

OXFORD School of Archaeology

Annual Report
2013–2014



THE SCHOOL OF ARCHAEOLOGY

The School of Archaeology is one of the premier departments in the world for the study and teaching of the human past. Comprised primarily of the Institute of Archaeology and the Research Laboratory for Archaeology and the History of Art, the School hosts a dynamic faculty, nearly one hundred undergraduates, and a large cohort of outstanding graduate students each year. It is one of the few places in the world where the many facets of archaeology come together to explore themes such as human origins and early hunter-gatherers, the ancient environment, classical and historical archaeology, and chronology.

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Social and Cultural Identity in Prehistoric and Early Greece: The Re-use of Bronze Age Ruins in Later Cult Sites, 1200–600 BC

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Exploring Human Responses to 100,000 Years of Climate Change in North Africa Using Isotopes from Microfauna Enamel as a Proxy

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Thessaly: From the Late Bronze Age to the Early Iron Age (c.1200–700)

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Archaeological Manifestations of Rank and Status, the Wooden-Chambered Tombs in the Mid-Yangzi Region (206 BC–AD 25)

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Emma Loftus (*Merton College*)

Palaeoenvironments during the Middle and Later Stone Age at Border Cave, KwaZulu-Natal

Jerome Mairat (*Wolfson College*)

The Coinage of the Gallic Empire

Sarah Mallet (*St Cross College*)

Diets in England, 1500 BC–1086 AD

Tzveta Manolova (*Merton College*)

Maritime Networks of the Eastern Mediterranean from the Late Bronze Age Transition to the Early Iron Age (1200–800 BC)

Christina Marini (*Exeter College*)

Western Greece from the Post-Palatial Period to the Early Iron Age

Javier Martinez (*Lincoln College*)

Aqueducts and Water Supply in the Towns of Post-Roman Spain (AD 400–1000)

Moujan Matin (*Keble College*)

Qajar Ceramics Technology: An Investigation into Pigments and Colours

Rebecca McClung (*St Cross College*)

Understanding Social and Environmental Issues on the West Coast of Ile de la Reunion through Graffiti and Other Memory Markers

Erin McGowan (*St Cross College*)

Invisible Intaglios: Exploring the Extent to which Changes in Seal Production and Use from MMIII–LMIB Reflect an Increasing Concern for Sphragistic Security in Administrative and Social Contexts

Mark McKerracher (*St Cross College*)

Agricultural Development in Mid Saxon England

Kristine Merriman (*Merton College*)

The Context of Organic Residues in Archaeological Vessels of Ceramic and Bronze

Emma Middleton (*St Cross College*)

The Influence of Gender on Ceramic Production during the Late Iron Age in South Africa

William Mills (*St Cross College*)

Distribution and Technological Analysis of Late Glacial Events in Relation to the Palaeolandscape of the River Wey, a Tributary of the Channel River Network

Elizabeth Montgomerie (*Exeter College*)

Images of the Rural Economy on Mosaic Pavements in the Late Antique Levant

Hannah Mosley (*Linacre College*)

Primate Archaeology: Cross-Species Comparisons for the Social Evolution of Primate Tool Use

Jessica Murray (*Kellogg College*)

The Landscape Settings of Hillforts: A Multi-National Approach

Luisseach Nic Eoin (*St Hugh's College*)

The Gatherer and the Grindstone: Analysis of Grindstone Technology from the Site of Ha Makotoko, Western Lesotho

Kyoko Nomoto (*Wolfson College*)

Technological Change in Silk Production in Early Imperial China Re-analysed: An Anthropology of Technology Approach

Bobby Orillaneda (*Linacre College*)

Southeast Asian Maritime Trade in the 15th Century: Evidence from Shipwrecks

Rebecca O'Sullivan (*Merton College*)

The Role of Xinjiang as an Intermediary Border Zone in Interactions between Central China and Inner Asia

Lee Overmann (*Keble College*)

The Development of Numeric Thinking from Mind/Material Interaction

Joanna Palermo (*University College*)

Innovative Economies: The Impact of Iron Technology on the Economy and Culture of Early Iron Age Greece (1200–700 BCE)

Sefryn Penrose (*St Cross College*)

An Archaeology of Post-Industrial England

Laura Perucchetti (*St Peter's College*)

Reconsidering Copper and Early Bronze Age Metallurgy in the Alps: New Approaches to Trade and Exchange

Edward Peveler (*St John's College*)

A Study of Building Materials: Their Sources, Movement, and Use in the Roman Upper Thames Valley

Alison Pollard (*Wolfson College*)

The Use of Epic in Roman Art

Sol Pomerantz (*St Hugh's College*)

The Prehistory of Madagascar: Microbotanical and Archaeological Evidence from Coastal and Highland Sites

David Price (*Wolfson College*)

Social Being and the Navan Complex: c.4000 BC–c.90 BC

Evan Proudfoot (*Lincoln College*)

Doors and Thresholds in the Roman Mediterranean 200 BC to AD 200: Tracing Social Function, Technological Development, and Transmission

Philippa Puzey-Broomhead (*St Cross College*)

A Historical Archaeology of the Black Loyalists in Atlantic Canada

Leonie Raijmakers (*Merton College*)

An Investigation of Past Human Migration and the Introduction of Malaria in the Indo-Pacific through Plasmodium Vivax Mitochondrial Genomes

Kathryn Reusch (*St Hugh's College*)

'That Which Was Missing': The Archaeology of Castration

Natasha Reynolds (*Wolfson College*)

The Mid Upper Palaeolithic of European Russia in Context: A Study of Five Gravettian Backed Bladelet Assemblages

Valeria Riedemann Lorca (*Lincoln College*)

Greek Mythology Abroad: A Regional Comparative Study of its Funerary Uses in Fourth-Century BC Italy

Patrick Roberts (*St Hugh's College*)

The Palaeoenvironmental Context of the Human Occupation of South Asia and its Bearing on Behavioural Modernity

Benjamin Sabatini (*Linacre College*)

The Remaining Evidence: Impurities and their Significance for Ancient Pyrometallurgy

Victoria Sainsbury (*St Cross College*)

The Recycling of Glass in Roman and Transition Period Britain: From Trash to Treasure

Yurika Sakai (*St Cross College*)

Transition from the Late Roman Period to the Early Anglo-Saxon Period in the Upper Thames Valley: Analysis Using Stable Isotope Data

Francisca Santana Sagredo (*St Hugh's College*)

From the Andes to the Ocean: Human Mobility and Diet in the Atacama Desert during the Late Intermediate Period (1000–1450 AD)

Katia Schorle (*St Cross College*)

Long-Distance Trade and the Exploitation of Arid Landscapes in the Roman Imperial Period (First–Third Centuries AD)

Amanda Sharp (*Lincoln College*)

Figured Capitals in the Architecture of the Roman Empire: 1st Century BC–4th Century AD

Nichole Sheldrick (*Corpus Christi College*)

Architecture and Identity in the Tripolitanian Countryside from the 1st c. BC until the 7th c. AD

Laura Shell (*Lincoln College*)

Macedonian Funerary Archaeology in the Archaic and Classical Periods

Yuriria Silva-Velazquez (*Linacre College*)

Application of Transmission Electron Microscopy to Identify Pre-Hispanic Developments in the Manufacture of Maya Blue Pigments

Jane Smallridge (*Magdalen College*)

The Death of Memory: Remembering and Forgetting through Transitions in Roman Britain

Sian Smith (*St Cross College*)

Telling Tales: Objects, Narratives and Effective Assemblages in 18th Century Spitalfields

Christophe Snoeck (*Merton College*)

A Burning Question: Structural and Isotopic Studies of Cremated Bone in Archaeological Contexts

Gabriela Sotomayor (*Wolfson College*)

Ptolemaic Egyptian Jewellery and Engraved Gems: Materials and Methods

Silja Spranger (*Lincoln College*)

Honorific Statuary in the Third Century AD

Ina St George (*Linacre College*)

The Role of Wall Art in the Neolithic at Çatalhöyük

Dan Stansbie (*St Cross College*)

Food and Agency: How Food Made Us Who We Are

Elizabeth Stroud (*St Cross College*)

Archaeobotany: Understanding Social Organisation and Structure of Chalcolithic Anatolia Settlements Using Archaeobotanical Methods

Vajk Szeverenyi (*St Cross College*)

Interregional Interaction and Social Change in the Early Bronze Age of the Carpathian Basin, c.2900–2000 BC

John Talbot (*Wolfson College*)

What is Icenian Coinage?

Josh Thomas (*Lincoln College*)

Intellectual Imperialism and its Impact upon Hellenistic Art

Caroline Thurston (*Wolfson College*)

The Co-occurrence of Terracotta Wheelmade Figures and Handmade Figurines in Mainland Greece, the Dodecanese and the Cyclades, 1200–700 BC

Abi Tompkins (St Cross College)

The Archaeology of the Avon Valley during the Transitional Period: Spatial Configuration from the Late 4th to the Mid-7th Century AD

Petra Vaiglova (St Cross College)

The Ways of Producing Food: Using a Multi-Isotope Approach to Study the Nature of Agricultural Management in South-Eastern Europe and Anatolia

Elsbeth van der Wilt (Linacre College)

The Place of Lead in an Egyptian Port City during the Late Period

Angela Vaughan (Keble College)

An Isotopic Study of Diet and Environment at Taforalt, Morocco

Margaret-Ashley Veall (Linacre College)

Residual Footsteps: Biochemically Tracing Human Dispersal and Subsistence Use through Palaeolithic South Asia

Greg Votruba (Wolfson College)

Iron Anchors and Mooring in the Ancient Mediterranean (until c.1500 CE)

Victoria Waldock (Wolfson College)

A Multi-Sensorial Analysis of Holocene Saharan Pastoralist Rock Art

Veronica Walker Vadillo (St Cross College)

Nautical Angkor: The Social Life of Boats in the Khmer Empire

Jennifer Wehby (St Cross College)

Ancient Mortar Production in Ostia, Italy: Builders and their Choices

Nicholas West (Wolfson College)

The Persistence of the Classical-Figural Bronze Statuettes in the Ashmolean Collection 450 BC–AD 300

Marlena Whiting (Lincoln College)

Travel in the Late Antique Levant: A Study of Networks of Communication and Travel Infrastructure in the 4th–7th Centuries

Marshall Woodworth (St Catherine's College)

Absorbed Residue Analysis of Roman and Byzantine Period Amphorae

Carrie Wright (St Cross College)

Calcium Isotopes in Sheep Dental Enamel: A New Approach to Studying Sheep Weaning and Dairying in the Archaeological Record

Mu-Chun Wu (Hertford College)

The Spatial Construct of Social Relations: Social Transformation in Early Kau-Shi, Taiwan

Maggie Ziriach (St Cross College)

Using Isotopic Analysis to Identify Migration in the Western Mediterranean during Late Antiquity

Research Projects

Palaeodietary Evidence from Prehistoric North Africa

Nick Barton

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This year a major stage in the Cemeteries and Sedentism in North Africa project was completed. One of the major objectives of this Leverhulme-funded project has been to consider the social and economic patterns of Later Stone Age (epipalaeolithic) hunter-gatherers which seem to have shifted quite radically and inexplicably, around 15,000 years ago, from a generally nomadic to a more sedentary form of existence. One of the immediate consequences of this change in lifestyle seems to have been a rapid deterioration in dental hygiene indicated by a spectacular rise in dental caries. At one of our key sites, a cave cemetery at Taforalt in Morocco, over 51 per cent of the adult teeth display severe signs of dental decay. This surprising discovery contradicts conventional ideas about the teeth of hunter-gatherers; the dental evidence suggests levels of decay comparable to some modern industrialized populations in which refined sugars and processed cereals play important roles in the diet.

What were the contributory factors in the decline in dental health? Although not all of the studies are yet complete, we are fairly certain that there is a close link between changes in the diet and the condition of the teeth. We can show for example that in addition to hunting wild Barbary

sheep there was a sharp increase in the human consumption of certain plant foods, including those rich in fermentable carbohydrates. Macrobotanical remains from the occupation deposits dated between 15,000 and 13,700 cal BP provide evidence for systematic harvesting and processing of edible wild plants, including acorns and pine nuts. The sweet acorns come from the Holm oak and can be eaten as a raw food or turned into flour as is known ethnographically. It is also known that processing and cooking of starchy foods to improve digestibility increases their stickiness and reduces food clearance in the oral cavity, providing an ideal environment for acid-tolerant bacteria. Equally, other plants such as wild pulses and wild oats seem to have contributed to the high prevalence of caries in the Taforalt populations.

One other factor worth considering is that although most of the plant foods from the archaeological levels must have been collected between the late spring and autumn, both pine nuts and acorns could have been stored, enabling occupation through the winter. Other indicators, including the presence of the cemetery, suggest that people seldom moved very far from the cave. All the evidence seems to point toward an intensification of activity involving more prolonged occupation periods involving large groups of people. This is especially interesting given that the development of more sedentary behaviour is normally associated with food-producing societies in the Neolithic, which in Morocco did not take place until many thousands of years later.

For further information, see:

Earliest evidence for caries and exploitation of starchy plant foods in Pleistocene hunter-gatherers from Morocco. *Proceedings of the National Academy of Science* 111(3) (2014), 954–9. DOI: [10.1073/pnas.1318176111](https://doi.org/10.1073/pnas.1318176111)

The Cemeteries and Sedentism project is principally funded by the Leverhulme Trust and grants from the British Academy and the Natural Environment Research Council. The Institut National des Sciences de l'Archéologie et du Patrimoine granted permission to conduct this project. The work has been carried out in close collaboration with INSAP, Reading University, UK, the Natural History Museum, UK and Römisch Germanisches Zentralmuseum, Mainz, and by researchers at a number of UK institutions.



Oral pathology on a human maxilla from Taforalt (individual XI), showing heavy tooth wear and developed caries. Photo: Isabelle De Groote.

Characterizing 'Extensive' Crop Production and its Role in Ancient Urbanization: An Integrated Study of Arable Weed Ecology and Crop Isotopes in Haute Provence, France

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A key aim of the ongoing 'Agricultural origins of urban civilization' project (AGRICURB), funded by the European Research Council, is to investigate the nature of farming systems that enabled the emergence and perpetuation of early urban societies in western Asia, the Aegean and central Europe. A combination of textual and archaeobotanical evidence suggests that early urban systems in western Asia and the Aegean involved a balance between 'extensive', elite-sponsored production, and small-scale 'intensive' farming. 'Extensive' production systems are characterized by low inputs and yields per unit area but potentially very high levels of surplus production when practised at a large scale. 'Intensive' farming, by contrast, involves high inputs of labour per unit area to promote high area yields (and marginal surpluses) in small-scale subsistence-oriented systems. A major methodological challenge for any archaeological investigation of ancient urban production systems is to distinguish between these different modes of farming and to delineate their social and wider ecological contexts and implications.

In order to address this challenge in a European context, the AGRICURB team undertook a study of extensive cereal production in Haute Provence, France over the summer of 2013. The specific aims were to characterize the local system of low-input cereal production, managed through crop rotation, effective tillage and very little to no

use of farmyard manure, using two analytical approaches: functional weed ecology and stable (carbon and nitrogen) isotope analysis of crops. The team worked with organic farmers in the Sault region and in parts of the Lubéron national park area, conducting quadrat weed surveys in ripening cereal (and a few pulse) fields, and returning to sample fully ripe crops at harvest time.

Preliminary results from the ecological analysis of the weed flora suggest that the 60 crop fields surveyed are characterized by weed species adapted to low-nutrient conditions, with some taxa especially resistant to intensive tillage. The ecological profile of the weed flora offers a clear contrast to that of intensively managed crop fields that feature high levels of manuring: a previous study of small-scale cereal cultivation in Asturias, Spain showed that weeds under these conditions are adapted to rapid growth on productive soils. Moreover, our preliminary results suggest that, in further contrast to intensive agrosystems such as that in Asturias, the stable carbon and nitrogen isotope signatures of extensively farmed cereals accurately reflect marginal growing conditions with low levels of organic matter.

As we analyse and interpret these results further in preparation for publication, we are formulating a model for identifying extensive cultivation in the past through ecological and stable isotope analysis of archaeobotanical crop and weed assemblages. The ultimate aim is to apply this approach to Neolithic–Bronze Age sites where we can combine investigation of land management through archaeobotanical remains with palaeodietary (stable isotope) assessment of the role of crops in human and animal diets. In this way, we are moving toward a comparative assessment of the nature and role of crop production in early 'urban' sequences in the Aegean and temperate Europe.

If you would like to read more about this project, see the following websites:

<http://www.agricurb.com>

<http://www.arch.ox.ac.uk/AGRICURB.html>

Fieldwork in Provence was funded by the European Research Council (AGRICURB' project, ERC No. 312785, PI Bogaard).



Ripe einkorn field in Haute Provence, September 2013.

New Radiocarbon Calibration Curve

Christopher Bronk Ramsey and Richard Staff

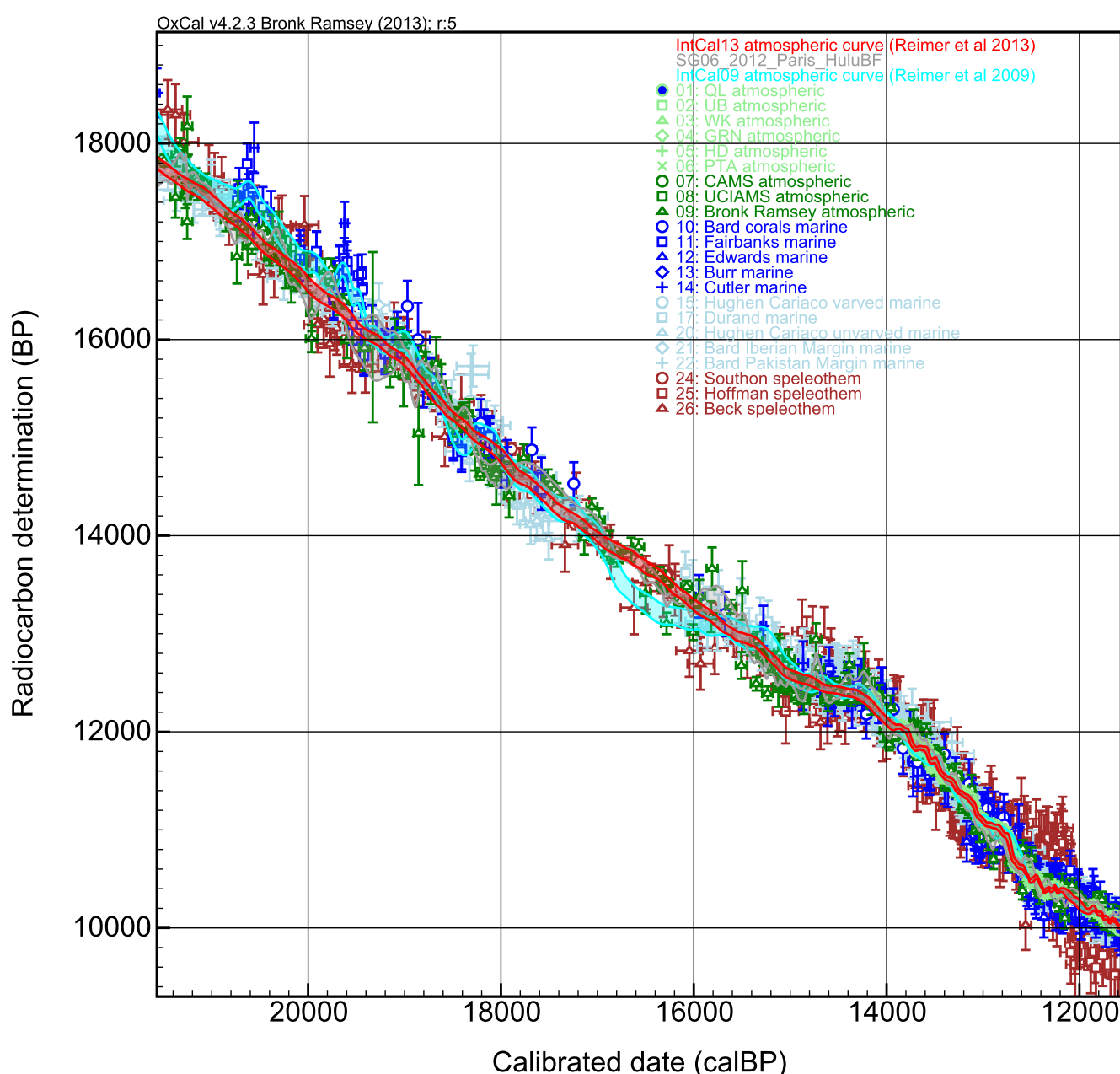
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Radiocarbon dating provides a chronological framework spanning the last 50,000 years, which underpins much of the prehistoric archaeology and environmental science of this period. Unlike some other absolute dating methods, it can only do this through comparison to measurements of known-age material covering this whole period, which are summarized in the international consensus (IntCal) calibration curves. This year saw the publication of a new calibration curve IntCal13. For the first time this curve contains measurements reflecting the atmospheric levels of radiocarbon that cover the entire period from 50,000 years ago to the present, the

most complete record of all being that from Lake Suigetsu, reported in the last Annual Report.

The generation of the radiocarbon calibration curves is a major international effort, conducted by the IntCal group. The publication forms a special issue of the journal *Radiocarbon*, with detailed papers on the criteria for data selection, advice on the use of the curve, and the details of the curve itself.

Alongside the publication of the new curve, new updates of the widely used OxCal software allow a wider range of chronological models to be implemented using the new calibration curves.



Section of the new IntCal13 calibration curve and its supporting data plotted with the OxCal calibration and statistical analysis package.

Publications:

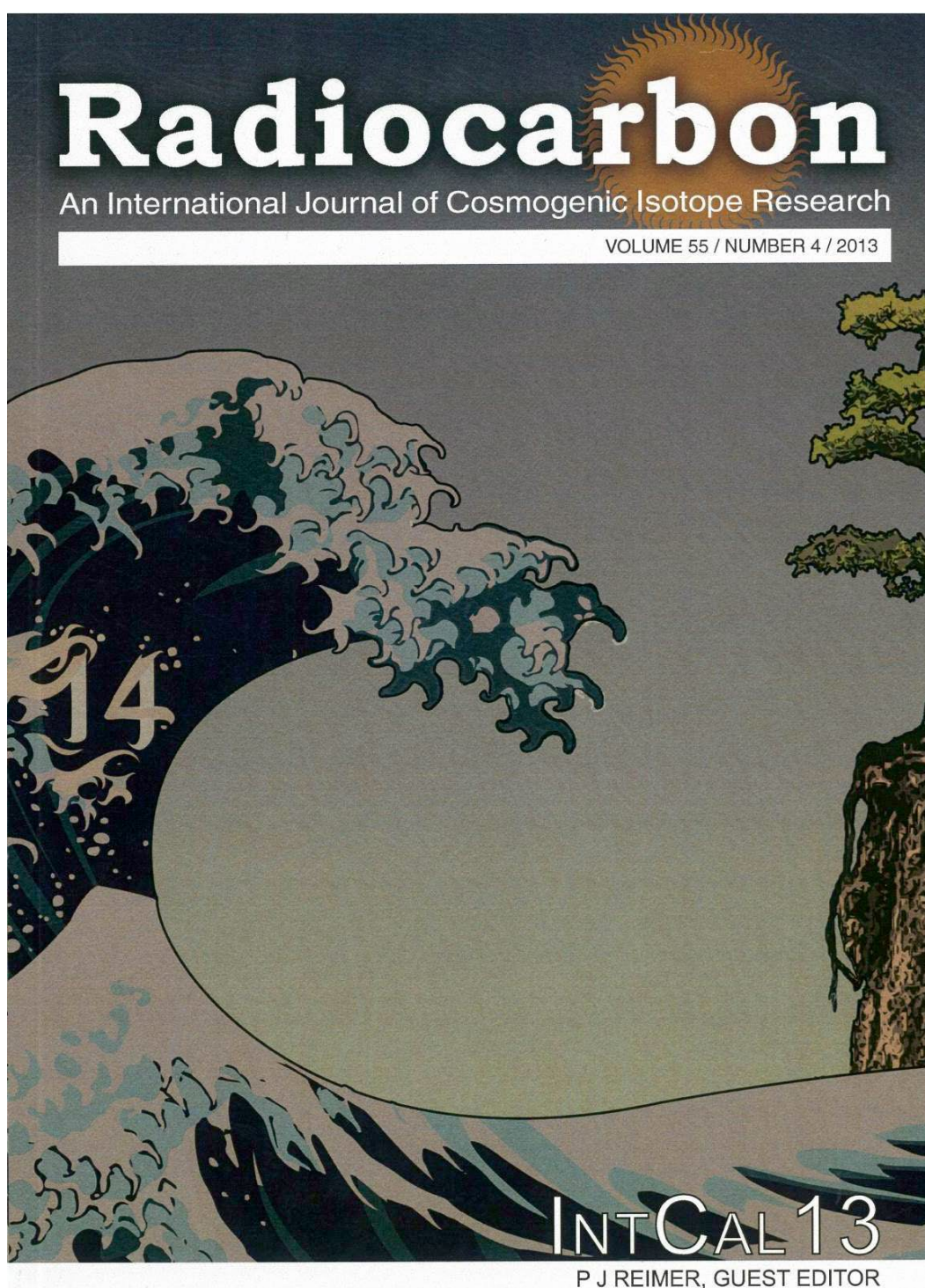
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HEIR: The Historic Environment Image Resource

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Historic photographic images are increasingly being recognized as a vital resource to help researchers understand some of the most pressing current research issues, from environmental and climate change to human impact on the planet. They also generate huge and personal interest worldwide.

Between c.1880 and c.1950, the University of Oxford amassed an extensive collection of original high-resolution lantern and glass slide photographic images. They form an exceptional visual record of people, places, expeditions and events from all over the world. By the mid-twentieth century rapid changes in photography had rendered these glass plates and slides redundant and they came to rest in boxes of university departments, museums and libraries.

This project unlocks the research potential of historic lantern slide and glass plate photographs by digitizing and bringing to light these images, many of which have not been seen for over a century. With the help of software developers and a crowd-sourcing platform, this project is calling on the worldwide community of ‘citizen scientists’ to help keyword and identify old photos of monuments, landscapes and environments taken across the world. A dedicated mobile app will allow the re-photographing of

the sites in their modern settings (‘then and now’), adding an important chronological dimension for studying monument and landscape changes.

The information collated will form parts of a publicly accessible global database allowing researchers to study the impact of time, nature and people and how this has changed the world around us. Current project partners include the Institute of Archaeology, Ashmolean Museum, Beazley Archive and Bodleian Library, as well as the Departments of Geography and History of Art, and the Citizen Science Alliance. International partners include the Department of Art History, University of Chicago, U.S.A. and the Trendall Centre, La Trobe University, Melbourne, Australia.

For further information on the project, visit:

<http://www.arch.ox.ac.uk/HEIR.html>

or the project blog at:

<http://archaeologyarchivesoxford.wordpress.com/blog/>

HEIR is supported by the John Fell Fund, Oxford, the Reva and Logan Foundation, Chicago and the Citizen Science Alliance, Oxford–Chicago.



Mrs Myres at Pompeii around 1890. Photographer: John Myres.

Drought and the Collapse of Old Kingdom Egypt

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The effect of abrupt climatic change on past human societies forms a major strand of current archaeological research. The impact of such events on agricultural communities remains of particular relevance today. More broadly, attempts to relay the severity of the modern climatic crisis are often compromised by their reliance on abstract geophysical data. The fate of the pyramid builders of ancient Egypt, on the other hand, is something that captures the imagination of people the world

over. For this reason, verifying whether or not this ancient civilization collapsed due to a major drought event has the potential to influence profoundly the wider debate.

The Achilles' heel of most palaeoenvironmental and archaeological studies of climatic change is the precision of the associated chronological data. Without highly resolved dating information, a critical assessment of any potential causality remains impossible. This project, being conducted in collaboration with environmental scientists at the University of Aberystwyth, seeks to establish whether the proxy evidence consistent with a mega-drought in north-east Africa during the third millennium BC coincides with the collapse of the Old Kingdom (or Pyramid Age) of Egypt. The aim is to use high-precision radiocarbon dating to fix both the environmental and political events in absolute time. For the chronology of the late Old Kingdom, new dates are being obtained on items housed in museum collections. For the environmental analysis, the working assumption is that any decline in the annual flood in Egypt must have occurred simultaneously at its principal source, the Blue Nile catchment in Ethiopia. Accordingly, new radiocarbon and optically stimulated luminescence dates are being made on samples from lake cores in the region, some of which have already yielded data consistent with reduced outflow at this time. Ultimately, the political and environmental chronologies will be compared, providing valuable information about whether or not such an event could have contributed to the downfall of the state.



Linen fragments (UC55050, image courtesy of the Petrie Museum) being radiocarbon dated for the project from the sarcophagus of Pepy I, who ruled Egypt towards the end of the Old Kingdom.

The funding for this study comes from a Leverhulme Trust Early Career Fellowship. Michael Dee is additionally supported by a Junior Research Fellowship from St Edmund Hall, University of Oxford.

A Revised Chronology for the Palaeolithic of Late Pleistocene Thailand

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The discovery of a new member of the *Homo* lineage in south Siberia ('Denisovans') that admixed with the ancestors of present-day people living in Melanesia and Australia has overturned common perceptions on the role Southeast (SE) Asia has played in late human evolution. Since the inception of the 'Movius line' (1948) that divided the Palaeolithic Old World into two separate technological zones, Southeast Asia has been considered 'a region of cultural retardation' and it seemed 'very unlikely that this vast area could have ever played a vital and dynamic role in early human evolution' (Movius 1948). New evidence regarding the genetic and behavioural complexity of Palaeolithic hunter-gatherers, however, attests to the fact that the history of human occupation in SE Asia was multifaceted, vital and anything but 'retarded' or a 'backwater' (see details in Rabett 2012, Higham 2014). While the contribution of genetics is starting to elucidate the settlement of SE Asia by archaic hominins, the absolute temporal and spatial dimensions and archaeological signature of such processes remain very poorly documented. This renders comparison of the archaeological record of the region with that of areas further afield (e.g. Central Asia, Siberia or even Europe) an impossible task.

In autumn 2013, a pilot-study began which aims to revise the chronological framework and provide a better spatio-temporal understanding of human presence in late

Pleistocene Thailand. Thailand was chosen owing to the presence of recently excavated archaeological sites with datable material falling in the right period. Preliminary funding was obtained from the Evans Fund (University of Cambridge) to initiate this work.

Four caves and open-air sites in southern and northern Thailand, thought to be occupied between ~50–15,000 years ago, were chosen as the initial focus of this research. These include the most significant stratified sequence in the country, that of the Lang Rongrien rockshelter (Anderson 1990), Moh Khiew (Pookajorn 1994), Tham Lod (Shoocongdej 2006) and Lang Kamnan (Shoocongdej 1996). Preliminary results are awaited and it is anticipated that they will enable archaeological and palaeoenvironmental records and other relevant information (sea-level change, grassland coverage) to be combined within a precise regional chronology.

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I would like to thank the kind co-operation of Professor R. Shoocongdej (Silpakorn University, Bangkok, Thailand) and Professor C. Higham (Otago University, New Zealand), and the generous funding from the Evans Fund, School of Anthropology, University of Cambridge.



Topographic map showing the location of the Thai Palaeolithic sites under study.

Mass Migration and Apartheid in Anglo-Saxon Britain?: An Ancient DNA Re-evaluation

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The fierce and impious Saxons, a race hateful both to God and men ... Nothing was ever so pernicious to our country, nothing was ever so unlucky.

From: *De Excidio et Conquestu Britanniae*
by the sixth century British cleric Gildas.

The Romano-British to Anglo-Saxon transition is one of the most striking in British history. Several strands of evidence point towards a mass migration of Anglo-Saxons in the fifth century AD, but the scale of this event, and possible subsequent presence of an 'apartheid' system, remain controversial. The main question is 'what happened to the indigenous people?' – were they absorbed or displaced during this period? Geneticists have attempted to answer this question using modern human DNA data, with estimates of between 25 per cent and 100 per cent contribution of Anglo-Saxon DNA to the modern male English gene pool. However, the methodology of using present-day data to extrapolate back in time is problematic, not least because subsequent relocations will have erased the genetic signal of any original migration event. The best way to begin to determine the extent of the Anglo-Saxon migration into Britain is to look directly at the genes of the contemporaneous British population.

In the Anglo-Saxon Early Period (fifth to early seventh century AD), two types of male inhumation burial have been identified: 'tall with weapons' and 'short without weapons'. It has been hypothesized that this difference reflects tall Anglo-Saxon and short Romano-British

people. I am testing this theory by targeting ancient DNA of skeletons from the Apple Down cemetery, seven miles north of Chichester in West Sussex (site code EM/2/82). This cemetery contains 121 inhumations, with a very obvious division between two different burial practices:

1. At the centre, burials are of children and mature adults, and contain grave goods ('tall with weapons'). These are orientated in an east–west direction.
2. At the edges, burials are without grave goods ('short without weapons'), and have a north–south orientation.

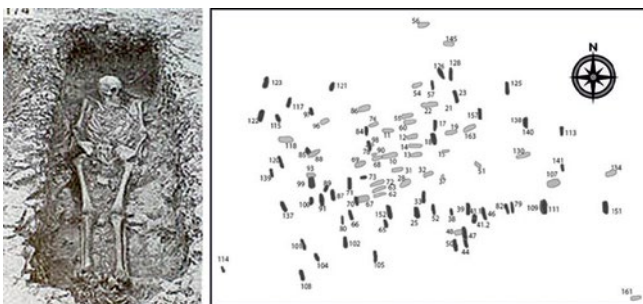
Although this organization indicates social separation between two groups, we cannot assume there was ethnic division at Apple Down using the bones and grave goods alone. However, the clear division seen at this site does allow testing of the hypothesis that there were two non-interbreeding populations present here during the Saxon period. By careful choice of burials interred at different times (as determined through grave good typology), it may also be possible to assess the percentage of intermixing occurring between these two groups.

DNA data are currently being generated. Comparison of individuals from the two types of burial, as well as with modern populations of British and Germanic origin, should give a measure of the level of Anglo-Saxon migration at the Apple Down cemetery. Genetic analyses will also test the reliability of making assumptions about social identity from material remains buried in graves.

For further information, see:

<http://www.thenovium.org/index.cfm?articleid=21565>

This research work is funded by the Leverhulme Trust (grant number RPG-388). The PI is Professor Mark Pollard (RLAHA, Oxford), and there are three Co-Is: Professor Helena Hamerow (Archaeology, Oxford); Professor Dan Bradley (Trinity College Dublin); and Dr Duncan Sayer (University of Central Lancashire). Additional funding came from the John Fell OUP Research Fund (grant number 112/247), which covered expenses incurred in setting up an ancient DNA laboratory at RLAHA in Summer 2012. I would like to thank the Chichester District Museum, Anooshka Rawden and Dr Rob Symmons for allowing access to the Apple Down skeletal collection.



Map showing the distribution of inhumation burials at the core of the Apple Down cemetery. Graves at the edge of the cemetery (n = 15) are not shown. Graves with an east–west orientation are shown in light grey, whilst those with a north–south orientation are in dark grey. © D. Sayer – School of Forensic and Investigative Sciences, University of Central Lancashire.

The Missing Cast: Building a New Approach to the Investigation of Early Metal Age Bronze Technology on the Indian Sub-continent

Chris Gosden and Wendy Morrison

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The metal-producing cultures of the Harappan and Early Vedic periods in modern India and Pakistan (2700–1300 BC) represent South Asia's first urbanized society. Their interactions with the wider world via land routes into Afghanistan and the Eurasian Steppe, as well as by sea across the Indian Ocean and into the Persian Gulf, were no doubt driven to some extent by trade in copper and bronze objects. A new methodology has been developed which permits us to infer the 'life-history' of metal artefacts based upon their chemical signatures, not simply to pinpoint their geological origin, but to trace

recycling events. This would enable us to learn much about the inter-regional relationships of the Indian sub-continent, but there is a major hurdle to the application of this potentially fruitful line of enquiry.

Although a great body of material from this period has been excavated over the past two centuries, much has been scattered in diverse museum collections. Comparatively few have seen the type of analysis required to understand the chemical characteristics, and of these, even fewer have been published. Our project has worked towards gathering the analysed data and defining areas which require further work.

We are working towards building a collaborative team which will be able to increase the number of data points from five hundred to several thousand, maximizing the potential of the excavated bronze material as well as forging new relationships with Indian metallurgical and archaeological scholars. The preliminary results will form the basis for longer-term grant applications, as well as feeding into a broader attempt within the School to understand early bronze use right across Eurasia.

For more information on the methodology applied to the chemical compositional data from the bronze material, see:

Pollard, A.M. and Bray, P.J. 2012: A new interpretative approach to the chemistry of copper-alloy objects: source, recycling and technology. *Antiquity* 86, 853–67.

The research for this project has been wholly funded through the generosity of the John Fell Fund.



A selection of Harappan bronze implements on display at the National Museum, Delhi. © Creative Commons Nomu42.

The Pattanam Excavation Project

Chris Gosden and Wendy Morrison

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For the first time in post-partition Indian history, the University of Oxford has been invited to excavate in collaboration with an Indian institution. In March and April of 2014, Dr Wendy Morrison, under the direction of Professor Chris Gosden, led a team of University of Oxford postgraduate students and specialist staff to Pattanam, in Kerala, South India. The Kerala Council for Historical Research has been excavating for seven years a site which had produced a vast number of artefacts indicating rich trade connections with the rest of the Arabian Sea and the Mediterranean. The Oxford team went to join them in their eighth season.

The purpose of the project was twofold. Firstly, a comparison of fieldwork practice was beneficial to both parties, as the Oxford team learned about the methodology of the Pattanam excavation and the KCHR team was introduced to archaeological practices more common in the United Kingdom. Secondly, the team shared specialist skills and held training sessions with the KCHR team, in such areas as specialist photography, magnetometry, field survey using total station, and geo-archaeological

analysis. Professor Gosden joined the team for a week, and gave a widely publicized talk in the nearby city of Kochi in which he highlighted the role of global connectivity in the past and the importance of viewing the contribution of the East in the development of the ancient Western world.

The project was an overall success, with the two sides of the collaboration each learning a great deal. A future season is planned for 2015, in which more analysis of the archaeological landscape, topography and palaeoenvironment will be included.

More information on Professor Gosden's visit to Kochi can be read at:

<http://www.newindianexpress.com/cities/kochi/The-Movement-of-People-Throughout-History/2014/04/23/article2183696.ece>

The research for this project has been supported by the Kerala Council for Historical Research and through the kind assistance of the Oxford Journal of Archaeology.



KCHR and Oxford Pattanam Excavation Team 2014. © Sandeep Suresh.

English Landscapes and Identities: 1500 BC to AD 1086

Chris Gosden

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The English Landscapes project (EngLaID) is now at its halfway point, having commenced in late 2011 and being due to finish at the end of 2016. We are writing a history of the English rural landscape from the rise of widespread field systems in the middle Bronze Age (1500 BC) to the Domesday record ordered by William I (AD 1086). Much of the first half of EngLaID was spent gathering data from English Heritage, from local Historic Environment Records, from the Portable Antiquities Scheme, and from various other sources. These data have been collated into a large database of over 900,000 records, which we are using to study our long period of interest alongside other data sources in a GIS environment.

The project team has completed its first round of case studies and discovered interesting differences between the archaeological signatures and trajectories of the Isle of Wight, northernmost Northumberland, and the Somerset

Levels/Mendip Hills. Themes as diverse as ‘marginality?’, the long-term histories of Iron Age enclosures, and ‘where landscapes start and end?’ have been explored. The second round of case studies is approaching completion and preliminary results have begun to suggest some obvious and some not-so-obvious differences between the archaeology of different parts of England.

The national level survey is also well under way and we are starting to tease out continuities and differences in levels of archaeological activity between our constituent broad time periods, with continuity seeming to be the predominant picture at a very broad level (or at least continual use and reuse of the same landscape areas) alongside more subtle elements of change (such as the movement down from highlands between the Bronze and Iron Ages or the expansion of visible settlement in the Roman period).

Our three D.Phil. students are now entering their final year and are all well on track to contribute to the overall outcomes of EngLaID. Our project artist has continued to help engage EngLaID with the wider public, including a very successful exercise in which primary school children wrote letters in to the project team asking questions about archaeology and our careers, which we responded to with much enthusiasm.

One particularly successful activity undertaken by the EngLaID team was the writing of a report on the relationships between different databases and data archiving/collating bodies in English archaeology. This was commissioned by English Heritage and is already helping shape the future direction of their national policy.

For further information see:

<http://englaid.com>

<http://visualenglaid.wordpress.com>

http://twitter.com/EngLaID_Oxford

EngLaID is funded by the European Research Council (ERC). The project is led by Chris Gosden. Team members are: Anwen Cooper (prehistory), Letty ten Harkel (early medieval), Chris Green (GIS/databases), Laura Morley (research coordination), Miranda Creswell (art), Victoria Donnelly (D.Phil.), Sarah Mallet (D.Phil.) and Dan Stansbie (D.Phil.). Zena Kamash has moved on from Oxford and a new Roman researcher will be in position soon.



Clock artwork entitled 'Two views of one landscape' created by project members and sold in aid of The Art Room charity in 2014.

Birsay–Skail Landscape Archaeology Project, Orkney

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This project has continued in post-excavation. Reports and analyses of materials and finds have been received from Ingrid Mainland (Orkney College UHI) on animal bone, Rebecca Nicholson (Oxford Archaeology) on fish bone, Steve Ashby (University of York) on combs and comb-making, Amanda Forster (Institute for Archaeologists) on steatite, Dawn McLaren (AOC Scotland) on worked stone and iron residues, and a further series of radiocarbon dates from SUERC. A season

of fieldwork took place in 2013 on the uninhabited island of Damsay, the site of a major Viking-Age earldom stronghold. A scheduled chapel site which is being eroded by the sea was cleaned, recorded and sampled, and the island subjected to extensive geophysical and GPS topographic survey. David Griffiths has been awarded a British Academy/Leverhulme Senior Research Fellowship for 2014–15 in order to complete the publication of the project.

Archaeology of East Oxford Project

David Griffiths

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This major HLF- and John Fell-funded community archaeology project has continued throughout 2013–14. An excavation on the site of a prehistoric pit alignment at Donnington Recreation Ground was undertaken in October 2013, producing over a hundred new lithic finds and Roman and Anglo-Saxon ceramics. The lithics are being studied in conjunction with archive work on the Bell Collection at the Pitt Rivers Museum. Other collections work on East Oxford has progressed at the Ashmolean Museum. A very successful art exhibition based on finds from the project was staged at the

Pitt Rivers Museum in conjunction with students from the School of Architecture, Oxford Brookes University. Work on dating the Holocene palaeoecology of the area has progressed in conjunction with Professor Adrian Parker (Oxford Brookes University) and SUERC. Post-excavation reports have been received for excavations in 2011 and 2012 at Bartlemas Chapel (a medieval leper hospital), and Minchery Paddock, adjacent to the site of the former Littlemore Priory. Further analyses and reports are available at www.archeox.net. A summative project monograph is in preparation.

The Origins of Wessex: An Anglo-Saxon 'Great Hall' Complex at Sutton Courtenay, Oxon

Helena Hamerow

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How the first Anglo-Saxon kingdoms emerged within the post-Roman British landscape remains a matter of considerable debate. Visual display was, however, a key means by which the first ruling dynasties asserted their position. Such display reached a peak in the early seventh century when richly furnished 'princely' barrow burials, such as those at Sutton Hoo, along with 'great hall' complexes, were sited at nodal points in the landscape. The 'great hall' appears in Anglo-Saxon poetic sources such as *Beowulf* as the focus of political and cultic activity and was of central importance in defining the first Anglo-Saxon confederations.

Only one of these early great hall complexes – the Northumbrian royal vill at Yeavering – has been extensively excavated. Another complex identified from aerial photographs at Sutton Courtenay, near Abingdon has now been subjected to archaeological investigation. The Upper Thames Valley was the heartland of the earliest rulers of the West Saxons and the site is almost certainly an undocumented royal centre associated with this group. Metal-detector finds from Sutton Courtenay indicate the existence of a cemetery containing richly furnished

burials of the late sixth to early seventh century adjacent to the great hall complex, while coin finds suggest that the burial ground was succeeded in the early eighth century by a market or meeting place (Hamerow, Hayden and Hey 2008).

In conjunction with Wessex Archaeology, it has now been possible for the first time to carry out an archaeological evaluation of the core of the great hall complex (Hamerow and Brennan forthcoming). This has demonstrated that there had already been Anglo-Saxon occupation in the field containing the great halls prior to their construction. The evaluation also revealed that the largest of the halls was 31×10.8 m, making it the largest Anglo-Saxon timber building ever found. It cut a large prehistoric ring ditch that had been infilled long before the building was constructed; it was nevertheless established that a bank or mound would still have been visible, and have been levelled prior to the construction of the great hall. Several other Bronze Age barrows in the vicinity are also likely to have served as landmarks in the early medieval period and to have conditioned the positioning of the great hall complex. The largest hall bears strong



Excavation trench at Sutton Courtenay/Drayton.

architectural similarities to the great hall at Yeavinger, suggesting the existence of a shared 'court culture' and a desire by West Saxon leaders to emulate a successful innovation of Northumbrian rulers, with whom they were developing an alliance.

References:

- Hamerow, H., Hayden, C. and Hey, G. 2008: Anglo-Saxon and earlier settlement near Drayton Road, Sutton Courtenay, Berkshire. *The Archaeological Journal* 164, 109–96.
- Hamerow, H. and Brennan, N. forthcoming: The Anglo-Saxon Great Hall Complex at Sutton Courtenay/Drayton, Oxfordshire.



Fragment of a garnet-inlaid gold disc brooch found at Sutton Courtenay with digital reconstruction. Photo: Ian Cartwright.

Trends in Bone Collagen Stable Isotope Values Across Neolithic Europe

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We have now combined the dataset resulting from our collaboration on an AHRC-funded project led by Professor Alasdair Whittle (Cardiff University), ‘The First Farmers’, with both published and our own unpublished measurements of Neolithic humans and fauna, to produce a Continent-wide synthesis. This work is now on the point of submission for publication. By working at this large and inclusive scale we have been able to explore spatial patterns in the data. This has brought unprecedented clarity to understanding the extent of climatic influences on animal isotope values in an archaeological context. Beyond that, the differences between the

geographical patterns for humans and their domesticates provide insight into regional variations in ancient human diet.

References:

- Bickle, P. and Whittle, A. (eds.) 2013: *The First Farmers of Central Europe: Diversity in LBK Lifeways* (Oxford).
- Hedges, R., Bentley, R.A., Bickle, P., Cullen, P., Dale, C., Fibiger, L. *et al.* 2013: The supra-regional perspective. Chapter 9 in Bickle, P. and Whittle, A. (eds.), *The First Farmers of Central Europe: Diversity in LBK Lifeways* (Oxford), 343–84.

Spatio-temporal Patterns in the Disappearance of Neanderthals

Tom Higham and Katerina Douka

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Since 2006 we have been working on a large project, funded by the Natural Environment Research Council (NERC), to explore the chronology of the transition from the Middle to Upper Palaeolithic in Europe. Broadly speaking, this is the period over which Neanderthals were replaced by anatomically modern humans.

New radiocarbon samples from around 450 samples of bone, charcoal and shell were obtained from 40 key European archaeological sites. The sites, ranging from Russia in the east to Spain in the west, were either linked with the Neanderthal tool-making industry, known as Mousterian, or were 'transitional' sites containing stone tools associated with either early modern humans or Neanderthals. The samples yielded around 200 new AMS radiocarbon dates. The chronology was pieced together by building Bayesian mathematical models (using OxCal) that combine the new radiocarbon dates with established archaeological stratigraphic evidence.

The results suggest that the Mousterian industry (attributed to Neanderthals and found across vast areas of Europe and Eurasia) ended between 41,030 to 39,260 years ago and therefore that after this there were no Neanderthals in Europe.

In 2011, in another *Nature* paper headed by one of us (KD), some very early dates (around 45,000 years old) were obtained for the so-called 'transitional' Uluzzian stone-tool industry of Italy. Identified teeth remains from the site of the Grotta del Cavallo, Apulia, were confirmed as those of anatomically modern humans. These ages were used in the new research to produce a date for the arrival of the earliest modern humans. The results suggested that both groups overlapped for a significant period; between 2,600 and 5,400 years (at 95% probability). Importantly, the evidence also suggests that Neanderthals disappeared at different times across Europe rather than being rapidly replaced by modern humans.

The Uluzzian industry contains objects, such as shell beads, that scholars widely believe signify symbolic or advanced behaviour in early human groups. One or two of the sites of France and northern Spain containing an industry called the Châtelperronian (currently, although controversially, associated with Neanderthals) contain some similar items. The dating evidence we obtained supports the theory first advanced several years ago that the arrival of early modern humans in Europe may have stimulated the Neanderthals into copying aspects of their symbolic behaviour in the millennia before they disappeared.

There is currently no evidence to show that Neanderthals and early modern humans lived closely together in the same regions of Europe. Rather than modern humans rapidly replacing Neanderthals, there seems to have been a more complex picture characterized by a biological and cultural mosaic that lasted for several thousand years. Previous research had suggested that the

Iberian Peninsula (modern-day Spain and Portugal) and the site of Gorham's Cave, Gibraltar, might have been the final places in Europe where Neanderthals survived. Despite extensive dating work by former D.Phil. student Dr Rachel Wood on the project, we could not confirm the previous dates and this theory therefore remains unsupported by any evidence.

Radiocarbon dates from the Palaeolithic period have often underestimated the age of samples from sites associated with Neanderthals because the organic matter was contaminated with modern particles. We used ultrafiltration methods, which purify the extracted collagen from bone, to avoid the risk of modern contamination.

You can read more about this research project here: <http://www.palaeochron.org>

The publication reference is:

Higham, T.F.G., Douka, K., Wood, R., Bronk Ramsey, C., Brock, F., Basell, L., Camps, M., Arrizabalaga, A., Baena, J., Barroso-Ruiz, C., Bergman, C., Boitard, C., Boscato, P., Caparrós, M., Conard, N.J., Draily, C., Froment, A., Galván, B., Gambassini, P., Garcia-Moreno, A., Grimaldi, S., Haesaerts, P., Holt, B., Iriarte-Chiapusso, M.-J., Jelinek, A., Jordá Pardo, J.F., Maíllo-Fernández, J.-M., Marom, A., Maroto, J., Menéndez, M., Metz, L., Morin, E., Moroni, A., Negrino, F., Panagopoulou, E., Peresani, M., Pirson, S., de la Rasilla, M., Riel-Salvatore, J., Ronchitelli, A., Santamaria, D., Semal, P., Slimak, L., Soler, J., Soler, N., Villaluenga, A., Pinhasi, R. and Jacobi, R. 2014: The timing and spatio-temporal patterning of Neanderthal disappearance. *Nature* 512, 306–9.

Our research continues in this area with the support of the ERC.



Tom Higham and Katerina Douka selecting samples for dating from the Siberian site of Chagyrskaya.

InHabit: Text, Object and Domestic Space

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InHabit: Text, Object and Domestic Space is a collaborative research network that brings together archaeologists, anthropologists, sociologists, historians, and specialists in literary analysis, architecture and interior design to explore the interplay of built space and objects and their impact on domestic life. The network facilitates fortnightly seminars and year-long research activities that lead to publication.

Seminars are specifically constructed to promote interdisciplinary engagement. In seminars, paired speakers were invited to make short, 10–15 minute position statements upon a theme, and the group would then speak to the conceptual space between them: popular discussions included, for example, archaeologists imagining domestic space from material remains compared with architects aligning building materials with the imaginations of their clients; or the ways in which furniture was used in the eighteenth century to create social space compared with ‘furniture’, the conceptual fusion of furnishings and space in modern interior design. The liveliest discussions revolved around our once termly ‘show-and-tell’ sessions, where members brought in objects that signified emotional concepts: for example, Christmas decorations were used to explore different cultural approaches to strangers in the home.



Martin Fiennes (second from right) discusses modern life in a moated and fortified manor house with (left to right) Antony Buxton, Linda Hulin, Jane Anderson and Oliver Cox in the Oak Room of Broughton Castle, seat of Lord and Lady Saye and Sele.

These collaborations informed the discursive nature of inHabit’s in-depth research activities. Year 1 of the network explored the overall theme of feeling ‘at home’, i.e. constructing the *habitus* and security, comfort and risk; Year 2 will explore the theme of ‘dangerous domesticity’ and violence; these will be presented in Volumes 1 and 2 of the inHabit publication series.

The path to each volume follows three stages:

- 1 an initial workshop in which initial thoughts and positions are shared in short presentations, followed by a discussion of common themes, areas of difference, and ways in which different approaches might inform each other;
- 2 the creation of papers;
- 3 by request of the Year 1 participants – a follow-up workshop, in which final thoughts and positions are shared.

Under the umbrella of security, comfort and risk, Volume 1 of the inHabit series includes, among others, chapters on subject and object in archaeology and architecture, interpreting houses in Pompeii, conceptual fusions of furnishings and space, ‘ideal’ bachelor pads in *Playboy* magazines of the 1950s, domestic space and the sixteenth-century death bed, continuity and change in the English Country House, and the house in the works of artists Rachel Whiteread, Dan Graham and Gordon Matta-Clark.

For further information, see our webpage ‘InHabit: text, object and domestic space’:

<http://www.torch.ox.ac.uk/inhabit>

and for our vidcast conversation at Broughton Castle, which focuses upon the domesticity, design and space:

<http://www.torch.ox.ac.uk/inhabitconversations>

InHabit is an interdisciplinary research network funded by TORCH, The Oxford Research Centre in the Humanities. Principal co-ordinators and collaborators are Linda Hulin (Institute of Archaeology), Oliver Cox (Thames Valley Country House Partnership Project), Antony Buxton (Department for Continuing Education), Abigail Williams (Faculty of English) and Jane Anderson (School of Architecture, Oxford Brookes University).

Aerial Photographic Archive for Archaeology in the Middle East (APAAME)

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In Britain and to a lesser extent in western Europe, aerial photographs are employed routinely by archaeologists, immense archives exist, and hundreds of hours of aerial reconnaissance are flown annually engaged in discovery, mapping and monitoring. Such resources and activities are rare elsewhere, not least for the entire Middle East and North Africa. Some of the earliest pioneering work in Aerial Archaeology was in Syria in the 1920s–30s, but that effectively ended in the 1950s and archaeologists in this immense and culturally critical region have had to work without this vital tool.

APAAME was established at the University of Sheffield in 1978 under the patronage of Crown Prince Hassan of Jordan; from 1990–2013 it was based at the University of Western Australia and has now moved to the University of Oxford. Its objectives are to gather information on the numerous caches worldwide of aerial photographs of the region, seek access to state archives in the region, promote their use, and lobby for the revival of flying programmes.

From the outset the key country has been Jordan: many thousands of aerial photographs survive in archives worldwide, some stretching back to the First World War; in the early 1980s the Jordanian military provided copies

of several thousand survey photographs from 1953; and in 1997, through the support of King Abdullah's brother, Major General Prince Feisal, the Royal Jordanian Air Force has provided several flights annually. Jordan remains the only country in the entire region to support a programme of Aerial Archaeology.

APAAME today consists of over 60,000 photographs and several thousand maps, all freely available on a Flickr site. The most recent season of reconnaissance was in April 2013 – 21 hours of flying, almost 1000 sites recorded and nearly 8000 geo-referenced digital images added to the archive.

The October 2014 season in Jordan aims to fly a further 30+ hours, this time as a joint UWA–Oxford project. In 2015 the entire project – flying, archive and research – will be based in Oxford at our office in New Barnett House. In a region in which development remains rapid – Jordan's population has increased c.2000 per cent since the 1940s – the impact on archaeology is catastrophic and the Department of Antiquities needs every tool available. Aerial reconnaissance remains the single most powerful tool for discovery, mapping and monitoring. Few of the several thousand sites recorded by our programme are



The 'head' of Safawi Kite 118 in the Jordanian lavafield is c.175 m across with 'tails' extending back hundreds of metres. It is one of almost 1800 located in Jordan. Kites – probably hunting traps of the prehistoric peoples – are found throughout the Middle East and are the subject of a workshop at an international conference in June 2014.

in the Jordanian antiquities database (MEGA-J). That is especially true of the inhospitable lavafield of the north-east. Little has been recorded there although it is strewn with thousands of prehistoric sites of a type seen now through satellite imagery in many parts of 'Arabia'.

For further information, see:

APAAME Photographs on Flickr

<http://www.flickr.com/APAAME/collections/>

APAAME Blog

<http://www.apaame.org/>

The project has been funded from various sources most notably the Australian Research Council, British Academy, Society of Antiquaries and Palestine Exploration Fund. The project is especially indebted to Dr David Packard and the Packard Humanities Institute, which has provided the primary funding since 2008 of c.US\$2 million.



The project depends on flights provided by the RJAf in Huey helicopters whose large door allows ideal viewing in the air and for at least three photographers to work in parallel.

The Cultural Heritage Programme

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The Programme was launched in January 2013 to assess the feasibility of establishing a platform for coordinating teaching and research in cultural heritage across three of the University of Oxford's four Divisions (Humanities, Social Sciences and MPLS). It aims to promote research, facilitate public engagement and highlight the University's Museums and Collections and the Conservation Department of its Estates Services as heritage 'labs'.



The Cultural Heritage Programme website advertises a broad spectrum of cultural heritage interests to members of the University and the global heritage community. Its social networking facility serves students, senior members, project collaborators and the public.

Over the academic year 2013/14 the Programme has explored opportunities for research in tangible, intangible and natural heritage, offered a Class in the autumn term to introduce new students to different parts of the University with expertise in cultural heritage, hands-on museum sessions with the University Engagement Programme in the spring term, and themed Events in the summer term.

It has already attracted the attention of other academic research institutions, a Network Scheme grant from the AHRC (*Digital Cultural Heritage India and China*) and welcomed its first Recognised Student. The Programme will evolve in response to interests expressed in, for example, conservation, management and digital technologies.

For further information, see:

<http://culturalheritage.ox.ac.uk>

The Programme was launched with a Small Grant from the University of Oxford's John Fell Fund. It is coordinated by Donna Kurtz with a cross-divisional Steering Group.

Survey and Excavation at Moel y Gaer, Bodfari, North Wales

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The Clwydian mountains in North Wales provide a spectacular upland landscape that contains a series of well-preserved Iron Age hillforts. These have been little studied and are very poorly understood other than through the pioneering work of the Heather and Hillforts Project funded by the National Lottery and run by Denbighshire County Council. This has included topographic survey, geophysical survey and some small-scale excavation at six hillforts and includes the objectives of landscape and heritage management to encourage public understanding and participation in outdoor activities including archaeology. It is concentrated on six hillforts within the Clwydian Range Area of Outstanding Natural Beauty and actively encourages collaborative research in the area to build on the existing information for late prehistoric sites and landscapes, with the intention of providing a better understanding of the settlement record for this area for academic and public audiences.

Moel y Gaer, Bodfari, a small hillfort in the northern Clwydians and not included within the Heather and Hillforts Project, is strategically located overlooking the confluence of the Rivers Chwiler and Clwyd with multiple ramparts working with the natural topography to enclose an area of c.2 ha. Before our survey work in 2011 there existed only a poor earthwork plan, and minimal

excavation in 1908 revealed very little but suggested some interesting potential. So far we have conducted three seasons of work at Bodfari, the first concentrating on various forms of survey and the latter two on targeted excavation. The dating of later prehistoric sites in this area is particularly problematic as there is a lack of detailed excavation and very little material culture.

An important focus of our work is to develop new methods for integrating a range of datasets produced from various survey techniques. Conventional topographic survey using a total station was carried out in tandem with morphometric analysis of LiDAR data with a view to assessing the feasibility of automatically extracting a plan of the hillfort from LiDAR data. A range of geophysical techniques have been employed at the site: magnetometry and resistivity within the interior of the hillfort to assess the geological response of the site, identify potential archaeological features and characterize recent changes in land-use; and multi-depth resistivity, electrical tomography and ground penetrating radar have been used on the ramparts to characterize the structure of the earthworks.

The two seasons of excavation have been targeted on results from the surveys. One area is exploring a roundhouse suggested by magnetometry and constructed on an artificially levelled platform facing the northern in-turned



Moel y Gaer, Bodfari, excavation of a roundhouse within the hillfort.

entrance into the interior. Here it appears that the natural slope was chopped into to create the platform and a bank constructed along its outer lip. Evidence for the round-house itself is slight but a laid stone surface around part of its outer edge and a stone spindle whorl suggest domestic activity. Another ongoing trench is exploring the structure of the inner and middle ramparts and a corresponding internal area which displays magnetic anomalies. So far the middle rampart has revealed two phases of construction with laid internal walls.

We also have an active outreach programme in collaboration with Denbighshire County Council. This involves an annual Open Day, guided walks and opportunities for local people to take part in the excavation, based partially on links having been established with local archaeological and historical societies.

For further information see:

The Heather and Hillforts Project:

<http://www.clwydianrangeanddeevalleyaonb.org.uk/hillforts/>

Moel y Gaer, Bodfari (interim reports):

<http://www.arch.ox.ac.uk/bodfari.html>

This work is funded by the Cambrian Archaeological Association, the Clwydian Range and Dee Valley Area of Outstanding Natural Beauty Sustainable Development Fund and private donations. It is carried out in collaboration with Cadw and Denbighshire County Council.



Moel y Gaer, Bodfari, geophysical survey in the hillfort interior.

The Atlas of Hillforts in Britain and Ireland

Gary Lock, Ian Brown and Paula Levick

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Hillforts are the most impressive field monument of later prehistoric times across many areas of England, Wales, Scotland, Northern Ireland and Eire. Although precision is not possible at the moment, it is likely that there are over 4000 in total. Any academic or popular account of later prehistory from c.1000 BC has to include a discussion of hillforts as the dominant monument type: their forms and architecture, possible functions, relationships with their setting and archaeological surroundings. Over recent years within Iron Age studies the importance of ‘regionalization’ has emerged as an important theme and one which requires information and data to be available at both the local level and at regional and inter-regional scales. At the moment there is no integrated system that will provide this information for hillforts, although a wide variety of sources exist in digital and paper form. These sources, however, are diverse, often difficult to access, and hard to integrate to produce wider interpretations and new research questions, since all previous syntheses have generally been at ‘national’ (i.e. Ireland, England) scales. Furthermore, most of the ways in which these sites are usually described are based on upstanding examples, but it is now essential to incorporate many ploughed-down remains, only visible as cropmarks.

This project is creating an online interactive database that will include standardized information on all hillforts in the UK and Eire and enable interrogation and analysis at a range of scales from an individual hillfort to the whole collection. The database will be linked to Google Earth/Maps so that the locations of hillforts can be seen within their landscape contexts. At the close of the project, the data file will be available for reuse through the

ADS. The information held is a compilation of all existing sources, restructured to provide maximum achievable consistency and the ability to search all hillforts, evaluating and comparing them on meaningful characteristics such as number and configuration of ramparts, ditches and entrances. Evaluation, analysis and interpretation will take place at local, regional and inter-regional scales and the outcomes will be a paper atlas of hillforts, where cartographic presentation will be matched by succinct analytical texts. These will include extensive discussion on the structuring of the data, including consideration of what is and is not a hillfort and why, together with the interpretation of analyses and patterns established at the different scales and visualized through a series of maps and plans. The results will feed significantly into discussions of regionality and how hillforts fit with other data and interpretations. The analysis of this set of sites across the whole of Britain and Ireland – something not previously attempted – will generate new configurations of information on similarities and differences amongst sites that will challenge prevailing views.

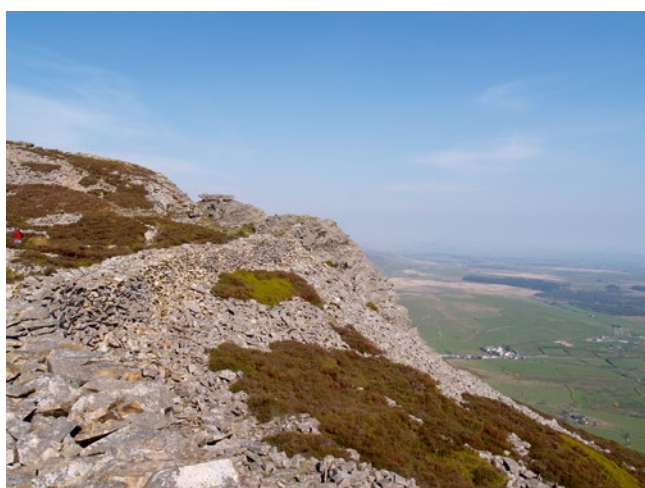
The project includes teams of people based in Oxford, Edinburgh and Cork as well as two funded D.Phils. One, based in Edinburgh, is a critical reassessment of the dating evidence for these sites, including scientific determinations, and numismatic and artefactual data: these monuments are used in both the first millennia BC and AD, and evaluation of the chronological range of these sites at a variety of scales will allow closer readings of patterns through time, to match the spatial focus highlighted above. The other is based in Oxford and is establishing new GIS-based methodologies for understanding the settings of hillforts in different types of topography. This looks at the relationship between the monument and its local topography and human understandings based on movement and visibility.

Hillforts are of great interest to a large range of audiences, sometimes just for their intrinsic archaeological value but often as part of wider landscape, historical and environmental interests. The project includes a Citizen Science element that encourages people to visit hillforts and assess them in a critical way through a structured survey form with detailed notes for guidance. This has proven to be popular with archaeological societies, with many participating and producing surveys of groups of hillforts in different areas which will complement the formal database.

For further information, see:

<http://www.arch.ox.ac.uk/hillforts-atlas.html>

This work is funded by the Arts and Humanities Research Council. It is carried out in collaboration with the University of Edinburgh and University College Cork.



The stone-built hillfort of Tre'r Ceiri, 450 m above sea-level on the exposed peak of Yr Eifl on the Llŷn Peninsula, Gwynedd, Wales. This is a well-preserved hillfort, its ramparts surviving in places to near full height and enclosing over 150 visible stone houses.

Origins of a European Community: Creating Identity and Networks with Dress in Post-Roman Europe

Toby Martin

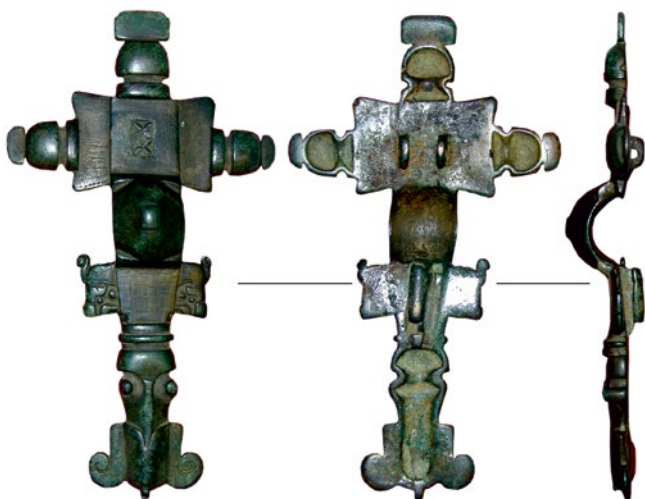
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This British Academy-funded postdoctoral project investigates the role of women's dress in the rise of regional and inter-regional social networks in the transition between Late Antique and Early Medieval Europe. During this period, identities and power structures were renegotiated on a spectacular scale, as central and northern Europe ceased to be the obscure fringe of a Mediterranean Empire and became host to a number of small kingdoms that were power centres in their own right, both within and beyond the bounds of the formerly Roman world. Simultaneously, particular women, from an area that stretched from western Norway, England and Spain all the way to the Black Sea, began to dress with large brooches, which were often elaborately decorated. These items are among the most visible and abundant artefacts in the archaeological record of the whole period. In most regions, this phenomenon lasted little more than a few generations, but because many of these women were

buried wearing this jewellery, thousands of brooches survive, making this one of the richest available datasets.

These brooches have been studied for more than a century, and by now their typologies and chronologies are relatively well understood. This project therefore takes the timely opportunity to study these objects on an international scale as a single phenomenon, something not comprehensively attempted since the earlier part of the twentieth century. The interests of the project include who wore these brooches, why they became so popular, how they were used to demonstrate power at a local level, and whether they demonstrate the rise of a trans-European elite community on an unprecedented scale. The key question therefore is what these brooches, both humble and ornate, can tell us about the elite networks that grew up in the wake of the Western Empire, and how women and their dress were a fundamental component of this development.

The project (under way 2013–16) builds upon the strong chronological and typological foundations that have been constructed over the past century. Some chronological synchronization will be a necessary part of the endeavour. However, rather than producing substantial new work in the well-trod area of typology and chronology, this project takes inspiration from more recent work on the contextual meanings of material culture and its active role in the construction of networks and identity. Given the large geographical scale of the project it will be based mostly on published data, a necessity for the rapid construction of the sizeable database required for this kind of undertaking. The building of the database is currently under way, which will be complemented by a number of research visits to European museums in order to collect additional archival information as well as to produce high quality photography. The research objectives are not only concerned with a comparative study of regional brooch styles and iconographies, but also contextual information regarding specific manners of dressing and burial as well as more object-biographical micro-studies of particular objects, their manufacture, wear and repair, all of which will constitute the second phase of the project.



An early Anglo-Saxon copper-alloy cruciform brooch from Toddington, Bedfordshire (length 134 mm) with 'helmed profile' lappets and a zoomorphic terminal. The brooch would most likely have been used to fasten a wool cloak. Photograph by T.F. Martin, taken and reproduced with the kind permission of Luton Culture (accession number: 2001/33).

Horse Nations: The Worldwide Impact of the Horse on Indigenous Societies

Post-1492

Peter Mitchell

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Not all research involves excavation, laboratory analysis or the expenditure of large grants. Taking advantage of periods of sabbatical leave, I have devoted much of the past two years to exploring the impact of the horse on post-Columbian societies in the Americas, southern Africa and Australasia. *Horse Nations: The Worldwide Impact of the Horse on Indigenous Societies Post-1492* was submitted to Oxford University Press in March and is scheduled to appear in print early in 2015.

Inspiration for tackling this topic came from earlier fieldwork in Lesotho where, for a few decades in the mid-1800s, 'Bushmen' acquired horses that they used to hunt game and raid European farms for livestock. Numerous rock-paintings confirm that they also became an important symbolic resource, developing associations with rain-making and other aspects of shamanic power (studied by a former D.Phil. student, Sam Challis). But horses were not just welcomed by hunter-gatherers in southern Africa. Once introduced by Europeans, they obtained a ready reception on North America's Plains, in the Central Valley of California and in the deserts of Arizona and New

Mexico. Less well known, perhaps, is their adoption by the Indigenous inhabitants of many parts of South America: Colombia's La Guajira Peninsula, the Gran Chaco savannahs, and the Pampas grasslands, Patagonian steppes and Araucanian forests to their south. To which, for the sake of completeness, we must also add New Zealand's Māori and even a few Australian Aboriginals.

So, what is the book about? The answer lies in its title, for this is the first comparative study of how the horse was adopted across *all* these regions and what the consequences of that adoption were. The sheer variety of responses to an animal that allowed people to move further and faster than ever before is startling: some became true equestrian nomads, hunting indigenous game or – as on the Pampas – cattle that were themselves another European introduction, others emphasized mounted raiding as part of their resistance to colonial settlement (e.g. California) or used horses to care for other domesticates, such as sheep (e.g. New Mexico's Navajo or La Guajira's Wayúu). But cross-cultural comparison also reveals many similarities, not just at the obvious level of how horses



Half eland/half horse figures from Melikane Shelter, Lesotho. The combination of equine and antelope features in a single animal shows how rapidly horses were incorporated not just into the everyday lives, but also into the worldview, of nineteenth-century Bushman hunter-gatherers.

were ridden and the technologies needed for this, but also in how they were naturalized as part of the social worlds and cosmologies of their new owners: sacrificed at the graveside, buried with the dead, merged (linguistically and in rock art) with powerful native animals like guanacos, eland, or even kangaroos, employed as the basis for acquiring wealth and creating new distinctions of status, prestige and even social class. Horses were far from the only European innovation of significance for the societies

that my book considers (think, for example, of guns or diseases, such as smallpox), but in being able to reproduce themselves and to explode the scale of human life in both space and time, they proved vital agents of change. For many Indigenous societies in the Americas, southern Africa and even Australasia in the age of Europe's expansion their histories were indeed inscribed in the tracks of their horses.



A better known instance of Indigenous people using the horse: mounted hunters pursue bison at Meyers Spring, Texas. The speed of the chase is indicated by the backward-streaming appearance of their hair or headdresses. Photograph courtesy of Jamie Hampson.

Healing Limbs and Burying Gods: Discovering a Cave Sanctuary at Miletus in Turkey

Philipp Niewöhner

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The excavation of a cave beneath the theatre of Miletus in Turkey has led to the discovery of an ancient sanctuary. It contained a spring, human terracotta limbs and mythological marble sculptures. The spring and the terracotta limbs identify the cave as a pagan healing shrine. The marbles were deposited in late antiquity, and the circumstances suggest a Christian context.

Dozens of fingers and other life-size limbs of burned clay that were found in the cave may be identified as votive offerings for the cure of the respective body parts. The finds indicate that the cave was a healing shrine. It was centred on a karst spring that would have played a key part in the cure.

Around the turn of the fifth century AD, not long after Emperor Theodosius I (379–95) had promulgated a series of anti-pagan laws, the spring was filled in and blocked

with half a dozen mythological marble sculptures. The sculptures are missing noses and ears that appear to have been chopped off before the marbles were buried and covered with roof tiles. Their careful deposition in the cave would have served to protect them from further damage. This seems to be confirmed by oil lamps that were deposited together with the sculptures and suggest a proper burial ceremony. It may have been the last ritual act that sealed the healing spring and protected the sanctuary from profanation. Originally, the marbles would not have been displayed in the grotto. They differ in material, size and style, but all have fixtures that suggest an architectural context such as, for example, the stage building of the theatre.

The discovery of the cave sanctuary is part of a larger research project on various aspects of late antique and Byzantine Miletus. For further information, see:

<http://www.arch.ox.ac.uk/LABM.html>

The excavations at Miletus are principally funded by the German Archaeological Institute. The growing involvement of students and scholars from Oxford is supported by the Craven Committee, the Oxford Centre for Byzantine Research, the Meyerstein Bequest, and various collegiate travel and research grants.



The cave underneath the theatre of Miletus: the cavity to the left of the pier contains the spring.



Terracotta fingers that would have been brought into the cave as votive offerings for the cure of finger ailments.



Two mythological marble heads with broken noses that were found blocking the spring of the cave sanctuary, where they had been buried around the turn of the fifth century AD.

Using Isotope Analysis of Charred Grains and Seeds to Reconstruct Ancient Farming Practices

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Charred crop remains, including pulses and cereal grains, are often found well preserved on archaeological sites. While traditional archaeobotanical methods use the contextual information and morphological characteristics of these charred crops to gain useful information about past diet and food procurement, the stable carbon and nitrogen isotope values of the seeds and grains themselves can shed further light on the conditions under which these crops were grown. Plants that are manured have higher nitrogen isotope ($\delta^{15}\text{N}$) values while plants that are well watered have higher carbon isotope ($\delta^{13}\text{C}$) values.

Irrigation and manuring are two important agricultural techniques that are of interest to archaeologists. One of the major aims of the 'Agricultural origins of urban civilization' project (AGRICURB), funded by the European Research Council, is to investigate the extent to which these techniques were practised as early urban systems developed

in western Asia, the Aegean and central Europe. Irrigation and manuring are techniques that might be employed in an 'intensive' farming system, where high labour inputs are employed to produce high yields per unit area. Stable isotope analysis of crop remains provides a direct means of identifying these practices in the archaeological record.

In order to apply this technique to a range of Neolithic–Bronze Age sites, we wanted to determine precisely what the offset in $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ was between charred and uncharred grains/seeds so that we could apply a correction factor to future studies of archaeological material. We experimentally charred six different types of cereal grains and pulses at a range of temperatures and times that simulated the type of long, gentle heat exposure that results in perfectly preserved samples. Under the microscope, we identified the temperature and time limits for the material which most closely resembles that recovered in the archaeological record: lower than 215°C for 4h or less and the material had not undergone enough of a chemical change; by 260°C for 8 or 24h and the samples were too distorted by the heat to be identifiable to species. By measuring $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values of multiple subsamples of seeds/grains within each batch, we were able to calculate precisely what the probable offset between charred and uncharred samples would be.

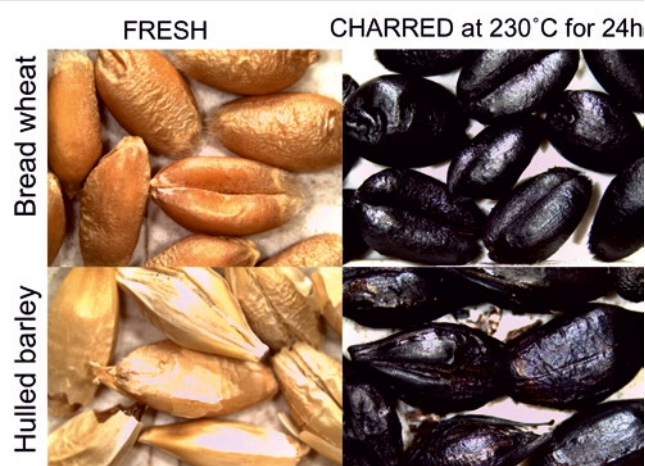
The results of this experiment, currently being prepared for publication, are the starting point for interpreting the ongoing analysis of archaeological material as part of the AGRICURB project.

For more information about this project, see the following websites:

<http://www.agricurb.com>

<http://www.arch.ox.ac.uk/AGRICURB.html>

This research was funded by the European Research Council ('AGRICURB' project, ERC No. 312785, PI Bogaard).



An example of fresh and charred bread wheat (*Triticum aestivum*) and hulled barley (*Hordeum vulgare*, var. *distichum*) from this experiment.

Neolithic Clearance and 'Vera Cycles' in Britain

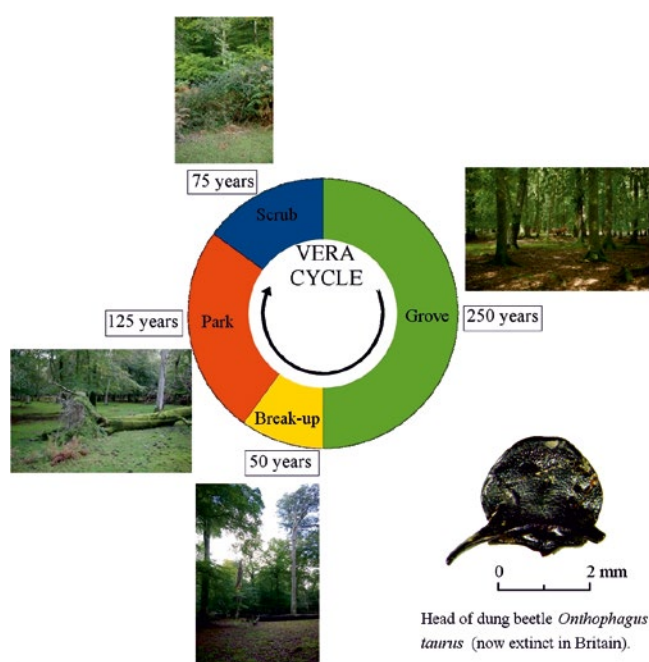
Mark Robinson

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It had long been the view that in the absence of human interference, the Holocene climax vegetation for most of the British Isles was a closed canopy high forest. This concept has recently been challenged by Dr Franz Vera, who showed that in modern temperate deciduous woodland in the lowlands of Europe, heavy grazing pressure prevents succession from leading to the establishment of a stable climax community of woodland. Instead it causes cycles of the invasion of grassland by thorn scrub, the

succession of the scrub to shady woodland of trees such as oak, and the eventual disintegration of that woodland to return to grassland. Dr Keith Kirby, formerly of English Nature and now of the Department of Plant Sciences, Oxford, modelled the process taking into account evidence that is available on the time that it takes for oak woodland to succeed thorn and the age of trees in closed-canopy woodland before gaps start to be created by the death of individual trees, giving 500 years as a plausible length of a 'Vera cycle'. This hypothesis has attracted considerable attention from conservationists, although pollen analysis has demonstrated it to be invalid for natural woodland in the Mesolithic.

Earlier work on Neolithic insect assemblages from England showed that domestic animals were often grazed under partly wooded conditions in landscapes with woodland in all stages of clearance and woodland regeneration. It was therefore wondered whether the increased grazing pressure from domestic animals above that from wild herbivores was generating 'Vera cycles'. Neolithic palaeoecological evidence from pollen, molluscs and insects is being reviewed for evidence of the character of temporary clearances. Modern native woodland is also being examined in the New Forest where there is heavy grazing of domestic animals (ponies). There are problems of interpretation; for example, there was a substantial decline in cereal cultivation in the middle Neolithic and some regeneration could have been related to classes of monuments going out of use. However, evidence is emerging that the episodic nature of Neolithic agriculture in Britain, with frequent abandonment of open areas to woodland regeneration, could have been related to the utilization of 'Vera cycles' driven by the grazing of domestic animals in woodland as a means of gaining new open areas for agriculture, while abandoning areas experiencing invasion of thorn scrub.



Duration of the stages of the 'Vera Cycle' (as calculated by Kirby) with modern examples from the New Forest and an ancient specimen of one of the scarabaeoid dung beetles to be found in Neolithic assemblages where domestic animals were being grazed under partly wooded conditions.

Freshwater Reservoir Corrections in Cis-Baikal, Southern Siberia

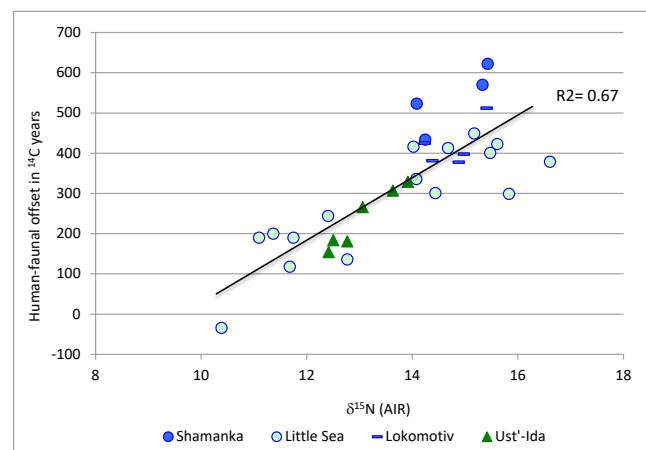
Rick Schulting and Christopher Bronk Ramsey

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Lake Baikal in southern Siberia has provided some of the richest hunter-gatherer archaeology of the northern hemisphere, in the form of hundreds of burials, many with elaborate grave offerings, and complex mortuary treatment. Mortuary traditions in the region show marked changes through time, particularly between the Early Neolithic and the Late Neolithic/Early Bronze Age (neither period has domesticated plants or animals). Between these two major traditions lies a Middle Neolithic 'hiatus' lasting some eight centuries, for which no burials are known. A firm chronological foundation is key to understanding these changes, and so hundreds of radio-carbon dates have been obtained directly on human bone during the course of the Baikal Archaeological Project.

A problem has recently emerged, in the recognition of a significant freshwater reservoir effect (FRE) in the waters of Lake Baikal and its outlet, the Angara River. Through past and ongoing stable carbon and nitrogen isotope analysis, it is known that the communities around the lake made significant use of fish and seals, thereby introducing 'old' carbon. The aim of ongoing research is to use isotopic data to 'correct' for the FRE, and so produce a more reliable chronology for Cis-Baikal.

In order to explore the relationships between $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$, and the FRE, a series of paired dates on human bone and animal tooth pendants from the same graves were undertaken. Thirty-three pairings were obtained, with offsets ranging from 0 to over 600 ^{14}C years. Standard linear regression models showed $\delta^{13}\text{C}$ to be a poor predictor of the offset, while $\delta^{15}\text{N}$ demonstrated considerable potential. With the removal of two outliers, a very satisfactory regression equation was obtained. This could be further improved upon by modelling two different FRE for the two micro-regions represented in the study, leading to r^2 values of >0.80 . The modelled maximum offset of c.700–750 years would be associated with a $\delta^{15}\text{N}$ value of 18.3‰.



The linear relationship between human $\delta^{15}\text{N}$ values and the offset between human and faunal dates from the same graves can be clearly seen in the graph. The associated r^2 value is 0.67.

A second approach to exploring the FRE was then undertaken, employing Bayesian modelling of the offsets. This approach allows for a linear dependency between $\delta^{15}\text{N}$ and reservoir effect within an overall Bayesian chronological model. The results accorded very well with those from the linear regression exercise. The significance of this approach is that it can be applied in cases where paired dates on human and animal bones are not available. This should help in tackling the FRE in a broad range of archaeological contexts.

Having obtained a means of correcting for the FRE, we are currently working with Andrzej Weber and Russian colleagues from the Irkutsk State University to apply it to all the human bone dates from Cis-Baikal, to see how the region's chronology will be affected. One result to have already emerged from this exercise is an improved resolution of the chronology of the large Early Neolithic cemetery of Shamanka II. Further human-fauna paired dates are being obtained from site, as well as from burials in other micro-regions not yet represented in the study.



Grave 13 from Kurma XI, with red deer incisors in chest area that provided the terrestrial faunal sample for the paired dating exercise (photo courtesy of Andrzej Weber).

Based on the initial results, it may be that other river systems will have their own offsets that need to be taken into account.

Further information:

A paper focusing on the Bayesian approach has appeared in *Radiocarbon*, while another focusing on the linear regression approach has just been accepted to the same journal.

Bronk Ramsey, C., Schulting, R.J., Goriunova, O.I., Bazaliiskii, V.I. and Weber, A.W. 2014: Analyzing radiocarbon reservoir offsets through stable nitrogen

isotopes and Bayesian modeling: a case study using paired human and faunal remains from the Cis-Baikal region, Siberia. *Radiocarbon* 56(2), 789–99. DOI: 10.2458/56.17160

Schulting, R.J., Bronk Ramsey, C., Goriunova, O.I., Bazaliiskii, V.I. and Weber, A. accepted: Freshwater reservoir offsets investigated through paired human–faunal ^{14}C dating at Lake Baikal, Siberia. *Radiocarbon*.

This research is part of the Baikal–Hokkaido Archaeological Project (<http://bhap.artsrn.ualberta.ca/>), led by Dr Andrzej Weber of the University of Alberta and funded by the Social Sciences and Humanities Research Council of Canada.

Dating and Synchronizing the Lake Suigetsu (Japan) Palaeoenvironmental Record

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The sediments within Lake Suigetsu on Honshu, Japan have been accumulating for about the last ~150,000 years, trapping various clues about the past environment. Sediment cores were extracted in 2006 and further coring is taking place this summer. These cores are high-resolution and particularly useful for understanding past climate in the region. Furthermore, the upper sections are annually layered and there are terrestrial macrofossils present. These have been used to generate an independent radiocarbon calibration dataset (work led by Professor Christopher Bronk Ramsey), which has now been incorporated into the internationally accepted radiocarbon curve (IntCal13). The detailed chronology for this high-resolution core makes it a key global palaeoenvironmental record.

Japan is very volcanically active with numerous volcanoes spanning the length of the country. Furthermore, there are several caldera volcanoes in the south and north that have generated very large explosive eruptions that dispersed ash thousands of kilometres from the vent. The deposits of explosive eruptions from all the volcanoes are found as both visible and non-visible (cryptotephra) layers in the core. These form key marker layers that can be used for both relative and absolute chronology. In order for them to be reliably correlated, and age information to be imported and exported from the Suigetsu archive,

these volcanic ash layers (tephra) need to be chemically characterized. The composition (major and trace element) of the volcanic glass shards from these ash layers is effectively an eruption fingerprint as it is typically unique for a particular eruption. We have been working on the chemical characterization of the glass shards of the Lake Suigetsu volcanic layers so that it can be directly linked to other archives in Japan and the Pacific that contain the same tephra. Synchronizing these records is key to understanding the propagation of past climate changes, and providing more information on the mechanisms that drive rapid, global changes. These volcanic marker layers are also important for constraining the chronology of archaeological sites throughout Japan.

The ash layers are also crucial for providing a chronology for the lower part of the core that extends past the radiocarbon limit of ~50 ka. Many of the deeper volcanic ash layers have been correlated to large volcanic eruptions from volcanoes in southern Japan. The deposits close to the volcanoes are thicker and coarser, and contain numerous large crystals that can be dated using $^{40}\text{Ar}/^{39}\text{Ar}$ methods. The Ar/Ar ages of these eruptions can then be imported into the Lake Suigetsu record to constrain the deeper chronology of the core, which is key for comparing this record with other global archives in this timeframe.



Top right is a photograph of Lake Suigetsu, Japan and left is a section of sediment core extracted. The volcanic ash (tephra) layers are marked. Bottom right is a photograph of a sequence of volcanic deposits in southern Kyushu, Japan. These are the proximal eruption deposits that have been correlated to particular layers in the Lake Suigetsu sediment core using chemistry of the glass shards.

Classical Art Research Centre (CARC)

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The Classical Art Research Centre has its origins in the Beazley Archive, one of the most important international resources for the study of ancient Greek painted pottery and engraved gemstones. However, much of the Centre's recent activity has been aimed at expanding the range of its activities, initiating new projects and organizing events that stimulate and support research on all aspects of ancient Greek and Roman art.

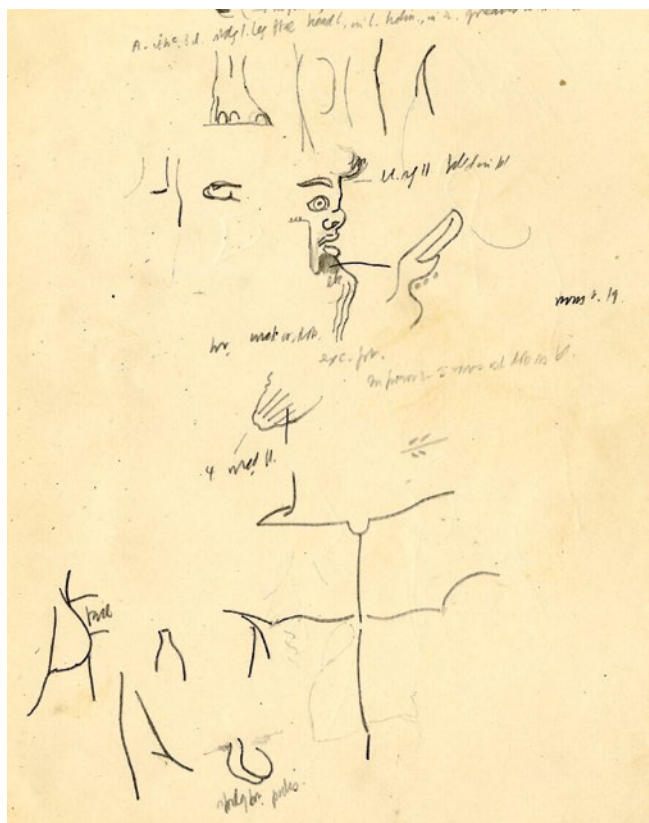
The newest initiative is 'Gandhara Connections', a project aimed at better understanding and documenting the relationship between Graeco-Roman artistic traditions and the ancient Buddhist sculpture of Gandhara – a region roughly corresponding to parts of northern Pakistan. A grant from the John Fell OUP Research Fund enabled CARC to hold public lectures and convene a small group of academics and curators to examine the subject and plan

for future research. As a result of the workshop's success, fundraising is now under way for the next phase of the project. Meanwhile CARC's longest standing project, the Gems Research Programme conducted by Dr Claudia Wagner and Professor Sir John Boardman, has continued to cast new light on old collections of engraved gems, both ancient and neoclassical. The team are completing catalogues of the eighteenth-century Beverley collection at Alnwick Castle as well as the important Ladrière and Sangiorgi collections, and they have also added thousands of new images and records to their online database.

The Beazley Archive Pottery Database (BAPD), which is based on CARC's physical collections, is the most popular component of CARC's website, which is now receiving well over seven million page-views each year from nearly every country. Thanks to numerous additions by the database's researchers, it now contains nearly 110,000 records of Athenian and other ancient Greek figure-painted pots, more than half of these illustrated, which are regularly updated with new bibliography. Very high-quality colour images are increasingly used and various improvements to functionality have been included. In a related development, the Beazley Archive's extraordinary collection of manuscript notes has been made more accessible through the online Beazley Notebooks Project. The project saw the digitization of many thousands of annotated sketches by Sir John Beazley (1885–1970), the pioneer of modern studies on Greek vase-painting. The manuscript notebooks document his early work between around 1908 and 1930 and give a fascinating insight into Beazley's methods of attribution. More traditional publication also continued, with the appearance of *Greek Vases in the Imperial Hermitage Museum* by A. Bukina, A. Petrakova and C. Phillips, the latest volume in CARC's series, *Studies in the History of Collections*.

Finally, among the highlights of CARC's events programme in the last year have been special lectures by two of the leading authorities on Greek and Roman art, Professor Tonio Hölscher and Professor Salvatore Settis, and a workshop held jointly with the Ashmolean Museum to celebrate the reinstallation of the Arundel Marbles in the revamped Randolph Gallery.

For further information and news, see:
www.carc.ox.ac.uk



Beazley's notes on Greek pottery at Harrow.

All for One or Each Household for Itself? Isotopic Variability in Crop Stores at Hornstaad Hörnle IA, Germany

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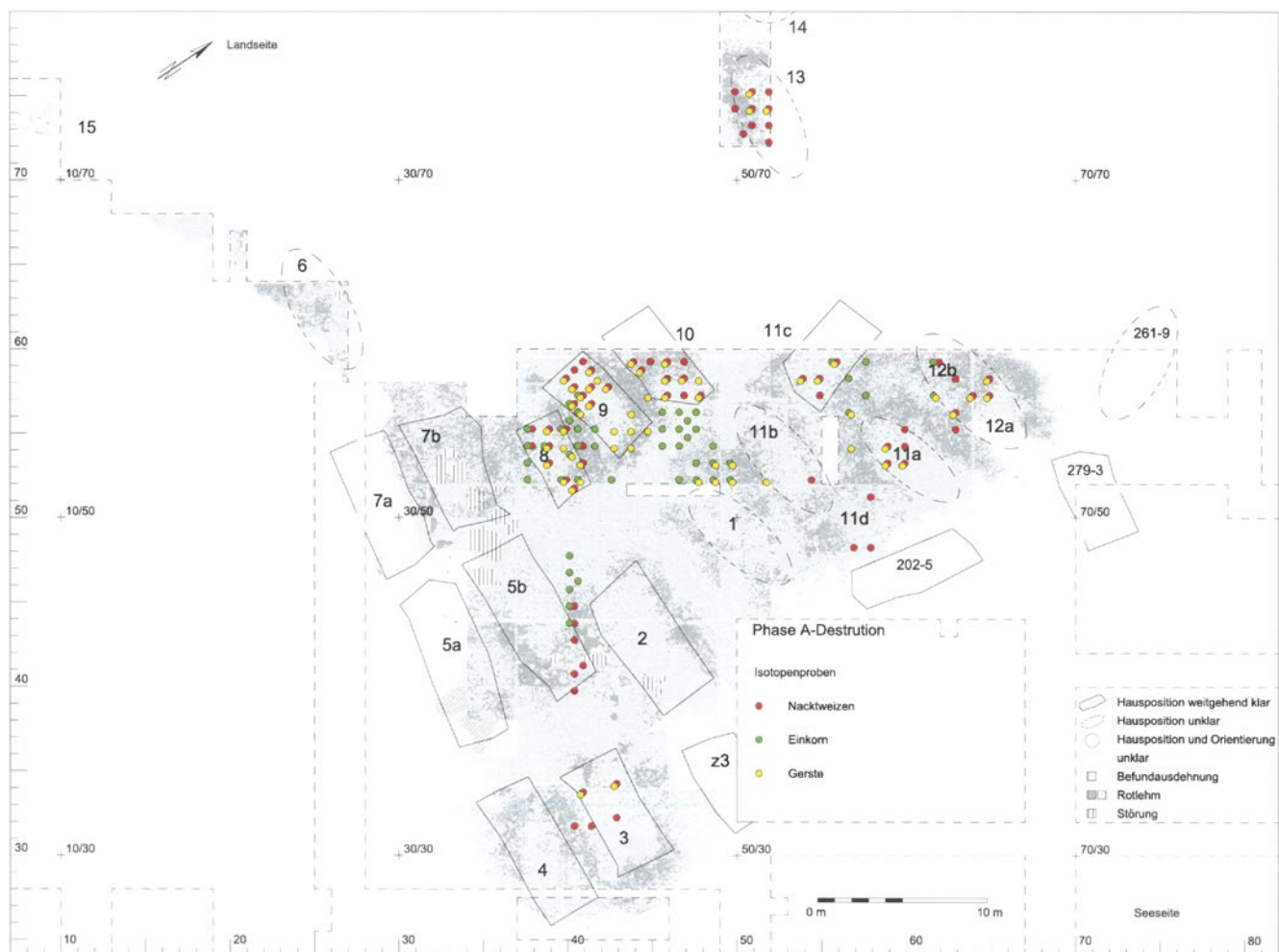
Hornstaad Hörnle IA is a Late Neolithic (3919–3905 cal BC) pile settlement located on the shore of Lake Constance in south-west Germany. In 3910 cal BC a fire destroyed almost the entire village, causing crop stores from that year to be carbonized and remarkably well preserved in the lake sediments. Each household had its own individual cereal store, comprising intact ears or ear fragments of naked wheat, einkorn, emmer and/or naked barley. Archaeobotanical samples were taken systematically across the site, such that cereal grain samples can be assigned to individual households. Hornstaad Hörnle presents a remarkable opportunity for us to explore variability in stable isotope values within cereal grains originating from a single year's harvest, as a means of assessing the 'social geography' of arable land management.

Stable carbon ($\delta^{13}\text{C}$) and nitrogen ($\delta^{15}\text{N}$) isotope analysis of cereal grains provides insight into the conditions under which crops were cultivated. Cereal grain $\delta^{13}\text{C}$ values reflect water availability, while $\delta^{15}\text{N}$ values are correlated to the intensity (i.e. frequency and level) of

manuring. Since the crop stores at Hornstaad come from a single harvest, any variation in isotope values between crop types is due to differences in crop growing conditions and hence land management, rather than inherent year-to-year variability. Moreover, isotopic variability within and between households can reveal whether individual households cultivated separate fields, which would allow for variation in water availability and soil nitrogen composition (e.g. manuring intensity), or whether farming was a communal activity, whereby the harvest was pooled prior to storage within individual households.

If results reveal that crops were produced as well as stored at a household level, the implication is that there was considerable potential for disparity in crop production between households. Without levelling mechanisms in place to redistribute surpluses, household-level production would promote the development of lasting inequalities.

This work forms part of the ongoing 'Agricultural origins of urban civilization' project (AGRICURB), funded



A site plan of Hornstaad Hörnle IA, with crop samples selected for stable isotope analysis and house positions marked.

by the European Research Council. Hornstaad Hörnle falls at the early end of the 'urbanization' spectrum, and the crop stable isotope results from this site will feed into the wider investigation of the nature of farming during the emergence and perpetuation of first millennium BC urban centres, such as Hochdorf and Heuneberg, in south-west Germany.

If you would like to read more about this project, see the following websites:

<http://www.agricurb.com>

<http://www.arch.ox.ac.uk/AGRICURB.html>

Crop isotope analysis at Hornstaad Hörnle is being funded by the European Research Council ('AGRICURB' project, ERC No. 312785, PI Bogaard).

Selected Publications

Nick Barton

- 2013 (with Bouzouggar, A.): Hunter-gatherers of the Maghreb: 25,000–6000 years ago. In Lane, P. and Mitchell, P. (eds.), *The Oxford Handbook of African Archaeology* (Oxford), 431–44.
- 2013 (with Bouzouggar, A., Hogue, J.T., Lee, S., Collcutt, S.N. and Ditchfield, P.): Origins of the Iberomaurusian in NW Africa: new AMS radiocarbon dating of the Middle and Later Stone Age deposits at Taforalt Cave, Morocco. *Journal of Human Evolution* 65(3), 266–81.
- 2014: Review of Simone Mulazzani (ed.), *Le Capsien de Hergla (Tunisie): culture, environnement et économie* (Reports in African Archaeology 4). *Antiquity* 88(340), 670–1.
- 2014 (with Humphrey, L.T., De Groote, I., Bouzouggar, A., Bronk Ramsey, C., Collcutt, S. and Morales, J.): Earliest evidence for caries and exploitation of starchy plant foods in Pleistocene hunter-gatherers from Morocco. *Proceedings of the National Academy of Sciences* 111(3), 954–9. doi:10.1073/pnas.1318176111

Lisa Bendall

- 2013: The Aegean Bronze Age scripts. In Galanakis, Y. (ed.), *The Aegean World. A Guide to the Cycladic, Minoan and Mycenaean Antiquities in the Ashmolean Museum* (Oxford and Athens), 132–51.
- 2013: Entries on: Thera, *Wanax*, *Lawagetas*, Linear A, Linear B, Pylos. In *The Encyclopedia of Ancient History* (Oxford).
- 2014: Gifts to the goddesses: Pylian perfumed olive oil abroad? In Nakassis, D., Gulizio, J. and James, S.A. (eds.), *KE-RA-ME-JA. Studies Presented to Cynthia W. Shelmerdine* (Philadelphia, PA, INSTAP Prehistory Monographs 46), 141–62.

Amy Bogaard

- 2013 (with Charles, M., Livarda, A., Ergun, M., Filipovic, D. and Jones, G.): The archaeobotany of mid-later Neolithic occupation levels at Çatalhöyük. In Hodder, I. (ed.), *Humans and Landscapes of Çatalhöyük: Reports from the 2000–2008 Seasons* (Los Angeles, University of California at Los Angeles, Monographs of the Cotsen Institute of Archaeology), 93–128.
- 2014: Framing farming: a multi-stranded approach to early agricultural practice in Europe. In Whittle, A. and Bickle, P. (eds.), *Early Farmers: The View from Archaeology and Science* (London, British Academy).
- 2014: Lessons from modeling Neolithic farming practice: methods of elimination. In Wylie, A. and Chapman, R. (eds.), *Material Culture as Evidence* (London).
- 2014 (with Halstead, P.): Subsistence practices and social routine in Neolithic southern Europe. In Fowler, C.,

Harding, J. and Hofmann, D. (eds.), *The Oxford Handbook of Neolithic Europe* (Oxford).

- 2014 (with Ryan, P., Yalman, N., Asouti, E., Twiss, K.C., Mazzucato, C. and Farid, S.): Assessing outdoor activities and their social implications at Çatalhöyük. In Hodder, I. (ed.), *Integrating Çatalhöyük: Themes from the 2000–2008 Seasons* (Los Angeles, University of California at Los Angeles, Monographs of the Cotsen Institute of Archaeology).

Nicky Boivin

- 2013 (with Crowther, A., Helm, R. and Fuller, D.): East Africa and Madagascar in the Indian Ocean world. *Journal of World Prehistory* 26, 213–81.
- 2013 (with Fuller, D.Q., Dennell, R., Allaby, R. and Petraglia, M.D.): Human dispersal across diverse environments of Asia during the Upper Pleistocene. *Quaternary International* 300, 32–47.
- 2014 (with Crowther, A., Horton, M., Kotarba-Morley, A., Prendergast, M., Quintana Morales, E., Wood, M., Shipton, C., Fuller, D., Tibesasa, R. and Mills, W.): Iron Age agriculture, fishing and trade in the Mafia Archipelago, Tanzania: new evidence from Ukunju Cave. *Azania* 49(1), 21–44.
- 2014 (with Gerbault, P., Allaby, R., Rudzinski, A., Grimaldi, I.M., Pires, C., Climer, C., Larson, G., Dobney, K., Gremillion, K., Barton, L., Arroyo-Kalin, M., Purugganan, M., Rubio de Casas, R., Gilbert, M.T.P., Bollongino, R., Burger, J., Bradley, D.G., Balding, D., Richerson, P., Fuller, D. and Thomas, M.G.): Story telling and story testing in domestication: can modeling help? *Proceedings of the National Academy of Sciences* 111(17), 6159–64.
- 2014 (with Petraglia, M.D.): *Homo sapiens* societies: southern Asia. In Cummings, V., Jordan, P. and Zvelebil, M. (eds.), *Oxford Handbook of the Archaeology and Anthropology of Hunter-Gatherers* (Oxford).

Fiona Brock

- 2013 (with Ostapkowicz, J., Bronk Ramsey, C., Cartwright, C., Stacey, R. and Richards, M.): Birdmen, *cemis* and *duhos*: material studies and AMS 14C dating of Pre-Hispanic Caribbean wood sculptures in the British Museum. *Journal of Archaeological Science* 40(12), 4675–87.
- 2014 (with Nalawade-Chavan, S., Zazula, G., Southon, J., MacPhee, R. and Druckenmiller, P.): New single amino acid hydroxyproline radiocarbon dates for two problematic American Mastodon fossils from Alaska. *Quaternary Geochronology* 20, 23–8.
- 2014 (with Quiles, A., Valladas, H., Geneste, J.-M., Clottes, J., Baffier, D., Berthier, B., Bronk Ramsey, C., Delque-Kolic, E., Dumoulin, J.-P., Hajdas, I., Hippe, K.,

- Hodgins, G.W.L., Hogg, A., Jull, A.J.T., Kaltnecker, E., de Martino, M., Oberlin, C., Petchey, F., Steier, P., Synal, H.-A., van der Plicht, J., Wild, E.M. and Zazzo, A.): Second radiocarbon intercomparison program for the Chauvet-Pont d'Arc Cave, Ardèche, France. *Radiocarbon* 56(2), 833–50.
- 2014 (with Snoeck, C. and Schulting, R.): Carbon exchanges between bone apatite and fuels during cremation: impact on radiocarbon dates. *Radiocarbon* 56(2), 591–602.
- 2014 (with Staff, R.A., Reynard, L. and Bronk Ramsey, C.): Wood pretreatment protocols and measurement of tree-ring standards at the Oxford Radiocarbon Accelerator Unit (ORAU). *Radiocarbon* 56(2), 709–15.
- Michael Charles**
- 2013 (with Jones, G., Jones, M.K., Colledge, S., Leigh, F.J., Lister, D.A., Smith, L.M.J., Powell, W., Brown, T.A. and Jones, H.): DNA evidence for multiple introductions of barley into Europe following dispersed domestications in Western Asia. *Antiquity* 87, 701–13.
- 2013 (with Kluyver, T.A., Jones, G., Rees, M. and Osborne, C.P.): Did greater burial depth increase the seed size of domesticated legumes? *Journal of Experimental Botany* 64, 4101–8.
- 2013 (with Styring, A.K., Manning, H., Fraser, R.A., Wallace, M., Jones, G., Heaton, T.H.E., Bogaard, A. and Evershed, R.P.): The effect of charring and burial on the biochemical composition of cereal grains: investigating the integrity of archaeological plant material. *Journal of Archaeological Science* 40, 4767–79.
- 2013 (with Wallace, M.): What goes in does not always come out: the impact of the ruminant digestive system of sheep on plant material, and its importance for the interpretation of dung-derived archaeobotanical assemblages. *Environmental Archaeology* 18, 18–30.
- 2013 (with Wallace, M., Jones, G., Fraser, R., Halstead, P., Heaton, T.H.E. and Bogaard, A.): Stable carbon isotope analysis as a direct means of inferring crop water status and water management practices. *World Archaeology* 45, 388–409.
- Sally Crawford**
- 2013: Medieval and Anglo-Saxon childhoods. In Montgomery, H. (ed.), *Oxford Bibliographies Online: Childhood Studies* (Oxford University Press), <http://www.oxfordbibliographies.com/view/document/obo-9780199791231/obo-9780199791231-0091.xml>
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- 2014 (with Wengrow, D., Shortland, A., Stevenson, A., Brock, F. and Bronk Ramsey, C.): Radiocarbon dating and the Naqada relative chronology. *Journal of Archaeological Science* 46, 319–23.
- Peter Ditchfield**
- 2014: Stable isotopic analysis. In Lynch, A. (ed.), *Poulnabrone: An Early Neolithic Portal Tomb in Ireland* (Dublin, Department of Arts, Heritage and the Gaeltacht, Archaeological Monograph Series Vol. 9), 86–92.
- 2014 (with Braun, D.R. and Crittenden, A.N.): Old stones' song: use-wear experiments and analysis of the Oldowan quartz and quartzite assemblage from Kanjera South (Kenya). *Journal of Human Evolution* 72, 10–25.
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- Katerina Douka**
- 2013: Exploring “the great wilderness of prehistory”: the chronology of the Middle to the Upper Palaeolithic transition in the northern Levant. *Mitteilungen der Gesellschaft für Urgeschichte* 22, 11–40. http://www.geo.uni-tuebingen.de/2013/011-040_GFU_Mitteilungen22_2013_Web.pdf
- 2014 (with Grün, R., Jacobs, Z., Lane, C., Farr, L., Hunt, C., Inglis, R.H., Reynolds, T., Albert, P., Aubert, M., Cullen, V., Hill, E., Kinsley, L., Roberts, R.G., Tomlinson, E.L., Wulf, S. and Barker, G.): The chronostratigraphy of the Haua Fteah cave (Cyrenaica, northeast Libya). *Journal of Human Evolution* 66, 39–63. <http://dx.doi.org/10.1016/j.jhevol.2013.10.001>
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- Froment, A., Galván, B., Gambassini, P., Garcia-Moreno, A., Grimaldi, S., Haesaerts, P., Holt, B., Iriarte-Chiapusso, M.-J., Jelinek, A., Jordá Pardo, J.F., Maíllo-Fernández, J.-M., Marom, A., Maroto, J., Menéndez, M., Metz, L., Morin, E., Moroni, A., Negrino, F., Panagopoulou, E., Peresani, M., Pirson, S., de la Rasilla, M., Riel-Salvatore, J., Ronchitelli, A., Santamaria, D., Semal, P., Slimak, L., Soler, J., Soler, N., Villaluenga, A., Pinhasi, R. and Jacobi, R.): The timing and spatio-temporal patterning of Neanderthal disappearance. *Nature* 512, 306–9. <http://www.nature.com/nature/journal/v512/n7514/full/nature13621.html>
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Ceiridwen Edwards

- 2014 (with Ho, S.Y.W., Barnett, R., Coxon, P., Bradley, D.G., Lord, T.C. and O’Connor T.): Continuity of brown bear maternal lineages in northern England through the Last-glacial period. *Quaternary Science Reviews* 96, 131–9.
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Chris Gosden

- 2013: Fields. In Bergerbrandt, S. and Sabatini, S. (eds.), *Counterpoint. Essays in Archaeology and Heritage Studies in Honour of Professor Kristian Kristiansen* (Oxford, BAR Int. Ser. 2508), 111–18.
- 2013 (with Lock, G.): *Histories in the Making. Excavations at Alfred’s Castle 1998–2000* (Oxford, Oxford University School of Archaeology Monograph 79).
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Chris Green

- 2013: Archaeology in broad strokes: collating data for England from 1500 BC to AD 1086. In Chrysanthi, A., Wheatley, D., Romanowska, I., Papadopoulos, C., Murrieta-Flores, P., Sly, T. and Earl, G. (eds.), *Archaeology in the Digital Era: Papers from the 40th Annual Conference of Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton, 26–29 March 2012* (Amsterdam), 307–12.

David Griffiths

- 2013: The context of the 1858 Skail Hord. In Reynolds, A. and Webster, L. (eds.), *Early Medieval Art and*

Archaeology in the Northern World, Studies in Honour of James Graham-Campbell (Leiden), 510–26.

- 2013: Living in Viking-Age towns. In Hadley, D.M. and Ten Harkel, L. (eds.), *Everyday Life in Viking-Age Towns: Social Approaches to Towns in England and Ireland c. 800–1100* (Oxford), 1–13.
- 2014: Damsay. *Discovery and Excavation in Scotland* 14, 137–9.
- 2014: Oxford looks east. *British Archaeology* 136, 24–9.
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Maria Guagnin

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Helena Hamerow

- 2013 (with Ferguson, C. and Naylor, J.): The Origins of Wessex Pilot Project. *Oxoniensia* 78, 49–70.

Michael Haslam

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Robert Hedges

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- 2013 (with Douka, K., Bergman, C.A., Wesselingh, F.P. and Higham, T.F.): Chronology of Ksar Akil (Lebanon) and implications for the colonization of Europe by anatomically modern humans. *PLoS ONE* 8(9), e72931.
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Tom Higham

- 2014 (with Douka, K., Wood, R., Bronk Ramsey, C., Brock, F., Basell, L., Camps, M., Arrizabalaga, A., Baena, J., Barroso-Ruiz, C., Bergman, C., Boitard, C., Boscato, P., Caparrós, M., Conard, N.J., Draily, C., Froment, A., Galván, B., Gambassini, P., Garcia-Moreno, A., Grimaldi, S., Haesaerts, P., Holt, B., Iriarte-Chiapusso, M.-J., Jelinek, A., Jordá Pardo, J.F., Maíllo-Fernández, J.-M., Marom, A., Maroto, J., Menéndez, M., Metz, L., Morin, E., Moroni, A., Negrino, F., Panagopoulou, E., Peresani, M., Pirson, S., de la Rasilla, M., Riel-Salvatore, J., Ronchitelli, A., Santamaria, D., Semal, P., Slimak, L., Soler, J., Soler, N., Villaluenga, A., Pinhasi, R. and Jacobi, R.): The timing and spatio-temporal patterning of Neanderthal disappearance. *Nature* 512, 306–9. <http://www.nature.com/nature/journal/v512/n7514/full/nature13621.html>

Richard Jennings

- 2014 (with Hilbert, Y.H., White, T.S., Parton, A., Clark-Balzan, L., Crassard, R., Groucutt, H.S., Breeze, P., Parker, A., Shipton, C., Al-Omari, A., Alsharekh, A.M. and Petraglia, M.D.): Epipalaeolithic occupation and palaeoenvironments of the southern Nefud desert, Saudi Arabia, during the Terminal Pleistocene and Early Holocene. *Journal of Archaeological Science* 50, 460–74.
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- 2014 (with Rodríguez-Vidal, R., d'Errico, F., Giles Pacheco, F., Blasco, R., Rosell, J., Queffelec, A., Finlayson, G., Fa, D.A., Gutiérrez López, J.-M., Carrión, J.S., Negro, J.J., Finlayson, S., Cáceres, L.M., Bernal, M.A., Fernández Jiménez, S. and Finlayson, C.): A rock engraving made by Neanderthals in Gibraltar. *Proceedings of the National Academy of Sciences*, doi:10.1073/pnas.1411529111
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David Kennedy

- 2013: *Settlement and Soldiers in the Roman Near East* (Farnham).
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Julia Lee-Thorp

- 2013 (with Sponheimer, M., Alemseged, Z., Cerling, T., Grine, F.E., Kimbel, W.H., Leakey, M.G., Manthi, F.K., Reed, K.E. and Wood, B.A.): Isotopic evidence of early hominin diets. *Proceedings of the National Academy of Sciences* 110(26), 10513–18.
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- 2014 (with Macho, G.M.): Niche partitioning in sympatric Gorilla and Pan from Cameroon: implications for life history strategies and for reconstructing the evolution of hominin life history. *PLoS ONE* 9(7), e102794, doi:10.1371/journal.pone.0102794

Irene Lemos

- 2014: Pottery from Lefkandi of the Late Bronze and Early Iron Age in the light of the Neutron Activation Analyses. In Kerschner, M. and Lemos, I.S. (eds.), *Archaeometric Analyses of Euboean and Euboean Related Pottery. New Results and their Interpretations. Proceedings of the Round Table Conference held at the Austrian Archaeological Institute at Athens, 15 and 16 April 2011* (Vienna, Österreichischen Archäologischen Institutes), 37–58.
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Gary Lock

- 2013 (with Gosden, C.): *Histories in the Making. Excavations at Alfred's Castle 1998–2000* (Oxford, Oxford University School of Archaeology Monograph 79).
- 2013 (with Kormann, M.): Dynamic models to reconstruct ancient landscapes. In Contreras, F., Farjas, M. and Melero, F.J. (eds.), *CAA 2010. Fusion of Cultures, Proceedings of the 38th Annual Conference on Computer Applications and Quantitative Methods in Archaeology, Granada, Spain, April 2010* (Oxford, BAR Int. Ser. 2494), 169–76.
- 2013 (with Kormann, M.): Exploring the effects of curvature and refraction on GIS-based

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- 2014 (with Kormann, M. and Pouncett, J.): Visibility and movement: towards a GIS-based integrated approach. In Polla, S. and Verhagen, P. (eds.), *Computational Approaches to the Study of Movement in Archaeology. Theory, Practice and Interpretation of Factors and Effects of Long Term Landscape Formation and Transformation* (Berlin and Boston), 23–42. <http://www.degruyter.com/view/books/9783110288384/9783110288384.23/9783110288384.23.xml>

Lambros Malafouris

- 2013: *How Things Shape the Mind: A Theory of Material Engagement* (Cambridge, MA).
- 2014: Third hand prosthesis. *Journal of Anthropological Sciences* 92, 281–3.
- 2014: Anthropology and the cognitive challenge. *Current Anthropology* 55(2), 241–2 (review forum).

Peter Mitchell

- 2013: Crisis? What crisis? In de Witt, E. and Martinez, J. (eds.), *The Archaeology of Crisis* (Oxford), 5–11.
- 2013: Contextualising Qing. *The Digging Stick* 30(3), 19–21.
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- 2014 (with Bonneau, A., Pearce, D.G., Arthur, C., Higham, T., Lamothe, M. and Arsenault, D.): Comparing painting pigments and subjects: the case of the white paints at the Metolong Dam (Lesotho). In Scott, R.B., Braekmans, D., Carremans, M. and Degryse, P. (eds.), *Proceedings of the 39th International Symposium for Archaeometry, Leuven (2012)* (Leuven, Centre for Archaeological Sciences, Catholic University of Leuven), 319–23.

Iain Morley

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Wendy Morrison

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Philipp Niewöhner

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Alejandra Pascual-Garrido

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Michael Petraglia

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John Pouncett

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Christopher Ramsey

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Jessica Rawson

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Rick Schulting

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Victoria Smith

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Richard Staff

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Eleanor Standley

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Christopher Stimpson

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Amy Styring

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Letty ten Harkel

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Katharina Ulmschneider

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Tom White

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Andrew Wilson

2013: Trading across the Syrtes: Euesperides and the Punic world. In Prag, J. and Quinn, J. (eds.), *The Hellenistic West* (Cambridge), 120–56.

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Major Grants Held in 2013–2014

Amy Bogaard

AGRICURB – The Agricultural Origins of Urban Civilisation (European Commission)

Amy Bogaard

Malaria's Austronesian Fingerprint: Connections of Plasmodium Vivax with Past Human Migrations and Cultural Evolutions in the Indo-Pacific (Wellcome Trust)

Nicole Boivin

The Sealinks Project (European Commission)

Peter Bray

Atlantic Europe in the Metal Ages (AEMA): Questions of Shared Language (University of Wales)

Michael Charles

Evolutionary Origins of Agriculture (University of Sheffield)

Timothy Clack

Sacrifice and Monumentality in the Lower Omo Valley, Ethiopia (British Academy)

Chris Gosden

EngLaID – English Landscapes and Identities: 1500 BC–AD 1086 (European Commission)

Chris Gosden

(Re)dating Danebury Hillfort and Later Prehistoric Settlements in the Environs: A Bayesian Approach (University of Leicester)

Huw Groucutt

The Chronological and Environmental Context of the Western African Palaeolithic (British Academy)

Michael Haslam

PRIMARCH (European Commission)

Thomas Higham

PALAEOCHRON – Precision Dating of the Palaeolithic (European Commission)

Thomas Higham

Colonisation of Europe by Modern Humans (Leverhulme Trust)

Thomas Higham

Seeing Genes in Space and Time – Woolly Mammoth (Natural Environmental Research Council)

Julia Lee-Thorp

Dietary Ecology of Cross-river Gorillas (Leakey Foundation)

Gary Lock

An Atlas of Hillforts in Britain and Ireland (Arts and Humanities Research Council)

Toby Martin

Origins of a European Community: Creating Identity and Networks with Dress in Post-Roman Europe (British Academy)

Alejandra Pascual-Garrido

Mapping Chimpanzee Artefacts: What Can They Reveal about Hominin Evolution? (Leverhulme Trust)

Michael Petraglia

PALAEODESERTS: Climate Change and Hominin Evolution in the Arabian Desert (European Commission)

Mark Pollard

Chemical Structure and New Behaviour: A New Model for Prehistoric Metallurgy (Leverhulme Trust)

Mark Pollard

Mass Migration and Apartheid in Anglo-Saxon Britain? An Ancient DNA Re-evaluation (Leverhulme Trust)

Mark Pollard

Fractured Land: Drought and Fall of Old Kingdom Egypt (Leverhulme Trust)

Mark Pollard

Re-invigorating the Ancient Bio-molecule Centre (Wellcome Trust)

Christopher Ramsey

ORADS Service and Facilities Allocations 2014/15: NRCF-O:PR130031 (Natural Environmental Research Council)

Jessica Rawson

China and Inner Asia (c.1000–200 BC): Interactions that Changed Early China (Leverhulme Trust)

Rick Schulting

Coming to Knowth: A Strontium Isotope Approach to Neolithic Mobility at a Passage Tomb Cemetery (British Academy)

Andrew Wilson

Oxford Centre for Maritime Archaeology (Hilti Foundation)

Lectures and Seminars

Lectures

Archaeobotany (Special Lecture)

- 13 March Margareta Tengberg (Muséum National d'Histoire Naturelle)
The beginnings of date palm cultivation

Medieval Archaeology (Special Seminar)

- 4 March Professor J.-P. Taavitsainen (University of Turku)
Saint Henry of Finland and Sir Augustus Wollaston Franks, English visitors to Finland and their material remains – the relic collection of the Turku Cathedral

Oxford Centre for Asian Archaeology, Art and Culture (Special Lecture)

- 28 November Dr Lukas Nickel (SOAS)
Casting technologies of the Chinese Bronze Age – re-visiting a discussion

Oxford Centre for Maritime Archaeology (Special Lecture)

- 18 November Franck Goddio (IEASM)
The celebration of the mysteries of Osiris in the submerged Canopic region. From epigraphy to archaeology

OXREP (Special Seminar)

- 5 March Professor Oriol Olesti-Vila (Universitat Autònoma de Barcelona)
The Roman Pyrenees from the second century BC to the second century AD

Special Lectures

- 14 March Dr Piraye Hacıgüzeller (Marie Curie Fellow of the Gerda Henkel Foundation, Oxford)
Archaeology, GIS and the map: broadening horizons
- 23 May Professor Brian Hayden (Simon Fraser University, British Columbia)
The power of feasts

Sub-Faculty of Archaeology Annual Lecture

- 28 November Harry Allen (University of Auckland)
The remarkable rise of Honga Hika: a New Zealand chief

Seminars

Ancient Architecture Discussion Group

- 24 January Giacomo Savani (Leicester)
Villas, owners and Romanitas: an evolving image of private bathing in Roman Britain – a Kent case study
- 31 January Federico Ugolini (King's College London)
Roman ports in the northern and central Adriatic Sea: form, role and representation; the case of Ariminum
- 7 February Philipp Niewöhner (Oxford)
Ancient Sima lions or mediaeval gargoyles? Late Antique and Byzantine water spouts
- 14 February Ulf Weber (Bonn)
A second Hellenistic Naiskos in Didyma: how the discovery of a further temple solves some problems concerning Apollo's Naiskos
- 21 February Barbara Burrell (Cincinnati)
The promontory palace at Caesarea Maritima, Israel
- 28 February Ulrich Mania (Oxford)
The gymnasium at Priene
- 7 March Elena Sánchez López (Granada)
The Roman aqueduct of Sexi Firmum Iulium (Almuñécar, Spain)

- 14 March Julia Nikolaus (Leicester)
Monuments in the desert: funerary art and architecture in Roman-period Tripolitania

Archaeobotany Discussion Group

- 21 October Dr Amy Styring (Oxford)
Three isotopes and lots of weeds: investigating the crop cultivation practices and landscape use in the past

- 4 November Elizabeth Stroud (Oxford)
Preliminary findings: Chalcolithic crop husbandry on the Anatolian Plateau
- 18 November Dr Michael Charles (Oxford)
'Nor ever lightning char thy grain'
- 2 December Laura Green (Oxford)
Spicing up the Neolithic: investigating the wider uses of non-staple plants in the Neolithic Near East
- 10 February Penny Jones (University of Cambridge)
Using stable isotope analysis to reconstruct water availability in the Indus Valley (during and after the urban Harappan period)
- 9 June Leslie Bode (University of Nottingham)
Foraging for evidence of Epipalaeolithic plant exploitation: palaeodietary and archaeobotanical investigations of hunter-gatherers at Kharaneh IV in the Azraq Basin, Jordan
- 16 June Jade Whitlam (University of Reading)
Plant use and Neolithic societies of the eastern Fertile Crescent, c. 10,000–5,000 BC

Barbarian Seminar Series

- 30 October Dr Rick Schulting (Oxford)
A Celtic Golgotha? New research on the Thames 'River Skulls' and their European context
- 6 November Professor Harry Allen (Department of Anthropology, University of Auckland)
Against the Tasmanian Effect: the archaeology and ethnography of Tasmanian foragers
- 20 November Rachel Hopkins (Oxford)
Tree tailors: Neolithic bark container manufacture at Lake Biel (CH) in context
- 4 December Peter Bray (Oxford)
Drowning in numbers: finding people and questions in the chemistry of early metals
- 12 June Professor Peter Northover (University of Oxford, Material Science)
The metallurgy of deposition

Greek Archaeology Group

- 17 October Eleni Zimi (University of Peloponnese)
Archaic Laconian kraters in the Cyrenaica

- 31 October Jack Kroll (Oxford)
The reminting of the city coinage at Aegina and Athens in times of financial crisis
- 14 November Jean Vanden Broeck-Parant (Université libre de Bruxelles)
Buildings under repair: some epigraphical testimonies
- 28 November Alexandra von Miller (University of Vienna)
Ephesos in the Archaic period: the evidence of the settlement underneath the Tetragonos-Agora
- 23 January John Holton (University of Edinburgh)
The image of the king: from Alexander to Ptolemy in Ptolemy I's coinage
- 6 February Vasiliki Saripandi (Université libre de Bruxelles)
The symposium in Archaic Macedonia. Evidence from funerary contexts
- 20 February Amy Smith (University of Reading)
Putting ancient women in their workplace: the evidence from Athenian vases
- 6 March Lindsay Allen (King's College London)
The king on the border: innovations with the Achaemenid royal image
- 1 May Rachel Mairs (University of Reading)
How styles move: models, moulds and mass production between the Mediterranean and Central Asia
- 15 May Sally Crawford (Oxford)
John Linton Myres in Greece: an early photographic record

Maritime World Seminar

- 30 October Brian Fahy (Oxford)
Archaeological observations on the Manila-Acapulco galleon trade
- 6 November Bobby Orillaneda (Oxford)
Southeast Asia maritime trade in the 15th century CE: evidence from shipwrecks
- 27 November Gautam Bondada (Oxford)
Preliminary thoughts on the role of religion in the commerce between India and the Graeco-Roman world (3rd century–1st century AD)
- 4 December Cristina Castillo
The impact of evolving rice systems from China to Southeast Asia

- Jenny Craig and Nicholas Burningham
The Baggala: diffusion and cross-influences in Arabian Seaship aesthetics, simple myths and complex networks
- 28 May Chris Begley (Transylvania University)
Underwater LIDAR: ethics and economics
- 4 June Colin Breen (University of Ulster)
An archaeology of later medieval port landscapes in East Africa and the Red Sea
- 11 June Matthew Harpster (University of Birmingham)
Special discussion seminar: shell-first/frame-first ship construction
- 13 November Professor Ryuichi Masuda (Faculty of Science, Hokkaido University, Japan)
Zoogeographical history of animal populations around Hokkaido Island of Japan, revealed by ancient and modern DNA analyses
- 12 February Professor Kazuo Miyamoto (Department of History, Kyushu University)
The emergence and chronology of early bronzes on the eastern Tibetan Plateau
- 19 February Professor Hirofumi Kato and Mayumi Okada (Hokkaido University)
Current issues around Ainu and Japanese archaeology

Medieval Archaeology Seminar

- 21 October Andreas Düring (Oxford)
Bridging the gap between the living and the dead: agent-based demographic modelling of early medieval cemeteries
- 4 November Toby Martin (Oxford)
Ways of dressing and senses of belonging: past and future research on Migration Period brooches
- 18 November Louise Loe
Excavations at Stoke Quay, Ipswich: from Anglo-Saxon emporium to medieval parish
- 27 January Dawn Hadley
The Viking winter camp of 872–3 at Torksey, Lincolnshire: new archaeological discoveries
- 10 February Susanne Hakenbeck
Nomads and farmers: diet, subsistence and identity in fifth-century Hungary
- 24 February Christopher Scull
The Bling King? Interpreting the Anglo-Saxon princely burial at Pritttlewell, Essex
- 10 March Sarah Semple
Situating assembly in early medieval northern Europe. Landscapes of consensus and the material rhetoric of power
- 26 February Professor Tianjin Xu (School of Archaeology and Museology, Peking University)
Introduction of Bronze Age archaeology in China, based on Baoji excavations
- 21 May Dr Shinya Maezaki (Ritsumeikan University, Japan)
Chinese art for Japanese literati culture in the late Edo and Meiji period
- 28 May Dr Alan K. Outram (University of Exeter)
The archaeology of early horse herding in Eneolithic northern Kazakhstan

Oxford University Archaeological Society

- 21 October Dr Ian Brown (Oxford)
Do hillforts exist and, if so, how can we record them?
- 4 November Dr Dan Hicks (Oxford)
Ordnance and survey: how Augustus Pitt-Rivers turned places into objects
- 11 November Dr Amy Bogaard (Oxford)
Framing farming: a multi-stranded approach to early agricultural practice in West Asia and Europe
- 25 November Dr David Griffiths (Oxford)
Viking settlements under the sand: Bay of Skaill, Orkney
- 2 December Professor Nick Barton (Oxford)
Out in the open: human re-colonisation of British late Ice Age landscapes
- 3 February Dr Anwen Cooper, Dr Christopher Green and Dr Aleida Ten Harkel (Oxford)
The good, the bad and the ugly: landscapes, data and practice in English archaeology

Oxford Centre for Asian Archaeology, Art and Culture

- 6 November Professor Monica L. Smith (Department of Anthropology, University of California) and Professor R.K. Mohanty (Deccan College, Pune)
The early historic era of urbanism in eastern India: research in the hinterlands of Sisupalgarh

24 February	Dr Katerina Douka (Oxford) <i>Neanderthals and modern humans on the fringes of Europe, a view from the Near East</i>	5 December	Dr Jill Cook (British Museum) <i>The shock of the old: exhibiting Ice Age images as art</i>
3 March	Solomon Pomerantz (Oxford) <i>Elusive Austronesians: the human colonisation of Madagascar</i>	23 January	Dr Christine Lane (Oxford) <i>Dating sites and networking events: addressing chronological questions using volcanic ash</i>
10 March	Dr Stephanie Dalley (Oxford) <i>Finding the Hanging Garden of Babylon</i>	30 January	Dr Metin Eren (University of Kent) <i>Clever Clovis colonisers and the mighty stone flake</i>
2 June	Dr Gareth Roberts <i>The invasion of the Sea Peoples (and why I don't believe a word of it)</i>	6 February	Dr Gabriel Macho (Oxford) <i>Early hominins are eclectic omnivores. True or false?</i>
9 June	Dr Alice Stevenson <i>Artefacts of excavation: the international distribution of finds from British excavations in Egypt 1880–1980</i>	13 February	Dr Lucy Farr (University of Cambridge) <i>Excavations at Haua Fteah Cave in Libya</i>
16 June	Professor Helena Hamerow (Oxford) <i>The origins of Wessex: uncovering the kingdom of the Gewisse</i>	20 February	Dr Rebecca Farbstein (University of Southampton) <i>Palaeolithic origins of ceramic technology: artistic innovations, improvisations, and experiments</i>
Palaeolithic and Quaternary Seminars			
17 October	Natasha Reynolds (Oxford) <i>Building a new culture history for the Mid Upper Palaeolithic of European Russia</i>	27 February	Professor Nick Drake (King's College London) <i>Deconstructing the 'Green Sahara' and its role in hominin evolution</i>
24 October	Dr Alistair Pike (University of Southampton) <i>Recent applications of geochemistry in archaeology: from identifying a Saxon royal princess to dating Europe's oldest cave paintings</i>	6 March	Dr Tom White (Oxford) <i>Reconstructing Hoxnian (MIS 11c) palaeoenvironments using non-marine molluscs and ostracods: new data from the Lower Thames</i>
31 October	Professor Tom Higham (Oxford) <i>Dating the earliest anatomically modern humans in Europe</i>	13 March	Anne-Lyse Ravon (Université Rennes 1) <i>The Lower Palaeolithic in Brittany: the 'Colombanian' of Menez-Dregan (Plouhinec, Finistère, France)</i>
7 November	Dr James (Jim) Blinkhorn (Université Bordeaux 1) <i>A passage to India: Palaeolithic occupations in the Thar Desert</i>	1 May	Professor John Lowe (Royal Holloway) <i>Climate confusion: lessons and pitfalls in the study of climates past</i>
14 November	Dr Iain Morley (Oxford) <i>Without a song or a dance what are we? The prehistory of music</i>	8 May	Patrick Roberts (Oxford) <i>200,000 year-continuity of mammalian populations in the Indian subcontinent: norm or exception of the Asian tropics?</i>
21 November	Dr Sam Smith (Oxford Brookes University) <i>Big society? Community organization and the Neolithic transition at WF16, southern Jordan</i>	15 May	Dr Jörg Linstädter (University of Cologne) <i>A hesitant passage to food production – Early to Mid-Holocene occupation of the Eastern Rif, Morocco</i>
28 November	Dr Robert Hosfield (University of Reading) <i>At the edge (of the edge) of the Pleistocene world: artefacts, antiquarians and early humans at Broom</i>	22 May	Dr Ash Parton (University of Oxford) <i>Orbital-scale monsoon variability as a motor for human dispersals</i>

- 29 May Dr Cristian Capelli (Oxford)
The history in our genes: migration and admixture in human populations
- 5 June Dr Tom White (Oxford)
Interesting applications of non-marine mollusc and ostracod sequences and their relevance to Palaeolithic archaeology
- 19 June Professor Michael Walker (University of Murcia)
Pre-Neanderthals and Neanderthals: 25 years of research at Cueva Negra del Estrecho del Río Quípar and Sima de las Palomas del Cabezo Gordo (Murcia, Spain)

Prehistoric and Early Greece Graduate Seminar

- 22 October Ruth Léger (University of Birmingham)
The Cult of Artemis
- 5 November Jorrit Kelder (Oxford)
Ahhiyawa and the Mycenaean State(s)
- 19 November Lesley Bushnell (University College London)
The sweet smell of success: how marketing and branding theory can help explain the popularity of Cypriot and Mycenaean perfumed oils in the Bronze Age Levant and Egypt
- 3 December Caroline Thurston (Oxford)
A LOAD OF OLD BULLS: terracotta figures and figurines after the collapse of the Mycenaean palaces
- 28 January Garth Gilmour (Oxford)
Standing stones, baetyls and other cultic elements of Idalion, Cyprus, and relations with Anatolia and the southern Levant in the first millennium BCE
- 11 February Joanna Palermo (Oxford)
Rusty realities: the Cypriot iron industry after 1200 BCE
- 25 February Alexander Mulhall (University College London)
Animal economy at Lefkandi and the Late Bronze to Early Iron Age transition
- 11 March Adriano Orsingher (Rome)
A ceramic perspective on the earliest phases of Motya: the Near Eastern background, the Carthaginian connection and the interaction with the indigenous hinterland and the Greek cities

- 6 May Maximilian Bustin (Oxford)
Crisis, topography and social diversity: reconsidering the defensible nature of Late Minoan IIIC upland settlement
- 20 May Yannis Galanakis (University of Cambridge)
Fire, fragmentation, and the body: some thoughts on the post-funeral manipulation of bones and other things in the Late Bronze Age Aegean
- 3 June Anna Panagiotou (UCL)
A comparative approach to the decorated pottery of the Bronze Age eastern Mediterranean
- 24 June Professor Christoph Ulf (Universität Innsbruck)
Identity building as a means of conflict resolution, or: Hellenes versus Greeks

Research Laboratory for Archaeology & the History of Art Seminars

- 23 October Alejandra Pascual-Garrido (RLAHA)
Pan faber: chimpanzee archaeology in Nigeria
- Aurélie Cuenod (RLAHA)
Cataloguing the Tylecote collection of metallurgical samples: challenges and opportunities
- 30 October Phil England (Department of Earth Sciences, University of Oxford)
Earthquakes and the history of the Aegean world
- 6 November Shadreck Chirikure (University of Cape Town)
More research; more confusion: perspectives on indigenous mining and metalworking in Africa
- 13 November Miryam Bar-Matthews (Geological Survey of Israel)
A paleo perspective on the history of water and human migration in the Middle East and North Africa
- 20 November Francisca Santana (RLAHA)
New insights about paleodiet and mobility in northern Chile: comparative isotopic analysis between the Atacama and Tarapacá cultures during the Late Intermediate Period (1000–1450 AD)

	Marshall Woodworth (RLAHA) <i>Absorbed residue analysis of Late Roman amphorae by Gas Chromatography/Mass Spectrometry (GC/MS)</i>	12 March	Solomon Pomerantz (RLAHA) <i>Elusive Austronesians: recent SeaLinks excavations in Madagascar</i>
27 November	Chris Standish (University of Bristol) <i>The source of Irish Chalcolithic and Bronze Age gold: insights from lead isotope analysis</i>		Peter Hommel (Institute of Archaeology) <i>Homogeneity, variability and mobility: natural resources, technological choices and the context of early pottery production in the Upper Vitim Basin, eastern Siberia</i>
4 December	Paul Albert (RLAHA) <i>Tephrochronology: a tool for synchronising palaeoenvironmental archives</i>	30 April	Daniela Boos Pedroza (RLAHA) <i>Stable oxygen isotopes as tracers of geographic location for brochantite formation in the urban atmosphere</i>
	Jean-Luc Schwenninger (RLAHA) <i>Luminescence, old and new</i>		
22 January	Petra Vaiglova (RLAHA) <i>Harvesting plant isotopes: what we can and what we have learned about early farming in southeast Europe</i>	7 May	Yiu-Kang Hsu (RLAHA) <i>The metallurgical network during the Early Bronze Age of Eurasia</i>
	Patrick Roberts (RLAHA) <i>Fruits of the forest: the application of stable isotope analysis to Pleistocene archaeology in Sri Lanka</i>		Efi Nikita (American School of Classical Studies, Athens) <i>Who went where? Mobility patterns in the southern Aegean during the Early Bronze Age</i>
29 January	Becky Briant (Department of Geography, Environment and Development, Birkbeck) <i>Pushing our luck: robust radiocarbon pretreatments on plant macrofossils at the limit of the technique</i>	14 May	Dirk Rieger (Archaeology and Preservation of Monuments, City of Lübeck) <i>Lübeck – traditions, individualities and innovations: the archaeology and architecture of the capital of the Hanseatic League</i>
5 February	Robert Hedges (RLAHA) <i>The kings of Aragon: dates and diets and identities</i>	21 May	Martina Lozano (IPHES, Rovira i Virgili University) <i>Dental microwear of the Homo species from Sierra de Atapuerca sites, Spain</i>
12 February	Sune Olander Rasmussen (Centre for Ice and Climate, University of Copenhagen) <i>A stratigraphic framework for naming and robust correlation of abrupt climatic changes during the last glacial period</i>	28 May	Christopher Stimpson (RLAHA) <i>Palaeozoology and the Nefud Desert</i>
19 February	Michelle Farrell (Geography, Environment and Earth Sciences, University of Hull) <i>Seeing the wood for the trees in Neolithic Orkney: towards quantitative reconstruction of past vegetation mosaics from pollen data</i>	4 June	Ceiridwen Edwards (RLAHA) <i>Using a multidisciplinary approach to determine the origins of Red Deer in Ireland</i>
26 February	Mim Bower (McDonald Institute for Archaeological Research, University of Cambridge) <i>Ancient DNA and the changing nature of the horse–human relationship in prehistory</i>	11 June	Richard Evershed (School of Chemistry, University of Bristol) <i>Milking the residues: molecular and isotopic signatures from human prehistory</i>
5 March	Amy Jeffrey (RLAHA) <i>Using stable isotopes in microfauna teeth to reconstruct past environments</i>	18 June	Kathryn Boulden (Archaeology and Anthropology, University of Cambridge) <i>Sheep, bones and stones: understanding variability in ovicaprid and cattle $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ across prehistoric Britain</i>
	Christopher Bronk Ramsey (RLAHA) <i>Radiocarbon as a correlation tool for environmental and archaeological records</i>		Arkadiusz Marciniak (Institute of Prehistory, University of Poznań) <i>New chronological analysis of late Çatalhöyük East: the minutiae of change towards the end of the 7th millennium cal bc</i>

Roman Discussion Forum

16 October	Helen Ackers (Oxford) <i>The form, display and context of women's portrait busts of the Severan to Tetrarchic periods</i>	19 February	Maxine Anastasi (Oxford) <i>Small-island interaction: pottery from Roman Malta</i>
23 October	Professor David Kennedy (University of Western Australia) <i>'A World of Villages?' Salvaging the rural landscape of Roman Arabia</i>	26 February	Professor Chris Howgego and Jerome Mairat (Oxford) <i>The Coin Hoards of the Roman Empire Project</i>
30 October	Professor Jean-Pierre Brun (Collège de France) <i>The Eastern Desert of Egypt: revisiting the Myos Hormos route forts</i>	5 March	Dr Matthew Harpster (University of Birmingham) <i>'...and for sails they used skins and thin-dressed leather...' (Caesar, De Bello Gallico, 3.12): ships, identity and maritime communities in the Roman and Late Antique Mediterranean</i>
6 November	Susan Bilynskyj Dunning (University of Toronto) <i>Numismatic evidence for Imperial performances of the Ludi Saeculares</i>	12 March	Professor Jean-Pierre Brun (Collège de France) <i>The excavations of the Roman fort of Didymoi in the Eastern Desert of Egypt</i>
13 November	Alison Pollard (Oxford) <i>The use of epic in Roman art</i>	30 April	Dr Julia Lenaghan (Ashmolean Museum) <i>Recycling statuary. Evaluating portrait monuments of the fourth century</i>
20 November	Dr Hella Eckardt (University of Reading) <i>Migration and mobility in the Roman Empire – new work on rich Roman burials from Scorton</i>	7 May	Dr Tibor Grüll (University of Pécs) <i>Economy of Roman Pannonia – achievements and challenges</i>
27 November	Dr Paul Roberts (British Museum) <i>Putting together 'Life and Death in Pompeii and Herculaneum'</i>	14 May	Dr Dorota Dzierzbicka (University of Warsaw) <i>'Supplying our most noble soldiers': wine for the army in early Roman Egypt</i>
4 December	John Carlson (Oxford) <i>The emperor's tomb: imperial burial at Rome and Chang'an</i>	21 May	Professor Jean-Pierre Brun (Collège de France) <i>Excavations of the Roman forts at Dios on the Coptos–Berenike route 2006–2009 (Egypt)</i>
22 January	Dr Alex Mullen (Oxford) <i>Rural life in Roman Britain: language, literacy and the hinterland of Canterbury</i>	28 May	Dr Edmund Thomas (Durham University) <i>The cult statues of the Pantheon</i>
29 January	Dr Peter Guest (Cardiff University) <i>Investigating Isca: new work at the Roman legionary fortress at Caerleon</i>	4 June	Elena Sánchez López (University of Granada) <i>The construction of aqueducts in Roman Hispania</i>
5 February	Evan Proudfoot (Oxford) <i>The making of a Pompeian myth: Fiorelli, Le Corbusier, and the (re-)invention of the 'open plan' atrium</i>	11 June	Swii Yii Lim (University of Oxford) <i>The use and supply of precious metals in Dacia before the Trajanic Wars</i>
12 February	Professor Mark Pollard and Dr Pete Bray (Oxford) <i>Roman copper supply: thinking recycled</i>	18 June	Dr Rebecca Darley (University of Birmingham) <i>Late Roman coins as economic and ritual objects in south India</i>

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