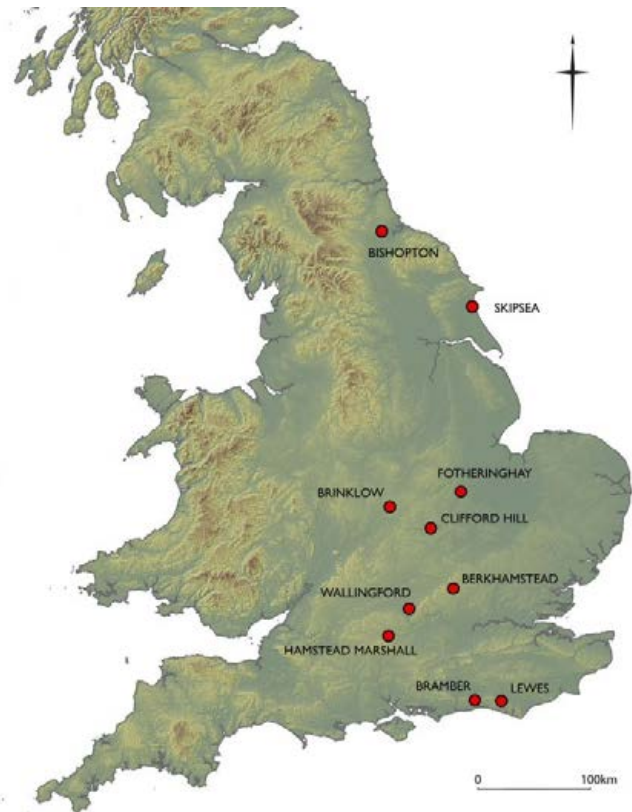


Figure 1: Location of first ten mounds cored in 2015.

- to recover sealed cores for further assessment and analysis;
3. Analytical earthwork survey to obtain information about the sequence of development of each mound;
4. Laboratory assessment of cores to determine the origin and palaeoenvironmental potential of the mound material and underlying deposits and to recover material suitable for dating;
5. Analysis of palaeoenvironmental indicators, AMS ¹⁴C dating, and the development of deposit models based on the cores obtained from the mound and other nearby BGS borehole records;
6. Synthesis and reporting of results, culminating in the production and publication of a monograph detailing the results of the project.



Figure 2: Drilling at Fotheringhay Castle motte, Northamptonshire.

The selection of study sites employed a set of criteria developed using information from known late Neolithic round mounds in England including Silbury Hill, the Marlborough Mound and the Hatfield Barrow (Leary and Marshall 2012; Leary *et al.* 2013a; Leary *et al.* 2013b); previous work on these sites has allowed the characterisation of the outward indicators of late Neolithic mounds. These criteria allow the selection of 20 study sites from the ~900 known mottes in England:

- Monument scale – in order to avoid barrows and burial mounds monuments recorded as standing less than 6m in height were excluded, narrowing the selection to a total of 154 mounds recorded as 6m or more in height.
- Topographic setting – known late Neolithic round mounds were located in low-lying areas near to springs and watercourses; 67 mounds were identified that have a close association with a main or secondary watercourse.
- Relationship with known archaeological sites – the proximity of mounds to known archaeological sites, both prehistoric and later, was also considered. The aim was to assess the potential for longevity in the landscape and to consider if the mound might have formed part of a wider prehistoric complex or influenced later landscape patterns.
- Other archaeological evidence – small finds and place-name evidence were considered, as well as non-intrusive survey and excavation evidence (where available).

Fieldwork will be carried out in two phases: ten sites in 2015/2016 and a further ten sites in 2016/2017. The first ten mounds, shown in Figure 1, were selected and cored in summer and autumn 2015 and the analytical earthwork surveys of these sites will be completed during the winter months in early 2016. Cores from the 2015 sites are currently undergoing laboratory assessment. The selection of sites for the second round of fieldwork will be informed by the initial results from these first ten sites, and will be finalised in spring 2016.

Boreholes were drilled using power auger equipment – an Eijkelkamp core sampler device driven by an Atlas Copco Cobra TT drill – which was used to recover 50mm diameter cores sealed in plastic tubes (see Figures 2 and 3). One to two boreholes were drilled through each mound: one borehole through the centre of the mound and, where possible, a second a few metres off-centre. Contiguous 1m-long cores were recovered from the surface of each mound down into the underlying *in-situ* natural strata. This equipment is widely used in geoarchaeological investigations, typically to sample deep archaeological stratigraphy or alluvial sequences, and provides a minimally intrusive yet effective means of sampling the mound deposits as well as any buried former ground surfaces or other underlying strata beneath the mounds. The ends of each core were sealed on site, and the cores returned to the laboratories at the University of Reading for assessment.

In the laboratory the cores are opened using a small circular saw, photographed, and described using standard criteria (Jones *et al.* 1999; Munsell Color 2000; Tucker 2011). The deposits are then assessed using a range of potential techniques including loss-on-ignition and particle size analysis in order to characterise the sediments, determine their likely source material, and to identify any strata that may relate to former ground surfaces, buried soil horizons, or other strata in which organic remains or palaeoenvironmental indicators may be preserved. Where appropriate, subsamples are collected for pollen and/or plant macrofossil assessment which may provide information about the origin of sediments redeposited in the make-up of the mound, or, in the case of strata immediately beneath of the mound, the palaeoenvironmental context of the site immediately prior to the construction of the mound. Bulk samples from each mound deposit and any high-potential *in-situ* deposits beneath each mound are then processed to extract any artefacts, ecofacts, and material suitable for dating. Sampling for dating will be targeted on the mound deposits and, where present, any buried land surfaces. Samples for AMS ^{14}C dating will be analysed by colleagues at the SUERC Radiocarbon Dating Laboratory.

Two key research questions form a focus of the geoarchaeological and palaeoenvironmental assessment of the core samples. The first relates to the provenance of the sediments incorporated into the mounds: understanding the provenance of the mound material is needed in order to understand the potential for 'residuality' of any organic remains extracted from mound deposits for radiocarbon dating. Furthermore, the likely source of the sediments used to construct mounds may have itself been significant: previous work at Silbury Hill has suggested that specific deposits from the vicinity of the site were selected for use in particular phases of mound construction (Leary *et al.* 2013b).

The second key research question is to determine the nature of the local environment of the site prior to the construction of the mound. As described above, the topographic setting of sites in low-lying locations near to springs and watercourses is a key criterion used to select study sites; such settings often provide conditions conducive to the preservation of palaeoenvironmental indicators. Given that known late Neolithic round mounds are situated in low-lying 'watery' locations – perhaps 'monumentalising' spring heads or important watercourses – the environmental context of sites may be important to



Figure 3: Extracting the coring chamber at Brinklow Castle, Warwickshire.



Figure 4: The Mount, Lewes, East Sussex.

their interpretation. Regardless of date, however, palaeoenvironmental evidence may provide important information about the environmental context of the sites prior to mound construction.

Further information about the project and regular updates on progress can be found on The Round Mounds Project Blog (<http://roundmoundsproject.wordpress.com>). The main academic output of the project as a whole will be a monograph, to be prepared in 2017, that will bring together all the work undertaken in addition to a series of forthcoming journal articles and conference presentations. A follow up AEA newsletter article will also be written towards the conclusion of the project.

**Phil Stastney, Department of Archaeology,
University of Reading** (p.stastney@reading.ac.uk)

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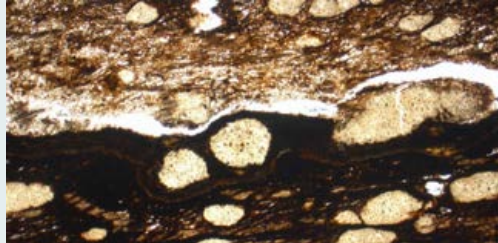
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Associate editor for Environmental Archaeology

Environmental Archaeology would like to appoint an associate editor with expertise in archaeobotany. This person will have editorial responsibilities for manuscripts presenting archaeobotanical material and assist the authors through the peer review and publication process. It would be for a 5-year term.

For informal enquiries, please contact Tim Mighall by email (t.mighall@abdn.ac.uk). If you wish to apply, please send an email briefly outlining your area of expertise and why you would like the role to Tim at the above email address by 1st March, 2016. The applications will be considered by the AEA committee.

WORKSHOP ON INTEGRATED MICROSCOPY APPROACHES IN ARCHAEOBOTANY



13th March 2016

Workshop to promote collaborative working between specialists in archaeobotany. This workshop will provide a forum for discussion and practical examination of archaeobotanical assemblages using a range of microscopy techniques, such as thin-section micromorphology, plant macros, phytolith analysis, and palynology.

Participants are invited to bring samples, slides, and to submit an abstract for a poster presentation within the themes:

- *The taphonomy of archaeobotanical assemblages*
 - *Animal management and alimentation*
 - *Land management and agriculture*
 - *The domestic use of plants*
 - *Plants as architectural components*

Organiser: Dr Rowena Banerjea, Department of Archaeology, SAGES, University of Reading
Deadline for posters has now passed, contact imaaworkshop@gmail.com for further details.

Participation fee: £25

**The British Archaeobotany Workgroup meeting will also take place
Saturday 12th March at the University of Reading.**

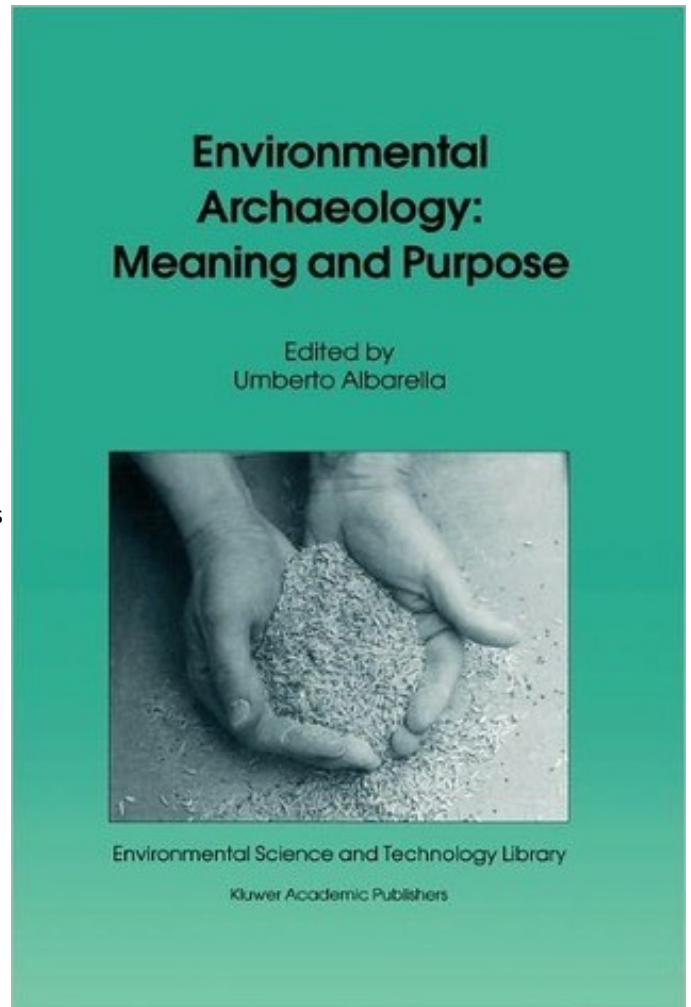
Archaeobotany Working Group Reading meeting, contact Lisa Lodwick l.a.lodwick@READING.AC.UK
For more information or to be included in future Archaeobotany Working Group events contact Ruth.pelling@HistoricEngland.org.uk

“Humming with cross fire and short on cover...”? Revisiting and reflecting on Environmental Archaeology: Meaning and Purpose at TAG Bradford 2015

Session organisers: Ben Gearey, Suzi Richer, Seren Griffiths and Michelle Farrell

Nearly a decade and a half since the publication of *Environmental Archaeology: Meaning and Purpose* (edited by Albarella, 2001), itself based on a TAG session held at the University of Birmingham, a lively and thought-provoking session at the Theoretical Archaeology Group conference at the University of Bradford reflected on some of the debates and themes discussed back in 1998, and examined the role of theory within the current practice of ‘environmental archaeology’. The speakers were from a range of backgrounds and covered a range of topics including the practice of environmental archaeology within the commercial sphere, community archaeology, and both established and new scientific techniques. The session was split into thirds with two of the original contributors, Umberto Albarella (University of Sheffield) and Terry O’Connor (University of York) acting as discussants for the morning and Julian Thomas (University of Manchester) providing summary and reflection on the session overall. The papers settled into three broad themes: theoretical/social interpretations of environmental data, the relationship of environmental archaeology within and across sectors (commercial, community and academic) and its integration within wider archaeological projects.

Papers by James Morris, Lauren Bellis, Lisa Lodwick, Andrew Hoan and Emily Banfield *et al.* presented a range of theoretical perspectives and their application to environmental data. Lauren Bellis (University of Leicester) and Jim Morris (University of Central Lancashire) considered social and emotional elements of interpretation within zooarchaeology, whilst Lisa Lodwick discussed the ‘plant turn’ and presented an example of how social theory can be applied to archaeobotanical data. Andrew Hoan (University of Worcester) examined the concept of the ‘wild’ and reflected on its utility for understanding past human perception and



interaction with landscapes; whilst the application of post-humanist thought was explored by Emily Banfield *et al.*'s (University of Leicester) paper. The relationship between the academic, commercial and community sectors was tackled by Andy Howard (Landscape Research Management; University of Durham), Liz Pearson (Worcestershire Archive and Archaeology Service) and Matt Law (Bath Spa University). Matt also introduced a novel ‘umbrella’ term for environmental archaeology: Bioarchaeology, Geoarchaeology and Human Palaeoecology. For some reason, the use of the acronym (BGAHP) caused some amusement; what do members think? Let AEA know on social media or via email!

Tom Gardner (University of Edinburgh and Bamburgh Research Project) considered the problems of using micromorphological approaches to understanding processes of burnt mound formation processes. Martin Bates (University of Wales Trinity Saint David) argued that the term



'environmental archaeology' is rarely used within Palaeolithic archaeology, and the necessity of close collaboration within this area of study leads to the blurring of theoretical boundaries between different practitioners and closer integration as a result. Naomi Sykes (University of Nottingham) launched a lively attack on the ultimate usefulness of the term 'environmental archaeology' and argued that the theoretical concerns raised back in 1998 have little relevance to current practice. Practical applications of the integration of scientific techniques which were little, if at all developed, in the late 1990's were demonstrated by Jessica Pearson (University of Liverpool) who discussed the role of stable isotope in the investigation of Neolithic lifeways at Çatalhöyük, whilst Rosalind Gillis and Richard Evershed (CNRS and University of Bristol) presented an overview of the NeoMilk Project which seeks to integrate cultural archaeological approaches with organic residue, geochemical and archaeozoological data.

The three discussants provided excellent summaries and commentaries, and the session closed with a wide-ranging discussion and Julian Thomas suggesting a change in the definition of environmental archaeology to one which is more thematic and inclusive, perhaps an 'archaeology of life' (or death)?

The 'humming with cross fire' quote from the session title is from one of Terry O'Connor's papers (2001:40) in the original volume, and bears citing in full:

"If there is a persistent dichotomy in archaeology, it is not the old nature/culture debate. Rather it is the ongoing feud between those of us for whom 'science' is not a term of abuse and those to whom the merest hint

of 'sociobiology' is anathema. The middle ground is humming with cross-fire and short on cover, but none the less that is where archaeology needs to be..."

It is highly encouraging to report that on the basis of this session and on-going debate concerning the 'importance' of theory within the practice of environmental archaeology (or: BGAHP?) we are engaging in highly productive exchanges on that difficult 'middle ground'. It is interesting to speculate where we will find ourselves in another decade and a half or so.

A link to the full abstracts for all the paper can be found here: <http://tag2015bradford.org/programme/>, video footage of some of the papers

will available on YouTube courtesy of Doug Rocks-McQueen (Landward Research), to look back through tweets on the session use #envtag and publication of the session is forthcoming.

The session organisers would also like to thank the AEA for sponsoring cake and speaker's drinks after the session.

Session review by Benjamin Gearey (University College Cork) and Suzi Richer (University of York):

References

Albarella, U. 2001 (Ed.). *Environmental Archaeology: Meaning and Purpose*. Kluwer, London.

O'Connor, T. 2001. Whose dichotomy is it anyway? In Albarella (2001), 39-41.



The 1st 'Environmental Archaeology' Topic Discussion Seminar, Beijing Union University, Beijing, China

On the 16th January, the 1st 'Environmental Archaeology' discussion seminar was held at the College of Applied Arts and Science, Beijing Union University, Beijing, China. The topic was 'Environmental Archaeology and Ancient Agriculture'. 49 professionals from 19 different universities and institutes attended. The seminar was followed by a celebration dinner.

The topic of morning session was 'Understanding Environmental Archaeology'. Xia Zhengkai gave the first presentation entitled 'Environmental Archaeology: from macroscopic to microscopic' discussing Environmental Archaeology research of different scales across many case studies he had done over recent years. Environment analysis at the level of the site was particularly emphasized as an important field for future research.

Dong Guanghui presented his latest work at Hexi Corridor, including the animal, plant remains and dating results, as well



Figure 1: Group photo

as the twice desertification processes during the Late Holocene and the influences on ancient culture. Dong discussed the influence of human activity on the chemical properties of soil after the introduction of Bronze. Lastly he presented two case studies, 'Agriculture facilitated permanent human occupation of the Tibetan Plateau after 3600 BP' (Chen *et al*, 2015), and the lifestyle of the Nuomuhong People (3400-2500 BP) in the Qaidam Basin and their relationship with environment.

Wang Hui gave a presentation entitled 'Discussion on the man-land relationship from human action' discussing characteristics of human activities, reminding us that it is quite likely the influence of environment on ancient people that caused diversification.

Zhang Junna discussed her recent research on the environmental background for human subsistence strategy transition in Central North China. Zhang's study showed that around 10,000BP new terraces formed, enlarging the river valley plains, during 9000-8000BP the climate became drier and colder, changing the forest into grassland. These environment changes accelerated the process from hunter-gathering to agriculture.

After a refreshing cake and coffee break, intense discussion lasted for two hours. Many theoretical topics and recent case studies in China were heatedly discussed. A delicious lunch was supplied by the dining hall, and Professor Han Jianye gave a tour of the Environmental Archaeology and Heritage Preservation Laboratory and Museum.

The topic of the afternoon session was the 'Environmental Background of the Formation and Development of Ancient Agriculture in China'. Mo Duowen discussed the fundamental issues presenting specific Geo-archaeology case studies.



Figure 2: Morning session



Figure 3: Afternoon session

Mo went on to discuss the origin of agriculture: mechanisms, time and place, environmental condition, etc.

Jin Guiyun presented a report on 'Rice-Millet Mixed Agriculture and the origin of Haidai Civilization: Archaeobotanical Evidence', Jin first showed three phases of rice-millet mixed agriculture in Haidai area. Then she discussed the relationships of rice-millet mixed agriculture, environment and cultures, and the diffusion model in the Haidai area.

Yang Xiaoyan introduced her research on starch grains in the Yellow River, the Yangtze River and the Pearl River Regions, showing the study of ancient starches had changed our understanding of Neolithic subsistence patterns in China. She also compared advantages and disadvantages of Archaeobotanical methods.

Lv Peng presented a case study based on the zooarchaeological work at the XiaoZhuShan site, Guanglu Island. He proposed that the animal usage strategy in could be divided into three periods, and suggested that the main reason for the changes of roe's number in the Guanglu Island was human activity, which should be particularly considered in environmental archaeology research.

Qiu Zhenwei introduced archaeobotanical research from Zhumucun site, Jiangsu Province. He discussed the diversification of food resources during the



¹⁴C & Archaeology

8th International Symposium | Edinburgh | 27 June-1 July, 2016

Sessions will include:

- * Freshwater radiocarbon reservoir effects in archaeology.
- * Problems with radiocarbon dating in coastal and island environment.
- * Statistical approaches to modelling regional archaeological chronologies.
- * New approaches in the Bayesian modelling of archaeological sites.
- * Precision in radiocarbon dating: getting the best possible answer.
- * Rigour in sampling: both in the field and the laboratory.
- * Dating the Neolithic transition.
- * Human / environment interactions.
- * Radiocarbon dating in wetland environments.
- * Radiocarbon dating in arid environments.

To register, or for more information, visit: www.c14archaeology2016.com

Liangzhu Culture, and characteristics of the rice paddy fields.

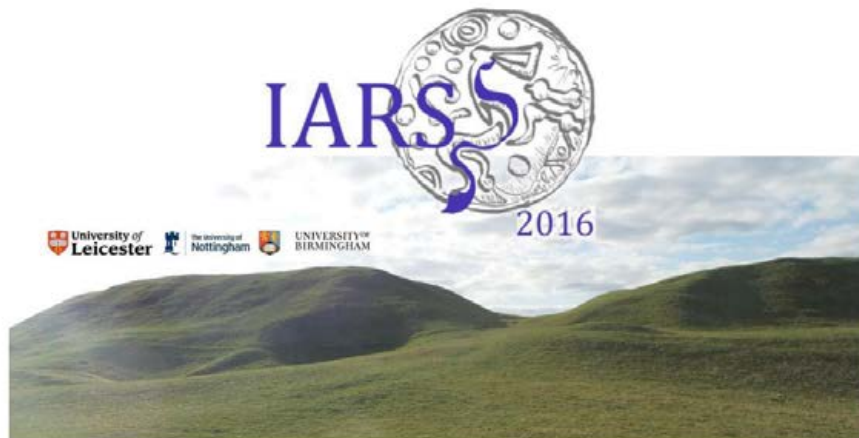
After a short break, the experts began a heated discussion on the origin of agriculture, chronology, zooarchaeology, archaeobotany, isotope methods, etc.

Yuan Jing, Wang Changsui and Mo Duowen made summary statements. The seminar was considered to be successful in providing opportunities for both experts and young scholars to learn from each other.

Zhang Junna, Yuan Xiao, Li Xiaolong, Department of Archaeology, Beijing Union University, Beijing, China, junna@buu.edu.cn

Reference

Chen F H, Dong G H, Zhang D J, *et al.* 2015. Agriculture facilitated permanent human occupation of the Tibetan Plateau after 3600 BP. *Science*, 347 (6219): 248-250.



Jointly hosted by the Universities of Leicester, Birmingham and Nottingham, the 19th Annual Iron Age Research Student Symposium (IARSS 2016) will be held at the University of Leicester on May 19th-22nd 2016. Focussing on the later prehistory of Britain, Ireland and Continental Europe, the conference will consist of keynote addresses, presentations, discussions, a poster competition, and a career-focussed workshop, all led by leading academics and post-graduate researchers. It's a great opportunity to present a paper, network and to learn about current hot topics – join us for a day or for the whole event!

For details, please go to:

<https://www2.le.ac.uk/departments/archaeology/news-and-events/conferences-1/iarss-2016>

Plant Use and Neolithic Societies of the Eastern Fertile Crescent c. 10,000 – 5000 BC

*Jade Whitlam, University of Reading
PhD abstract*

In recent years renewed research and excavations in the eastern Fertile Crescent have provided us with an opportunity to reassess the role this region played in transitions in plant use and the domestication of plants during the Early Neolithic.

My thesis contributes to this discussion through the analysis of three new archaeobotanical datasets from recently excavated early farming sites in Iran and Iraq. The charred plant assemblages studied span the Neolithic from Sheikh-e Abad (c.9800 – 7600 cal BC) in western Iran, to Bestansur (c.7600 – 7100 cal BC) in northeast Iraq and Khaleseh (6000 – 5500 BC) in northwest Iran. Together these expand significantly upon the current body of archaeobotanical data available for the Neolithic period in the eastern Fertile Crescent, particularly its earlier phases, and provide new data through which to examine pathways to agriculture here. Sheikh-e Abad in particular is notable for its long occupation, which covers c. 2200 years and spans the agricultural transition, and for being one of the earliest Neolithic sites known in the area.

The results generated by this study provide evidence for the broad range of plant resources utilised in the eastern Fertile Crescent during the Early Neolithic and for the diversity in plant management strategies across sites, paralleling contemporary patterns observed in the western Fertile Crescent. Crucially, the archaeobotanical evidence from Sheikh-e Abad suggests that a suite of large-seeded grasses formed part of the inhabitants' diet and may reflect the 'auditioning' of wild grasses prior to the emergence of cultivated and domesticated cereals.

Moreover, when integrated with existing published archaeobotanical datasets for this region, these results support theories of independent origins of plant domestication and are consistent with local crop trajectories in the eastern Fertile Crescent.

Articles based on the thesis are in preparation and further integration of datasets is planned for the future, including as part of the Central Zagros Archaeological Project (<http://www.czap.org/>)

Ritual use of plants in prehistoric Aegean

by Dr Evi Margaritis

17 Feb 2016 - 17:00

A2 Humanities Building, University Park,
University of Nottingham

Crop movement, regional networks and the emergence of agricultural societies in Eastern China and East Asia

by Yijie Zhuang and Dorian Fuller

14 Mar 2016 - 16:00

Room 612, UCL Institute of Archaeology,
London

And we're sponsoring the
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Looking back, moving forward: 70 years of environmental archaeology in Ireland

19th February 2016

National Botanic Gardens - Glasnevin
Dublin 9, Dublin, Ireland. More info here:

<https://eaiconference.wordpress.com/2015/12/12/call-for-posters/>

Investigating early animal management in the Zagros Mountains of Iran and Iraq: Integrating field and laboratory methods for the identification and analysis of ancient faecal material

*Sarah Elliott, University of Reading
PhD abstract*

The eastern extent of the Fertile Crescent in Southwest Asia is significant in one of the major periods of transformation in human history: the transition from hunting and gathering to sedentism, agriculture and animal husbandry. The Central Zagros upland region of eastern Iraq and western Iran, a key heartland of these changes, is understudied and is an area where early sedentism and animal domestication developed in the Neolithic period (10,000-6000 cal BC).

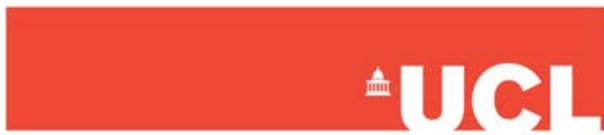
The identification of early animal management in the Neolithic and more widely is a challenge to archaeological research, due to problems in distinguishing markers of domestication in zooarchaeological assemblages, and in identification of dung in the field and in archaeobotanical analyses. This thesis evaluates animal dung studies as a supplemental method in investigating animal management and domestication. The potential of this approach for study of subsequent consequences of these changes, such as the secondary product revolution, animal diet and ecology and animal identification are also examined.

This research develops a new integrated and robust methodological research framework, applying a multi-proxy approach to early animal management and domestication. This approach includes field, laboratory and ethnoarchaeological analyses for investigation of faecal material. My original contribution to knowledge within this research field significantly expands the implementation of multi-methodology studies of faecal material. It provides new and unique datasets for the Neolithic in the eastern Fertile Crescent. The research in this thesis successfully integrates relatively inexpensive and rapid field methodologies (portable x-ray fluorescence and smear slide analysis) with laboratory methodologies (micromorphology, SEM/EDX, phytolith and GC-MS analysis). This research also integrates a range of ethnoarchaeological datasets to advance interpretation of the archaeological signatures.

The datasets from the analysed archaeological sites clearly show intra- and inter-site variations and regional differences in faecal material between highland and piedmont locations. The analysis in this research successfully identifies evidence for animal presence, proximity, management, domestication, diet and the use of

secondary animal products in the early Neolithic through the analysis of faecal material. These investigations span c. 8240-7055 cal BC in previously understudied areas in the Central Zagros mountains of Iran and Iraq. The results in this research are significant because sheep/goat management/domestication has been identified at Sheikh-e Abad from the dung deposits c.8200-7500 cal BC and these results are in line with the archaeozoological evidence and therefore represents management or domestication coinciding with the earliest evidence for goat domestication in the Zagros at Ganj Dareh (8100-7800 cal BC). At Bestansur there is probable evidence for omnivore penning c.7100-7050 cal BC which has not yet been identified from the archaeozoological analyses; prior to this research the earliest evidence in the Zagros for pig management was 6000 cal BC at Jarmo.

This research represents the most up to date integrated multi-proxy field and laboratory approach to the analysis of faecal material.



**2nd UCL Lecture on
Climate and Human History**

Professor Juan Luis Arsuaga
Complutense University of Madrid

**"Winter is coming. Glaciations and human evolution
in Europe"**

Thursday 18 February 2016, 6 pm
Archaeology Lecture Theatre
31-34 Gordon Square
London WC1H 0PY

Please register attendance with Eventbrite at:
<https://www.eventbrite.com/e/2nd-ucl-lecture-on-climate-and-human-history-tickets-20892014578>

Sponsored by UCL Past Climates Group, Department of Geography and
Archaeological Sciences Section, Institute of Archaeology

Enquiries to Prof. Chronis Tzedakis (p.c.tzedakis@ucl.ac.uk)

17th conference of the International Work Group for Palaeoethnobotany (IWGP)

4-9th July 2016

National Museum for Natural History (*Muséum national d'Histoire naturelle*), Paris

Full details at: <http://iwgp2016paris.sciencesconf.org>

Cifa 2016 Annual conference and training event - Archaeology in context

Dates: **20-22 April 2016** Venue: **University of Leicester**

Session that may be of interest to members: **The archaeology of brewing**

Training sessions CPD:

- ◆ Going solo: self-employment in an archaeological context (Seminar)
- ◆ Starting out; professionalism for beginners (CPD Workshop)
- ◆ Funding for collaborative research (CPD Workshop)

Full details at <http://www.archaeologists.net/conference/2016>



European Geosciences Union General Assembly 2016 Vienna | Austria | 17–22 April 2016

At the interface of nature and culture, reflected in soil horizons, the wider landscape setting, as well as in geoheritage interaction. The EGU General Assembly 2016 will bring together geoscientists from all over the world to one meeting covering all disciplines of the Earth, planetary and space sciences. The EGU aims to provide a forum where scientists, especially early career researchers, can present their work and discuss their ideas with experts in all fields of geoscience. The EGU is looking forward to cordially welcoming you in Vienna.

GM6.2/SSS3.10 **Geoarchaeology: Human adaptation to landscape changes, landscape resilience to human impact and integrating palaeoenvironmental and archaeological records**

<http://meetingorganizer.copernicus.org/EGU2016/session/20750>

SSS3.4 **Soil between humans and nature: Landscape evolution by natural and cultural processes**

<http://meetingorganizer.copernicus.org/EGU2016/session/20443>

SSS3.6/EOS7 **Geoheritage and Geodiversity Matter: Themes, Links and Interactions**

<http://meetingorganizer.copernicus.org/EGU2016/session/20473>

SC17/GM13.5/SSS0.5 **Short course: Soil as a Record of the Past; Reading Soils from the Past**

<http://meetingorganizer.copernicus.org/EGU2016/session/20765>

Registration opens December. <http://www.egu2016.eu/>

News from the AEA Autumn Conference Committee

Islands: Isolation and connectivity The AEA Spring Conference, April 2016

Hosted in Kirkwall, Orkney by the Archaeology Institute, University of the Highlands and Islands
Followed by meetings of the Professional Zooarchaeology Group and the Archaeomalacology Working Group
(conference web-page - <https://www.uhi.ac.uk/en/archaeology-institute/events/association-for-environmental->

AEA Spring Conference Fund

The AEA is delighted to announce the availability of the Conference Fund to members of the AEA to assist attendance at the Orkney conference (1-3 April 2016). Prioritisation of applicants for funding will be based on the following criteria: 1) those presenting papers or posters; 2) those with limited alternative sources of funding (particularly postgraduate students and those in the private sector); 3) members of at least six months standing. Applications from students must be accompanied by a letter of support from their supervisor. An application form is provided at the end of this Newsletter.

Successful applicants will be required to provide a statement of expenditure and activities undertaken within 3 months after the event has taken place in order to receive reimbursement. Moreover, successful applicants will be requested to provide a report on the conference for the AEA Newsletter or website.

The deadline for applications is Friday 26 February 2016. Any queries should be directed to the AEA Conference Officer: Robin Bendrey (r.bendrey@reading.ac.uk)

ScARF Student Network: Bursaries available for the AEA Spring Conference

The Scottish Archaeological Research Framework (ScARF) is offering seven student bursaries to support attendance at the conference. These bursaries are designed to allow students to hear about current research in archaeology and participate in discussions within the discipline. The deadline for applications is Monday 15th February. For details on how to apply, please visit:

<http://www.socantscot.org/up-and-coming-events/scarf-student-network-bursaries-available-for-the-association-of-environmental-archaeologists-conference/>

[www. geoarcheologia.uksw.edu.pl](http://www.geoarcheologia.uksw.edu.pl)

**FOURTH GEOARCHAEOLOGICAL CONFERENCE
IN WARSAW**

Warsaw, 8 - 9th. April 2016



*Late Pleistocene and Holocene
climatostratigraphy of Northeastern Africa
reflected in lake sediments and
geoarchaeological data*



Association for
Environmental
Archaeology



THE AMERICAN
UNIVERSITY OF ROME

AMERICAN ACADEMY IN ROME

37th Association for Environmental Archaeology Conference Sept 29 – October 1, 2016, Rome

SCOPE: Synthesis and Change in Palaeo-Environmental studies in the Mediterranean

The discipline of environmental archaeology is approaching a number of cross roads that will challenge its existence and relevance in a world where humanities funding is shrinking, while archaeological scientific method is expanding. The former makes project funding difficult, especially for environmental work, the latter offers a myriad of increased interpretational possibilities, but with a cost, as well as methodological challenges. Archaeological funding generally is diminishing world-wide, although European funding appears to be increasing in the Horizon 2020 program for projects that will 'make heritage a more economic and cultural social benefit.'



How environmental archaeologists respond to these challenges from both research and policy/strategy viewpoints in the next few years will be very important. To this end, this annual conference will be devoted to both of these issues – exploring them individually, and also in an integrated manner.

Papers and posters will be accepted. Geographical range: the Mediterranean. Time Scale: any. Papers relating to Italian archaeology will be particularly welcome. As discussed above, the theme will address two major issues:

Synthesis- the major difficulty (theoretically and practically), of combining and synthesizing environmental, archaeological, scientific, and (where appropriate) historical data. Single site reports will be less favored than multi-site/regional or Mediterranean syntheses. Other types of papers may explore the problems of combining organic or scientific data of different levels of reliability, and representativeness. Some work has been done in this area (especially in archaeobotany), but papers dealing with a wider range of data types will be welcome.

Change– this part of the program will look at changes evolving in ancient studies that environmental archaeology needs to embrace to survive and prosper, in particular: a special focus on the rise of heritage studies; funding and international co-operation; and perhaps the need to overcome cultural disciplinary issues.

Languages English and Italian, (administration, lunch at the American University of Rome), papers, posters and coffee will be presented at the Istituto di Studi Germanici. Plenary session at the American Academy in Rome.

OUTLINE PROGRAM (Abstract deadline will be March 31, 2016)

Thurs 29th Sept, 2016

5pm commence early registration at American Academy in Rome – until 5.45pm

6pm Welcome and Plenary Session at American Academy in Rome. The AAR is kindly sponsoring this event with drinks afterwards.

Plenary Speaker: Prof Graeme Barker, senior fellow and former director, McDonald Institute for Archaeological Research, University of Cambridge, former director of the British School at Rome, and current director of the Shanidar Cave excavation.

Fri 30th Sept and Sat 1st Oct: Full program (4 sessions each day) and conference dinner at a local restaurant on Saturday. Sessions will be held at the Istituto Studi Germanici (pictured above), located near the American University of Rome.

Registration continues at the American University of Rome (from 8.30am) on both days in their main auditorium, which will also house the book and equipment displays. Single day registration will be possible. Costs will include all morning and afternoon teas, and lunch.

Sunday: Excursion options (and meetings for the Italian community or those interested in ERC partnerships): 1. Etruria most of the day: bus to Tarquinia, guided tomb and city visit, local lunch. Return will be mid afternoon. 2. Palazzo Valentini (central Rome: viewing two underground well-lit late antique Roman domus, ancient Rome video flyover, and finds display). In English (1.5 hours); numbers limited to 25.

Additionally, there are a myriad of museums and archaeological sites that can be visited on foot, and by local transport. Ostia (late Roman) is within 45 minutes by train, and Pompeii can be reached in about two hours. Tours to Pompeii and/or Ostia may be organized, depending on interest.

Enquiries in the first instance to: aea2016rome@gmail.com, Robyn Veal

Website is under construction at <http://aea2016rome.com>

Science and multidisciplinary in archaeology European Association of Archaeologists (EAA) conference sessions

31st August - 4th September 2016

Vilnius, Lithuania

- Investigating Geochemical and Petrographic Methods for Flint Identification in Archaeology
- Unravelling the formation processes of the archaeological record by integrating environmental archaeology and traditional field excavation
- Biogeochemical approaches to archaeological diet, mobility and disease
- Cremated remains in archaeology: new methods, findings, and interpretations
- Plague in diachronic and interdisciplinary perspective
- New Knowledge About Past Societies Through the Use of Advanced Remote Sensing Techniques
- Food for thought – interdisciplinary responses to dietary studies in bioarchaeological research
- Understanding trade dynamics through computational approaches
- Genetic, physical and chemical methods in archaeological fish bone analysis
- Geoarchaeology of Prehistoric settlements: new insights into use of space, dwellings, household activities and land use
- “New directions in R-chaelogy”: innovations in the use of Free and Open Source Software (FOSS) to achieve an open archaeology
- Methods of metal detecting survey in archaeology
- Novel approaches to understanding palaeoenvironmental and palaeoclimatic change, and their impact on past human and animal behaviour
- Human land use and subsistence history over the Holocene
- New developments in isotope and trace element analyses
- Multiproxy Wetland and Lake Environmental Archaeology: From Niche Construction Theory to Ancient DNA
- Archaeology, Language and Genetics: In Search of the Indo-Europeans

N.B. Extended deadline for paper/poster abstract submission to 1 March 2016.

For full details visit: <http://eaavilnius2016.lt/5-science-and-multidisciplinary-in-archaeology-th5/>

“Agricultural Origins of Urban Civilization” Conference

18th - 20th March 2016
University of Oxford, UK

This three-day conference explores the agricultural basis of different forms of urbanization in the millennia following the establishment of farming and herding in western Asia and Europe. It brings together results of the ERC-funded AGRICURB (‘The agricultural origins of urban civilization’) project at Oxford, which investigates the comparative ecology of farming and herding practices through regional pathways to urbanization in western Asia, the Aegean and central Europe (7th to 1st millennia cal BC).

The conference will consist of invited talks only but there are spaces for those who would like to attend and/or present a poster.

Registration fee is £60 for 3 days, including all lunches and two evening receptions.

Alternatively there is a day rate of £30 for either Saturday or Sunday.

For more details and to register, please visit www.agricurb.com/Conference and see the attached programme.

Musings from Social Media



Lisa-Marie Shillito @ArchaeologyLisa · Jan 19

To Tweet or Not to Tweet? Some late thoughts from @Envarch conference castlesandcoprolites.blogspot.co.uk/2016/01/to-twe...

AEA Conference 2015



← 2 2 2 ...



AEA @Envarch · Feb 3

AEA autumn conference website now live. Keep checking for more updates! #rome #palaeoenvironmental #Mediterranean aea2016rome.com

← 1 2 ...



Lisa Lodwick @LisaLodwick · 10 Dec 2015

Thanks to @Envarch for the extra wine @UniRdg_Arch tonight! And great talk by Michelle Alexander on iberian isotopes.

← 1 1 ...



Terry O'Connor @osteococonnor · 2 Dec 2015

Great stuff. JGE would have enjoyed both topics.

AEA @Envarch

John Evan's Dissertation Award winners 2015 announced! Congrats to Blessing @UoYArchaeology & Lisa @FitzwilliamColl facebook.com/permalink.php?...

← 3 ...



[http://
www.envarch.net](http://www.envarch.net)

The AEA

The AEA promotes the advancement of the study of human interaction with the environment in the past through archaeology and related disciplines.

We hold annual conferences and other meetings, produce a quarterly newsletter for members, and publish our conference monographs, as well as our journal 'Environmental Archaeology: The journal of human palaeoecology'.

Key Dates

AEA Spring Conference 2016:

Orkney, 1st-3rd April

Three-year Membership Award, Local Archaeological Society Nominations :

30th April

AEA Autumn Conference 2016:

Rome, 29th September-1st October

Living off the Land: A study day on agriculture in Wales between c. 400 and 1600 AD.

John Percival Building, Cardiff University
Saturday July 16th 2016

Fees £30 standard, £15 student (lunch included)
[https://www.canterbury.ac.uk/arts-and-humanities/
school-of-humanities/archaeology/conferences/living-
off-the-land.aspx](https://www.canterbury.ac.uk/arts-and-humanities/school-of-humanities/archaeology/conferences/living-off-the-land.aspx)

Notes from the Newsletter Editors

Please note that thesis submission forms can be found on the website which gives AEA members an opportunity to publish abstracts of their postgraduate thesis.

We are always keen to receive newsletter content, especially from our non UK members. To submit an article, please email word documents and images by 22nd of April 2016;

newsletter@envarch.net

Conference Fund Application Form
Spring Conference 2016
Deadline: Friday 26 February 2016



Name:	Occupation:
Address:	E-mail:
Date you joined the AEA:	
I am presenting a Paper/ Poster (please delete as appropriate) entitled:	

Please provide full breakdown of costs

Registration:	Cost:
Mode of transport (rail/air etc):	Cost:
Type of accommodation:	Cost:
Meals included:	Cost:
Other (Please specify):	Cost:
Total	Cost:

Have you attempted to obtain funding from other sources?	Yes / No
If not, why not?	
If yes, how much have you requested?	
How much have you obtained?	
If other applications are still pending, when do you expect to hear the outcome?	
How much do you request from the AEA:	

I certify that the information I have given is true.
Signature:

Postgraduate applicants should include a letter of support from their supervisor.

Please return completed forms via email or post to: Dr Robin Bendrey, AEA Conference Officer,
Department of Archaeology, University of Reading, Whiteknights Box 226, Reading, RG6 6AB, UK.
r.bendrey@reading.ac.uk