

OXFORD School of Archaeology

Annual Report
2012–2013



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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Cover photo: A hand axe found close to Dar es-Soltan, Rabat, Morocco, photographed using RTI imaging for the Morocco Caves Project:

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

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Introduction

Helena Hamerow (Head of the School of Archaeology)

Among the major research initiatives highlighted in this year's report, several were launched in 2012–13 and tackle major questions about the human past. Prominent amongst these is a five-year ERC-funded project that will use high-precision radiocarbon dating to investigate the transition from the Middle to the Upper Palaeolithic in Eurasia, when anatomically modern humans dispersed out of Africa and Neanderthals became extinct (PI: T. Higham). A joint initiative with English Heritage ('Laying Bare the Landscape', PI: C. Gosden) is mapping large swathes of ancient landscapes in the Upper Thames Valley, uncovered in recent decades by development-led excavation, to shed light on how this landscape developed from prehistory to the Middle Ages and to explore the potential of development-led archaeology across the country as a whole. A four-year ERC-funded project called 'The agricultural origins of urban civilisation' (PI: A. Bogaard) is examining the relationship between early farming and social change, in particular the emergence of urbanism. The project, which focuses on sequences of Neolithic and Bronze Age sites in western Asia, the Aegean and central Europe, will refine approaches to inferring growing conditions and land management practices using experimental work in traditional agricultural settings, plant functional ecology and measurement of isotope ratios in crops, animals and humans.

Several other projects began too recently to make it into the pages that follow. Barry Cunliffe is involved in a multi-disciplinary exploration of the archaeological context for the emergence of Celtic languages in western Europe which is challenging the traditional view that 'the Celts' spread from Iron Age central Europe, bringing Hallstatt and La Tène material culture and Celtic speech with them ('Atlantic Europe in the Metal Ages: Questions of shared language'; Co-I: P. Bray, AHRC). A major award from the Fell Fund in 2013 has now leveraged a further £200k from the Logan Foundation to support the 'Historic Environment Image Resource Project' (PI: C. Gosden). Its aim is to develop an image database of thousands of lantern slides of ancient sites held at Oxford, as well as a portal to connect with other photographic

holdings worldwide. The project, also supported by the Citizen Science Alliance, will use 'crowdsourcing' to keyword, identify and re-photograph sites using a mobile app; CSA anticipate c. 250,000 worldwide public contributors. Finally, Mike Dee has been awarded a Leverhulme Early Career Fellowship to enable him to use radiocarbon dating to pinpoint the timing of an abrupt climatic change in the late third millennium BC, as well as the fall of Old Kingdom Egypt, to determine whether the two phenomena may have been related.

The School of Archaeology has again benefited from the contributions of new arrivals: Dr Mike Charles joined the School in January as Senior Research Fellow in Environmental Archaeology, boosting our research strengths in archaeobotany and ancient land use. James Cole was appointed Departmental Lecturer in Palaeolithic Archaeology to cover for Nick Barton during the latter's research leave. We were pleased to welcome a number of postdoctoral researchers who joined us to work on specific projects: Paul Albert ('Volcanic ash layers in the Chalco Basin. A temporal record of volcanic activity in Mexico City'); Ian Brown and Paula Levick (the 'Atlas of Hillforts in Britain and Ireland' project, AHRC); Laine Clark-Balzan, Huw Groucutt, Richard Jennings and Ash Parton (all working on the ERC-funded 'Palaeodeserts' project); Aurelie Cuenod ('The origins of the Iron Age in Ancient Colchis'); Wendy Morrison ('Laying Bare the Landscape'); Alejandra Pascual Garrido ('Primate Archaeology', ERC); and Amy Styring and Erika Nitsch ('The Agricultural Origins of Urban Civilisation', ERC).

Gareth Wheeler joined us as the Institute's new Receptionist, with Anetta Lateckova taking over as Receptionist at the RLAHA. Nikki Cavanagh has taken up the new post of PA and Administrative Secretary, while Joanna Palermo has taken over as the Institute's Librarian. We were also delighted to welcome back Lucy Palmer from maternity leave.

The School again played host to a range of international visitors, including Hsiu Man Lin and Chengyi Lee from the National Museum of Prehistory in Taiwan, Eduardo Alves from the Universidade Federal Fluminense, and Rene Studer-Halbach from Rutgers University, who came

to work with Julia Lee-Thorp on stable isotope research at Laetoli. We have also had, for the sixth year running, interns from Harvard University join our excavations at the Roman town of Dorchester on Thames, which were visited by some 500 members of the public this year.

An ongoing shortage of space has become increasingly acute over the past year and affects the RLAHA in particular. These space constraints are not merely inconvenient, but make it difficult to operate as effectively as we would like. On a more positive note, the stable light isotope laboratory has been refurbished and the Institute's rewiring is entering its final phase. By the end of 2013 the Institute's facelift will be complete and the building as a whole will be much better suited to providing twenty-first century academic provision, while retaining its character and late Georgian elegance. I would like to thank Lidia Lozano and Jeremy Worth in particular for ensuring that the rewiring proceeded with as little disruption as possible to residents, and to all the staff at the Institute and RLAHA for persevering in the face of building work and space shortages. Finally, state-of-the-art Reflective Transformation Imaging equipment, acquired with help from the Fell Fund, has already been used to good effect on a number of projects, from Palaeolithic cave sites in Morocco to the

Roman town of Aphrodisias, enabling the 'virtual' examination of objects in exceptional detail.

The School's postgraduate community continues to thrive, and indeed our D.Phil. cohort – currently numbering around 120 – is one of the largest in the country. Some 44 per cent of the students who joined us in the past year come from 14 different countries outside the EU. Despite the recent increases seen across the country in student fees, both for undergraduates and postgraduates, the School of Archaeology has seen a modest increase in the number of applications received. We are very conscious, however, of the need to increase the number of our D.Phil. students in receipt of substantial financial support. In 2012–13, some 25 per cent were in receipt of bursaries or scholarships, an encouragingly high proportion, due in part to exceptional success in the University's Clarendon Awards scheme; we will need to work hard to build on this success.

Finally, it is particularly pleasing to conclude this year's report by noting and celebrating the recent election of Julia Lee-Thorp to a Fellowship of the British Academy, in recognition of her outstanding contribution to Archaeological Science.

October 2013

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Stable Light Isotope Analyses on Material from Wonderwerk Cave, South Africa

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*Tracking Early Indian Ocean Human Activities Using Taro (*Colocasia Esculenta*) Phylogeography*

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The Long-Term Dynamic Influence of Human Activity on Topsoil Magnetic Susceptibility

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

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Houses and Identity in Roman Knossos and Kissamos, Crete: A Study in Emulative Acculturation

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Michelle Langley (*St Cross College*)

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Laura Lewis (*Keble College*)

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Chen Li (*Merton College*)

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Elizabeth Montgomerie (*Exeter College*)

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Abandoned Chemistry: A New Interpretation of Copper Alloy Artifacts from the Cypriot Bronze Age Based on Recently Acquired and Existing Chemical Data

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Material Analysis of Artefacts

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Transition from the Late Roman Period to the Early Anglo-Saxon Period in the Upper Thames Valley: An Analysis of Stable Isotope Values

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

Bioarchaeology: Mobility and Diet during the Late Intermediate Period (AD 1000–1400) in the Loa and Atacama Regions

Katia Schorle (*St Cross College*)

Long-Distance Trade and the Exploitation of Arid Landscapes in the Roman and Late Roman Periods (50 BC–AD 650)

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Monumentality in the Tripolitanian Countryside from the 1st c. BC to the 7th c. AD

Yuriria Silva-Velazquez (*Linacre College*)

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

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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*)

ERC English Landscapes Project: Ceramic Repertoires through Time: Pottery, Identity and Landscape in England from the Middle Bronze Age to the Middle Ages

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?

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 South-West Midlands from the Late Roman to the Early Medieval Period: A Study of the Evolution of Social Identity

Christina Triantafyllou (*Keble College*)

Imperial Building in Trajanic Rome: A Study of the Construction and Economics of Public Building

Petra Vaiglova (*St Cross College*)

Stable Isotope Analysis: Studying the Socio-Cultural Implications of Agricultural Resource Management in the Neolithic

Elsbeth van der Wilt (*Linacre College*)

A Selection of Lead Objects from Heracleion-Thonis, Egypt

Angela Vaughan (*Keble College*)

An Isotopic Study of Diet and Environment at Taforalt, Morocco

Greg Votruba (*Wolfson College*)

Anchors and Mooring in the Ancient World

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

Courtney Ward (*Hertford College*)

Identifying Multiple Gender Identities in the First Century AD: A Study of Personal Adornment and Skeletal Remains from the Bay of Naples

Jennifer Wehby (*St Cross College*)

Investigation of the Agency and Expertise of Ancient Roman Builders through Material Analysis of Concrete Samples from Ostia, Italy

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 and Accommodation in the East Mediterranean, 300–700: A Study of Networks of Communication, Travel, Infrastructure and Modes of Accommodation in Late Antiquity

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 Zirioux (*St Cross College*)

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

Research Projects

Earliest Symbolism and Cemeteries in Prehistoric North Africa

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The project concerns the understanding of climatic and environmental contexts for cultural changes in *Homo sapiens*, from the first appearance of symbolic expression 100,000 years ago to behaviours that led to large-scale burying of the dead in cemeteries after 20,000 years ago. North Africa is an exceptional location for this study because all of the major cultural transitions occurred within *Homo sapiens* populations, as opposed to Europe and Asia where modern humans replaced other human types such as Neanderthals. Taforalt Cave in north-eastern Morocco offers one of the longest records of continuous human occupation in North Africa, with well-preserved archaeological remains and palaeoenvironmental evidence covering a timespan of over 100,000 years from the Middle Stone Age (MSA) to the Later Stone Age (LSA).

Detailed results of the project will be published in forthcoming papers and a monograph which is in preparation. Our broad findings indicate that in the MSA, the site had some of the richest and best dated Aterian occupation phases in North Africa. A dense accumulation of hearth layers >82,000 years old contains humanly butchered bone and lithic artefacts, as well as red ochre and other cultural items imported to the site. These include perforated *Nassarius* beads and other marine shells introduced from long distance and that so far provide some of the oldest evidence for the use of personal ornaments and culturally symbolic behaviour, anywhere in the world. The environmental and climatic contexts of these occupation layers have now been described in detail. They imply that early humans were remarkably resilient, and able to adapt to conditions of prolonged aridity as well as to episodes of rapid climate change. For the LSA Iberomaurusian (21–12,000 years ago) we re-examined the famous cemetery levels in the cave including the study of recently revealed human burials. One of the key interests concerns the sudden appearance of rich midden deposits at the time of the oldest burials around 15,000 years ago. Our results suggest that the appearance of the middens coincided with a marked transformation in the social and economic patterns of hunter-gatherers who turned from highly nomadic to semi-sedentary ways of life. According to the evidence this occurred over a relatively short space of time, thousands of years before the advent of farming (when these new ways were more widely adopted). The existence of the cemetery provides a rare opportunity to study the diet and nutritional health of human populations

directly from skeletal remains, during periods of rapid climatic change.

This year I was awarded a Leverhulme Fellowship which enabled me to prepare the results of the six-year programme of excavation at Taforalt in Morocco for publication as a major monograph. I also co-authored a major review paper on Taforalt which has been accepted for publication.

Barton, R.N.E., Bouzouggar, A., Hogue, J.T., Lee, S., Collcutt, S.N. and Ditchfield, P. in press: 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*.

For further information, see the Cemeteries and Sedentism website:

<http://www.arch.ox.ac.uk/leverhulme/>

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.



View looking out of Taforalt. Photo: Ian Cartwright, Institute of Archaeology.

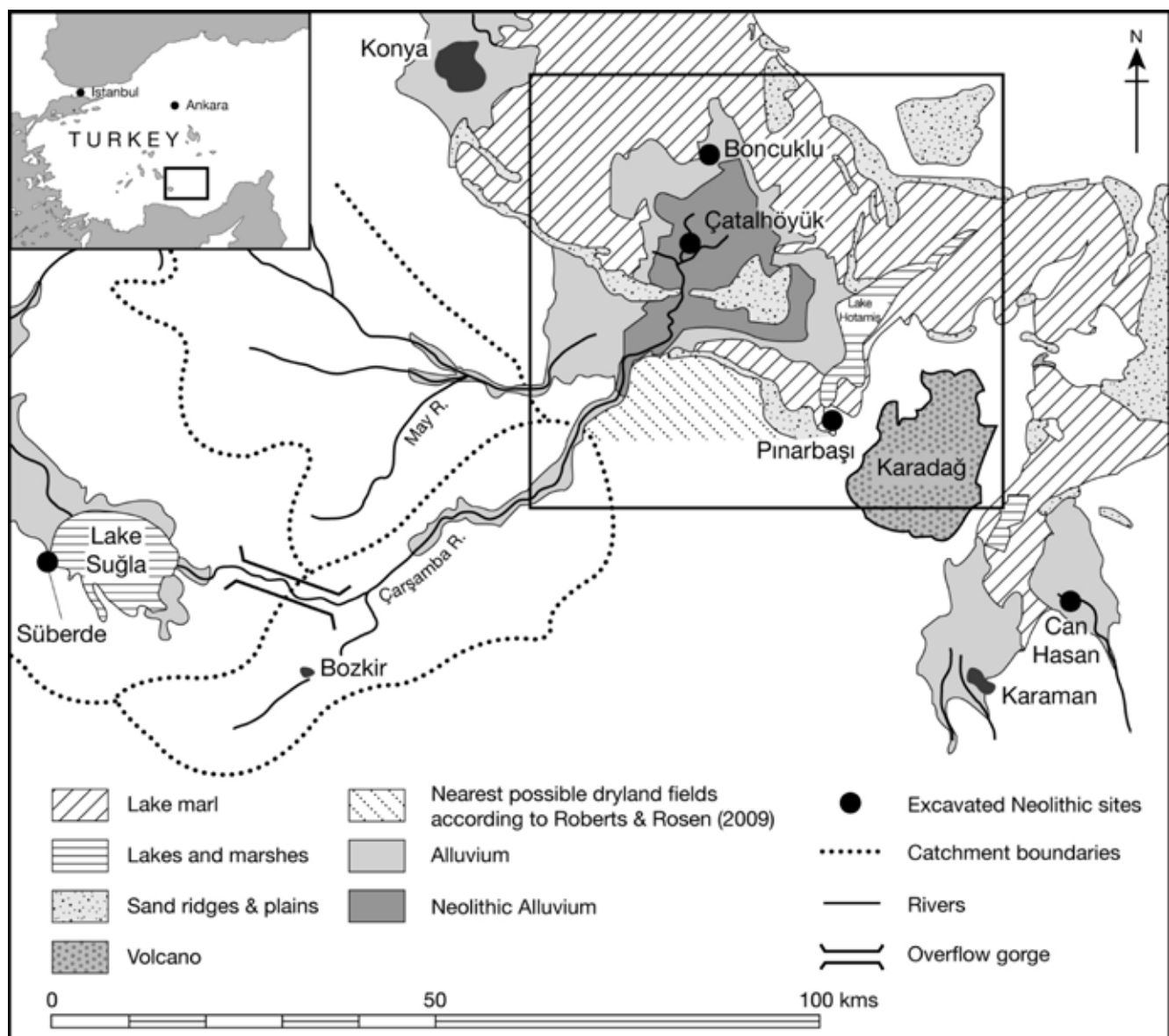
Locating Land Use at Neolithic Çatalhöyük, Central Anatolia: The Implications of Strontium Isotope Signatures in Plants and Sheep Tooth Sequences

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The ecological setting of the large (13 ha) early agricultural village of Çatalhöyük (c.7400–6000 cal BC) has been a matter of evolving debate since its initial excavation in the 1960s, with widely divergent implications for the nature and spatial configuration of land use. A key issue is the character of the alluvial zone around the site, which extends southwards until the termination of the Konya Plain at limestone terraces that border the Taurus Mountains (see image). Geomorphological work has suggested that the Çarşamba river, flowing immediately past the site, was a large, high-energy meandering river system that deposited alluvium throughout the Neolithic occupation. Based on the known spring flooding regime of the

river far upstream, at Bozkir in the Taurus Mountains, it was inferred that seasonal flooding would have made the site a 'virtual island' through March and April. Given that large-scale spring flooding would damage autumn-sown crops, and that late spring flood-recession farming would be implausible for early cereal crops that retained the autumn-germinating character of their wild progenitors, the conclusion was reached that the crops stored and consumed at Çatalhöyük must have been grown off the plain in a distant upland zone, the nearest being limestone terraces 13+ km south of the site (see image). To manage their disparate activities, it was argued, the population fissioned seasonally into farming, herding, and foraging task



Geomorphological map of the western Konya Plain, Turkey, redrawn after Roberts and Rosen (2009, fig. 1).

groups. Çatalhöyük thus appeared to be a major exception to the forms of intensive, integrated farming attested elsewhere in Neolithic south-west Asia and south-east Europe.

Our investigation used strontium isotope ratios ($^{87}\text{Sr}/^{86}\text{Sr}$) in archaeological sheep tooth enamel and charred plant material to relate plants and sheep to the landscape zone(s) they inhabited. Our specific aim was to assess the model of *distant* fields and upland sheep herding. Strontium isotope ratios in water, plants and animals derive primarily from local geological substrates; they thus act as geographic 'signatures', tracking where on the landscape these resources originated. The ratio of strontium isotopes characterizing a particular location is a function of the age of the underlying bedrock, and its relative abundances of rubidium and strontium. Theoretically, it is expected that the limestone terraces south of the Konya Plain, which include volcanogenic components, would have lower $^{87}\text{Sr}/^{86}\text{Sr}$ ratios than the local alluvium. We used modern plant samples to assess variation in strontium isotope ratios across these landscape zones, and to provide a baseline for interpretation of strontium isotope signatures in archaeological sheep tooth enamel sequences and archaeobotanical charred plant remains.

The modern plant dataset confirms, as expected, that the distant terraces are characterized by lower values than the local alluvial plain. Six of the seven sequentially sampled sheep molars analysed fall within the strontium range established for the alluvial plain, while one falls

within the upper range of the limestone terrace values. Strontium isotope measurements of the archaeobotanical charred plant remains suggest that crops grew on the alluvial plain alongside other local plants. Our pilot study suggests that use of the limestone terraces bordering the Konya Plain was not routine; instead, a range of habitats on the plain was exploited for diverse land use practices, including cultivation, foraging and herding. Far from excluding an integrated cultivation and herding system, the mosaic landscape surrounding Çatalhöyük plausibly *fostered* that very approach to plant and animal management. This new perspective needs to be developed further through analysis of geoarchaeological samples of relevant Neolithic substrates and an extensive programme of bioarchaeological sampling.

If you would like to read more about this project, see the in press paper in *Archaeometry* and the following websites:

<http://www.arch.ox.ac.uk/NLC1.html>

<http://www.catalhoyuk.com/>

Recent botanical and faunal work at Çatalhöyük has been funded by the National Science Foundation under Grant No. 0647131 (awarded to Katheryn Twiss, Stony Brook University, and Amy Bogaard). On-site work and post-excavation analysis of botanical material have been carried out in collaboration with academics and students in Turkey, the UK, USA and continental Europe.

Caer Drewyn and its Environs Project 2008–present

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Caer Drewyn is a large hillfort overlooking the valley of the River Dee at Corwen in Denbighshire, north Wales. In its vicinity are a number of smaller enclosures, notably Moel Fodig and Fron Newydd, some 1 km to the north-east. The 'Caer Drewyn and its Environs Project' is a joint exercise between Oxford (Dr Ian Brown) and Bangor (Professor Ray Karl) Universities with the aim of understanding the structure, chronology and function of these sites. This forms part of a wider study of the hillforts of north Wales. The period 2008–11 has seen extensive topographical and geophysical work at all three, in association with William Wintle of Oxford and Dr Ian Brooks of Engineering Archaeological Services. Generous grants have been received from the University of Wales and Denbighshire County Council.

Magnetometer survey at Caer Drewyn has focused on questions pertaining to its interior and 'so called' small 'annexe', with a resultant lack of structures in the former as opposed to the latter, which shows a large roundhouse and other features. It is possible that this is not an annexe as such, but the vestiges of an earlier enclosure on the summit of the hill. At the smaller hillfort of Moel Fodig, topographical and magnetometer survey conducted in 2010 showed substantial roundhouses and hearth within the interior, and excavation during 2011 proved that this was the case. During 2012 a section across the rampart and

ditch showed that the site had been deliberately destroyed, the stone from the wall surrounding the site pushed into the impressive outer ditch (see image). Further excavations during 2013 will concentrate on the entrance.

The nearby hillslope enclosure of Fron Newydd, opposite to Moel Fodig, was the subject of topographical and magnetometer survey in 2011, showing a most interesting inturned entrance downslope and possible internal roundhouse and other structures. It is envisaged that an exploratory excavation will be undertaken during 2013 to ascertain whether this is the case.

For relevant publications on the project, see:

Karl, R. and Brown, I. 2010: *Caer Drewyn and its Environs. Survey and Desktop Analyses, 2009–2010. Preliminary Report* (Bangor, Bangor University, Bangor Studies in Archaeology Report No. 3).

Brown, I. and Karl, R. 2011: *Caer Drewyn and its Environs. Site Surveys and Analyses, 2010–2011. Excavations at Moel Fodig Hillfort, August 2011* (Bangor, Bangor University, Bangor Studies in Archaeology Report No. 5).

Williams, S.M., Möller, K., Brown, I. and Karl, R. 2012: *Hillforts of North Wales: Moel Fodig. Excavations, 2011–2012. Interim Report* (Bangor, Bangor University, Bangor Studies in Archaeology Report No. 7).



Excavations of the ditch at Moel Fodig hillfort 2012.

Mapping Temporal and Spatial Variation of Ancient Plant Remains

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The transition from a mobile hunter-gatherer lifestyle to one of settled agriculture is arguably the most fundamental change in human development since the origin of the human species. A crucial element in this change is the evolution of the domesticated crops upon which agriculture is founded, and the key to unravelling the mechanism of transition in human subsistence strategies may be found in the changes that occurred during this evolutionary process. The project seeks to understand the selective pressures driving the evolution of crops through an investigation of the key phenotypic traits associated with crop domestication, thus providing insights into the ways in which plants were changed by human exploitation, as well as by non-human environmental factors.

The multi-disciplinary project brings together scientists from three British universities to combine experimental ecology, molecular biology and archaeobotany, addressing three key elements for understanding the selective pressures acting on early crop evolution:

- 1 the relationship between human and environmental selective pressures and plant ecological characteristics: addressed through experimental ecology;
- 2 early genetic trait selection in crop plants: addressed through simulation of phylogenetic relationships, and DNA analysis of barley landraces;
- 3 the temporal and spatial location of selection for particular phenotypes: addressed through biometric morphological analysis of archaeological plant remains.

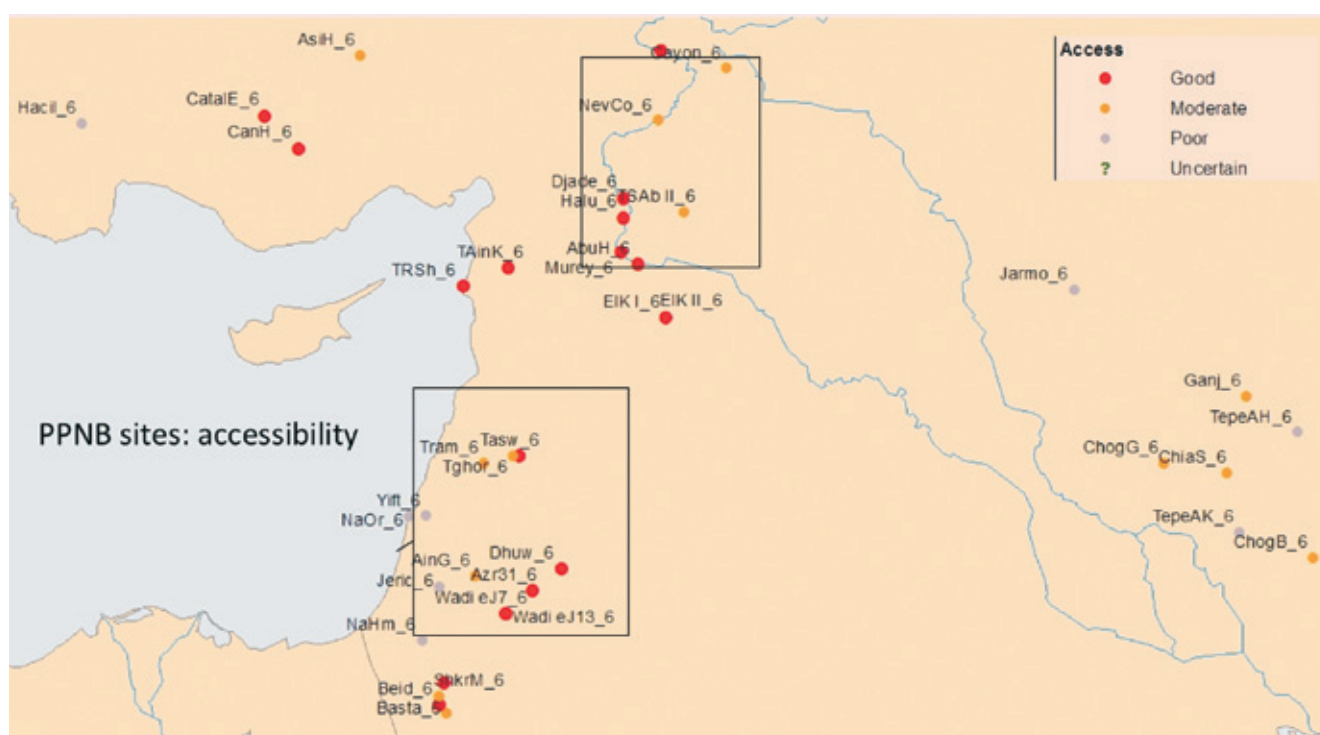
Investigation of the third element is being led by Mike Charles (Oxford) and involves two approaches:

1) Mapping temporal and spatial variation of ancient plant remains through an enhanced quantitative archaeobotanical database

The extended database comprises sample-by-sample records of archaeobotanical remains from the early agricultural period, Epi-palaeolithic to early Neolithic, of western Asia (see map). In addition to the c.3400 archaeobotanical samples from 70 sites, information such as context and density of remains has been recorded which is being used to identify the plant species available to early farmers, those that were deliberately stored and processed as plant food as well as the extent, geographical locations, and date of the changes in the plant spectrum as the crop progenitor species came to prominence.

2) Morphological and metrical variation of early crop and wild progenitor remains

Using high resolution stereoscopic microscopy, detailed measurements relevant to the crop domestication traits are being recorded for modern cultivated crops and wild progenitors and statistically analysed to determine the best criteria for distinguishing between domesticated and wild plants. The validity of these measurements to charred plant material has been verified by a series of charring experiments (see images overleaf). Similar measurements on ancient material from a series



A map of the study area assessing PPNB sites with archaeobotanical remains for analysis by the project.

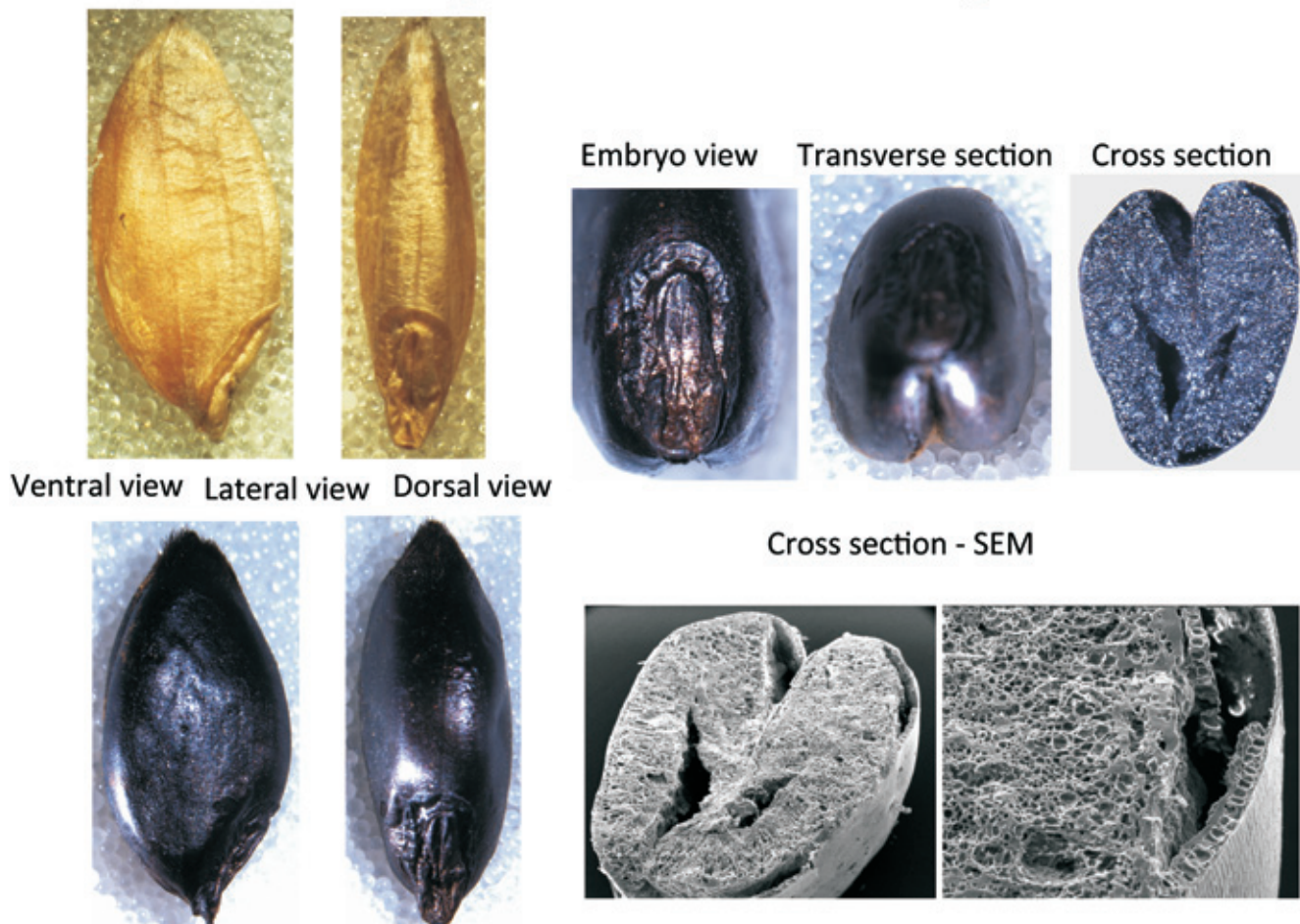
of key sites around the Fertile Crescent will allow us to determine the timing and rate of changes in seed morphology in domesticated species and how this relates chronologically to other domestication traits such as seed indehiscence. In addition, we are analysing a broad range of grain and chaff measurements, in order to identify population differences. Both types of characteristic will be mapped temporally and spatially to provide a chronological record of major crop selection horizons in different geographic areas, as well as documenting diversity and crop movements.

For more information see:

<http://www.shef.ac.uk/archaeology/research/evolutionary-origins>

The work is part of the ERC Advanced Grant 'Evolutionary Origins of Agriculture' (2011–2014). Grant holders: Professor G. Jones (Sheffield, Archaeology), Dr M. Charles (University of Oxford), Dr C. Osborne, Professor M. Rees (Sheffield, Animal and Plant Sciences), Dr N. Fieller, Dr E. Stillman (Sheffield, Mathematics and Statistics), Professor T. Brown (Manchester, Life Sciences).

Einkorn (*Triticum monococcum*) grain 10010 before and after charring for 6 hours



Images showing the effect of heating of *Triticum monococcum* grains and the views recorded by the project.

Unravelling the Origins of Modern Human Complexity: High Resolution Dating of the Aterian

Laine Clark-Balzan

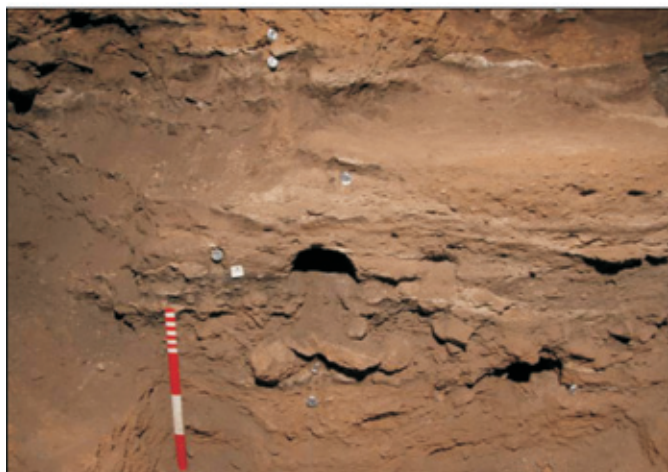
contact: laine.clark-balzan@rlaha.ox.ac.uk

Humans (*Homo sapiens*) are one of the most adaptable species on Earth; groups exploit resources in their local environments through an enormously variable range of behaviours. The credit for this success may be due to a suite of ‘modern’ behaviours, such as negotiating complex networks of relationships through symbolic exchange. If this is true, we should be able to use the archaeological record to answer a host of intriguing questions, such as when and where did these behaviours develop? Why did we become who we are today?

In North Africa, some of these behaviours are recorded in ‘Aterian’ sites, a Middle Stone Age culture often associated with tanged tools. The first shell beads, pigments and constructed stone features are found in sites that stretch from Morocco through the Sahara and into Egypt’s Western Desert. Though modern human fossils have been associated with the Aterian, inaccurate radiocarbon dating seemed to indicate that the Aterian was far too young (c.20,000 to 40,000 years old) to relate to the early

development of *Homo sapiens*. Newer techniques, such as optically stimulated luminescence (OSL) dating, have renewed this discussion. OSL measures the magnitude of trapped energy in quartz grains and the amount of natural radiation in the environment, in order to date the last time sediment was exposed to sunlight. Because ages of several decades to several hundred thousand years can be obtained, OSL dating is quickly becoming a fundamental technique for such studies.

As part of a collaboration between the University of Oxford and the Institut National des Sciences de l’Archéologie et du Patrimoine (Morocco), two key Aterian sites were sampled for high resolution OSL dating. Dar es-Soltan I is a large cave eroded into a calcarenite cliff on the Atlantic coast of Morocco (Rabat). A significant Aterian site in its own right, due to the density and quality of its artefacts, it also shares key stratigraphy with Dar es-Soltan II, where fragments of three human skulls were found. The Grotte des Pigeons (Taforalt), located in eastern Morocco, is similarly rich in Aterian occupation



A view of Grotte des Pigeons (Taforalt) (top left) and OSL sampling (bottom left, right; courtesy of Ian Cartwright).

layers. These have yielded some of the earliest shell beads in Africa.

New OSL dating techniques have been applied to samples from both cave sites in order to provide the most precise and accurate ages possible. Key archaeological layers have been closely bracketed by micro-OSL samples, to enable the creation of a precise chronology. Stratigraphic information and independent chronological data (radio-carbon and uranium-series dates) have also been used to inform OSL age interpretation via Bayesian statistical models. Such models are crucial for understanding these notoriously complex cave environments.

Results from both sites indicate that the earliest Aterian is far older than previously assumed, almost certainly more than 100,000 years old on the Atlantic coast and possibly slightly younger to the east. Therefore, such sites must be included in any discussions of the development of modern behaviours by *Homo sapiens*. As more sites are redated, it will become possible to test robustly hypotheses concerning the evolution of fundamental human behaviours.

Please see the following for further information:

Barton, R.N.E., Bouzouggar, A., Collcutt, S.N., Schwenninger, J.-L. and Clark-Balzan, L. 2009: OSL dating of the Aterian levels at Dar es-Soltan I (Rabat, Morocco) and implications for the dispersal of modern *Homo sapiens*. *Quaternary Science Reviews* 28 (19–20), 1914–31.

Clark-Balzan, L., Candy, I., Schwenninger, J.-L., Bouzouggar, A., Blockley, S., Nathan, R. and Barton, R.N.E. 2012: Coupled U-series and OSL dating of a Late Pleistocene cave sediment sequence, Morocco, North Africa: significance for constructing Palaeolithic chronologies. *Quaternary Geochronology* 12, 53–64.

The archaeological research reported here was supported by a Boise Fund D.Phil. studentship and Research Award. I am also indebted to the expert guidance of Dr Abdejalil Bouzouggar, of the Institut National des Sciences de l'Archéologie et du Patrimoine (Morocco) and the Max Planck Institute for Evolutionary Anthropology.

How Ancient is Egypt? An Absolute Chronology of Egyptian State Formation

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The foundation of Egypt was a seminal moment in socio-political history. Unlike the early city-states of Mesopotamia, Egypt was defined by its territory and as such may be regarded as the forerunner of all modern nations. However, the Egyptian state was formed prior to the existence of verifiable historical records. Consequently, previous models of state formation have relied on relative dates based on changes in material culture. Such frameworks cannot provide all the information necessary for cogent analysis of this crucial period. To remedy this problem, we conducted a research project with the aim of developing an absolute chronology for Early Egypt.

Our project team brought together archaeologists, Egyptologists and radiocarbon scientists. We obtained organic samples from the cultural periods leading up to and immediately after the foundation of Egypt from museums in the UK, Europe and the USA. The samples were pre-treated and radiocarbon dated at the Oxford laboratory. By combining our results with measurements obtained by previous studies, sufficient data were available for high-precision Bayesian modelling. The models

formed an absolute chronology for north-east Africa spanning the entire period of state formation.

Our findings suggested the trajectory to statehood in Egypt was very different from that observed in south-west Asia. We found that the transition from seasonally mobile life-ways to centralized agrarian state occurred much more rapidly in Egypt. Our study also generated the first high-precision dates for the 1st Dynasty of Egypt, including a foundation date that centred on the early thirty-first century BC.

For further information, see:

<https://c14.arch.ox.ac.uk/egypt2.html>

The funding for this research was obtained from the Leverhulme Trust. The project was led by Professor Christopher Bronk Ramsey (Oxford) and the co-investigators included Professor David Wengrow (UCL) and Dr Andrew Shortland (Cranfield). We would like to thank all the museum staff in the UK and abroad who assisted with our sampling requests.



View of the modern town of Abydos that envelops the New Kingdom temple of Seti I (thirteenth century BC, top right) and lies adjacent to the original burial ground of the first kings of Egypt (Umm el-Qaab).

Constructing a New Chronological Framework for the Appearance of the Neolithic Across the Aegean

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The nature, timing and pathways of the Neolithization process across the Aegean have been matters of intense debate since the mid-twentieth century, especially since the Greek Neolithic is seen as the predecessor of the European Neolithic. For several decades, it has been thought that a Preceramic phase followed by an Early Neolithic (EN) one would reflect best the Anatolian record, the latter thought to represent the source of origin. However, the existence of a Preceramic phase in Greece has been questioned recently, as was the validity of this analogue. It was suggested that there is no evidence of influences of Near Eastern pre-pottery Neolithic groups around the Aegean during the end of the eighth millennium BC/first half of the seventh millennium BC. Instead, it was proposed that sites with ceramics and domesticates appeared in the region only from ~6400 cal BC onwards, a hypothesis which, backed up with palaeoclimatic data ('6.2 ka' cooling event), was used to explain the observed cultural and demographic changes.

The lack of a reliable chronological framework is at the heart of the issue. The vast majority of radiocarbon determinations related to Aegean 'Preceramic'/EN sites were produced several decades ago when the radiocarbon dating method was in its infancy. The need for large samples at the time meant that several sample entities (single grains, charcoal, animal bones), possibly of different ages, had to be combined in order for a result to be obtained. With the advent of Accelerator Mass Spectrometry (AMS), sample size was reduced significantly and measurement precision has increased several times.

In 2012–13, I initiated a project investigating the start of the Neolithic in Greece, using (i) radiocarbon determinations on well-identified material from secure contexts, (ii) the latest radiocarbon chemical preparation protocols for sample cleaning, and (iii) the application of Bayesian statistics for the treatment of the results. From March until late June 2013, several of the sites under investigation (e.g. Franchthi Cave, Knossos, Argissa Magoula, Sesklo) were visited and the chief archaeologists at the local universities and the Ministry of Culture were informed of the project goals, while appropriate sites and samples for dating were identified. Charred grains, charcoal and bone remains associated with early farming sites were selected and exported to the UK for dating at the Oxford Radiocarbon Accelerator Unit.

The project is ongoing; the first ten radiocarbon determinations have been acquired and the results are fascinating, some already providing answers as to the beginnings of the Neolithic in Crete. Additional determinations expected in 2013–14 and their statistical analysis will enlighten us even further over one of the most interesting periods of late human prehistory and the issues revolving around the timing and reasons behind the expansion

of Neolithic farmers across Greece and the Balkans, and eventually into the rest of Europe.

An award by the John Fell Fund (University of Oxford) covered research expenses and radiocarbon dating costs. It was also accompanied by an Early Career Fellowship by the British School at Athens (British Academy), which enabled a prolonged stay in Greece for the study of relevant literature and unpublished site reports, as well as the examination and selection of appropriate samples. I would like to thank the BSA staff as well as the archaeologists C. Perlès, N. Efstratiou, A. Papathanasiou, G. Toufexis, C. Morgan, V. Kiriati, N. Krahtopoulou and M. Bessios for useful discussions and provision of samples.



Domesticated peas (*Pisum sativum*) from an Early Neolithic site in Greece. Similar material was selected for radiocarbon dating in the framework of the outlined project. Image copyright KD.

The Complex Case of Red Deer in Ireland: Ancient DNA Analysis of Archaeological *Cervus elaphus* Remains

Ceiridwen J. Edwards

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Ireland's geographical position on the western fringe of Europe poses the question of how species (including humans) colonized the island. This has led to considerable debate about putative glacial refugia within Ireland, natural colonization via land or ice bridges, and anthropogenic introductions. It might be expected that Ireland would have relatively similar faunal and floral assemblages to that of Britain, given the proximity of these two large islands, yet many species are absent from Ireland that are commonly found in Britain: for example, the common shrew, field vole and European roe deer. Previous studies have highlighted a link between Irish species and those found in south-western Europe, both in terms of archaeological assemblages and genetic affiliations. This link has been proposed to have occurred via early human traders in the Mesolithic period. However, it is now becoming clear that this general model, whereby species arrived in Ireland by similar means from a single area, is too simplistic.

Most of our present knowledge regarding Irish colonization processes comes from archaeological and

phylogeographic studies of mammals, so it is perhaps surprising that the history of Ireland's largest terrestrial mammalian species, the red deer (*Cervus elaphus*), has remained relatively unexplored. Red deer is one of only three species of Cervidae found in pre-medieval contexts in Ireland and is the only one still extant in Ireland (with both giant deer and reindeer disappearing prior to the arrival of humans around 10,155 cal BP). Although red deer had a wide geographical distribution within the European Late Quaternary period, they were entirely absent from northern Europe during the Last Glacial Maximum (c.26,500–19,000 cal BP). At this time, the ice sheets were at their full extension and may have covered much, if not all, of the island of Ireland. Red deer were present in Ireland prior to the LGM, but there is a notable scarcity of remains from the Younger Dryas stadial period until the Neolithic, when remains begin to occur more frequently in the record. It would seem, given no other evidence thus far to suggest otherwise, that red deer in Ireland did not survive through the Late Pleistocene–Early Holocene



Remains of red deer (*Cervus elaphus*) from Irish archaeological sites. © R. Carden – Natural History Division, National Museum of Ireland, Dublin.

transition, and that this species became extirpated during the Younger Dryas.

In order to determine the source population(s) of red deer found in Ireland today, mitochondrial sequences were generated from ancient red deer dating from c.30,000 to 1,700 cal BP. These data were compared to contemporary populations from Ireland, Britain and continental Europe. One modern population in County Kerry, south-west Ireland, shares mitochondrial haplotypes with archaeological Irish specimens. Both molecular dating and craniometric analyses suggest that this population has persisted in Ireland since the Neolithic period. When combined, the different strands of data collected (modern and ancient DNA, morphometric analyses and literature searches) indicate that red deer were reintroduced to Ireland by humans at some stage after 5,800 cal BP, during the Irish Neolithic period. In conjunction with recent

results from other species, it appears that Neolithic people from Ireland's nearest landmass, Britain, played a larger role in establishing its contemporary fauna and flora than previously thought.

For relevant publications, see:

Carden *et al.* 2012: <http://www.sciencedirect.com/science/article/pii/S0277379112000856>

Edwards 2012: http://www.nhbs.com/all_ireland_mammal_symposium_2009_tefno_188578.html

This research was funded by the Irish Research Council for Science, Engineering and Technology (SC/2002/510). Oxford-based funding came through the John Fell OUP Research Fund. The research was carried out at Trinity College Dublin, in close collaboration with researchers in Ireland, the UK, Austria and America.

English Landscapes and Identities 1500 BC–AD 1086

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Since the introduction of Planning Policy Guidance 16 in 1990 (now replaced by the National Planning Policy Framework), there has been an explosion of data in British archaeology. At the same time, we have seen the creation of numerous large databases, such as English Heritage's National Mapping Programme and the British Museum's Portable Antiquities Scheme. The English Landscapes and Identities project is tapping into these data to elucidate the long-term history of the English landscape from the start of the settled agricultural landscape in the middle Bronze Age to the date of the Domesday Book. Our aim is not only to analyse a mass of data on a scale not attempted previously, but also to develop theoretical frameworks for analysing landscape and artefactual changes and continuities over the long term. In particular, we are interested in issues related to identity, mobility, landscape agency, scale, temporal patterning, the definition of space and the relationships between datasets.

We are now in the second year of a five-year project, funded by the European Research Council. After a busy year of data gathering, we now have over 730,000 records relating to our period and interests. These data have been gathered from numerous sources including English Heritage (National Mapping Programme and Archives Monuments Information England), Historic Environment Records, Portable Antiquities Scheme, and the Archaeological Investigations Project. In addition, numerous datasets have been generously provided by individuals: Janice Kinory (salt production), David Yates (Bronze Age field systems) and Fraser Sturt (sea levels).

Handling data from numerous sources that have been generated in various ways and for diverse purposes has posed several challenges for our analyses at both the nationwide and case study level. To aid these we have created a set of data handling methodologies, which have gained the interest of English Heritage and the Association of Local Government Officers, as well as other major academic projects based at the Universities of Reading and Exeter. So far we have hosted two annual symposia to share our results and discuss our main themes with the wider archaeological community. The proceedings of the first of these on 'Landscape and Scale' have been published as a special edition of *Landscapes*.

In addition, we have also had a busy programme of outreach and public engagement. In February Miranda Creswell, our project artist, hosted an exhibition, 'Didcot Dog Mile', of her own work as well as that of local artists and archaeologists at the Cornerstone Arts Centre, Didcot. This was an exceptionally successful exhibition that attracted interest from BBC South Today and the Minister for Culture, Ed Vaizey. In September and October this year, Miranda Creswell and Zena Kamash will be undertaking a similar project focused around 'Horatio's Garden' at the Salisbury Spinal Unit.

For more information, see our blog:

<http://englaid.wordpress.com>

For more information on Miranda Creswell's work, see:

<http://visualenglaid.wordpress.com>

Laying Bare the Landscape: The Upper Thames Valley Mineral Synthesis Mapping Project

Chris Gosden, Roger M. Thomas and Wendy Morrison

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Certain areas in England have seen great concentrations of development-led archaeological investigations, often carried out over several decades and by a multiplicity of organizations. Realizing the pressing need for wider synthesis of these results and for a greater understanding of the relationships between areas of intense human activity and apparent ‘negative’ spaces, in October 2012 we began a pilot project to test the methodology and application on a small region of the Upper Thames Valley.

The aim of the project is to produce a new narrative of the development of this landscape from prehistoric times onwards, but the project should also provide other insights: an analysis of the pattern of past work and methodologies; a more developed understanding of the character and significance of the buried archaeological resource of this area; an understanding of the potential (and the challenges) of carrying out synthesis of this kind; and, potentially, indications of new approaches to development-led archaeology, given the high level of knowledge which we now have in some areas.

The Wiltshire/Gloucestershire stretch of the Upper Thames Valley has seen incredible amounts of investigation,

especially in advance of large-scale gravel quarrying. Our pilot study area encompasses a 150 km² polygon roughly stretching from Cricklade to Lechlade, in which over 620 investigations have occurred, by over 60 organizations.

The main outcomes of the project, in addition to the GIS, will be a series of recommendations for the heritage and commercial sector with regard to the production, curation and dissemination of GIS-ready digital data, as well as an increased sense of collaboration between academics, consultants and planning bodies. We have already begun this by hosting a very successful collaborative seminar which drew on the combined expertise of representatives from the relevant HERs, English Heritage, and project and geomatics managers from the major units working in the region. Building on this project, we are planning a larger-scale project which will apply what we have developed to other intensely investigated regions in Britain.

We are very grateful to the John Fell Fund for funding this pilot project and to numerous people in the heritage and commercial sectors for providing data and advice, including Jan Wills, Mel Pomeroy-Kellinger, Tim Grubb, Faye Glover, Steve Ford, Simon Cox, Gary Jones and Scott Williams.



Archaeology revealed by stripping in advance of gravel extraction. Photo courtesy Oxford Archaeology.

Improving Isotopic Evidence for Fish Consumption

Robert Hedges with Thomas Higham and Shweta Chavan (RLAHA), James McCullagh (Chemistry), Clive Bonsall (University of Edinburgh) and Oliver Craig (University of York)

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Estimating the amount of fish that ancient people consumed is still challenging, despite many years of study. Also, since radiocarbon levels are consistently lower in marine fish, a quantitative estimate of the diet becomes essential for the accurate dating of human bone. Where humans consumed freshwater fish, the situation is particularly difficult since the depletion of radiocarbon within the food-chains of rivers and lakes is locally specific and more or less unpredictable.

We are trying to bring together radiocarbon dates and the signals of stable isotopes of carbon and nitrogen not only for bone collagen, but also for the individual amino acids within the collagen, in order to prise apart the internal evidence that should help unravel these issues. Animals and plants differ in their protein and carbohydrate contents, and these sources can be reflected in those amino acids which are metabolically synthesized and those which are directly routed from the diet.

Two main projects contribute to our present study. Firstly, the radiocarbon dating of individual amino acids has necessitated the laboratory development of new methods. These are being tested by investigating the radiocarbon dates of amino acids in humans known to have consumed large quantities of freshwater fish (i.e. late Mesolithic inhabitants of the Danube Basin, in collaboration with Professor Bonsall of Edinburgh University), and in colonizers of Greenland in early medieval times (who changed from a more agrarian to a more marine resource-based economy). Our results, based upon specimens with approximately known diets, are helping us calibrate how each amino acid behaves in terms of its dietary origins, and therefore how the isotopic signals are carried through from atmosphere to archaeological sample.

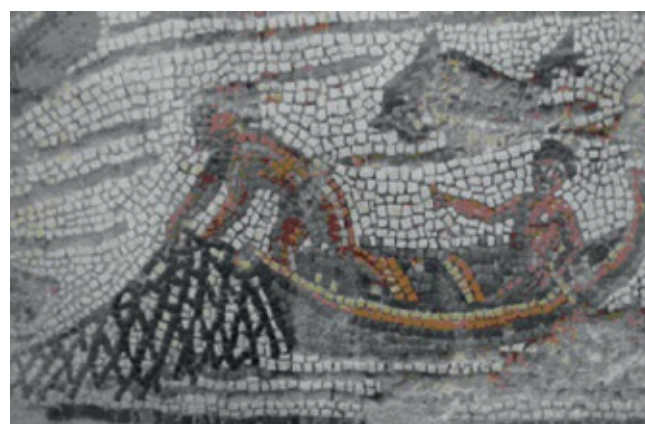
The second main project has been to examine the isotopic signals in bone collagen from victims at Herculaneum of the Vesuvius eruption in AD 79. Since the date of death is known exactly it can be precisely compared with the radiocarbon date. From this we can exactly determine

how much fish protein was incorporated into human tissue, and relate this to other stable isotopic signals. This work provides definitive and quantitative evidence for the way different types of foodstuff are channelled into bone protein, particularly for situations for which the total fish consumption appears to have been quite modest. The results apply generally, and so help clarify much of the dietary isotope evidence from the Mediterranean – especially Italy, which previously has been rather puzzling.

These projects, as well as related ones, are benefiting from the development of simple general models which relate stable isotope composition to diets and include an account of the routing of different sources of carbon. We hope such models will be useful in interpreting the wider context of isotope databases of human collagen compositions.

References:

The work on radiocarbon dating of amino acids was reported at the recent International Radiocarbon Conference (Paris, 2012) and is to be published in *Radiocarbon*. The work on Herculaneum will shortly appear in the *American Journal of Physical Anthropology*.



Roman mosaic in the church of S. Maria, Trastevere, Rome.

The PalaeoChron Project and the Dating of the Middle to Upper Palaeolithic of Eurasia

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This interdisciplinary project, based at the Radiocarbon Accelerator Unit and RLAHA, aims to shed light on the question of the biocultural transition from the Middle to Early Upper Palaeolithic across Eurasia. During this period anatomically modern humans (AMH) dispersed out of Africa, colonized the Old World and Australia, and Neanderthals became extinct from the areas they had occupied for over 200,000 years. Much remains unknown, but our knowledge of this period of prehistory has improved dramatically in recent times. We now know, for example, that AMH and Neanderthals probably interbred, and ancient DNA studies have been crucial in providing new evidence for the relatedness between different groups of humans in Eurasia during the last 50,000 years. We also know that another hominin was present at this time, the enigmatic Denisovans, identified

solely using ancient DNA. We do not know, however, the exact timing of the dispersal and extinction of these populations and the duration of any overlap. There is also little reliable information on the geographical extent of these changes on a transcontinental (Europe–Asia) scale because western Europe has played a disproportionately large role in discussion of the period. The lack of reliable data outside of this region prevents us from determining the most likely origin and routes of AMH dispersals or the areas where archaic populations may have survived for longer. These issues hamper severely our ability to test any hypotheses and interpretative models for the period.

PalaeoChron addresses the fundamental requirement of chronology to this field. Chronology is essential in any archaeological enquiry, but particularly so for the Palaeolithic. Without a chronometric framework,



Dentition of the complete Kostenki 14 human, recently redated by single amino acid techniques at just over 33,000 BP in the ORAU (Marom *et al.* 2012, *PNAS*). Human remains like this are often treated to conserve the specimens, making direct dating impossible. Previous dates for this specimen put it at 4750 BP. New techniques are revolutionizing the science of dating the past.

answering questions regarding the proper prehistoric sequence for this crucial period remains floating in a fog of uncertainty. With a reliable chronology, the pieces can be put into order; lithic assemblages from archaeological sites can be compared on a uniform scale, human remains may be directly dated, and ages for archaeological sites and their sequences, often great distances apart, can be compared with confidence.

PalaeoChron will apply the latest cutting edge methods to the dating of archaeological sites across greater Eurasia, from eastern Europe and the Near East, to Siberia and Mongolia, as well as central Asia. Methods developed and used at the RLAHA over the last few years will be applied. These include ultrafiltration preparation of bone collagen,

the dating of single amino acids using HPLC to ensure complete contamination removal prior to AMS radiocarbon dating, single-grain OSL dating using a new state-of-the-art Luminescence reader and Bayesian modelling of the results using OxCal4. Amongst the tens of sites being investigated are Denisova Cave, in the Russian Altai, the Kostenki-Borschevo sites (see image) on the Don River in Russia, and Ksar Akil, in Lebanon. The project lasts for five years and will include four postdoctoral researchers, senior staff at the RLAHA (Schwenninger and Ramsey) and two doctoral students. A €2.48M ERC Advanced Investigator grant awarded to Tom Higham funds the project.

Materialising Memory in Roman Britain

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In the past decade there has been a boom in memory studies across numerous disciplines, including neuroscience, sociology and, most recently, archaeology. The focus of this work has been on the nature of collective memory, its malleability, and the potential for numerous, possibly competing, narratives of the past; this is a marked step change from the traditional western episteme of individual, storehouse-style memory.

Since 2010 I have been working with Professor Karl Galinsky (University of Austin, Texas) on his *Memoria Romana* project, which aimed to investigate the role of memory in all aspects of ancient Roman life across all parts of the Empire, using evidence from literature, history and archaeology. My research has focused on the role of material culture in the making and shaping of collective memory on religious sites in Roman Britain. In particular, I have been interested in how different groups of people, for example, the military, pagans and Christians, created links with the past in order to understand their present condition and potentially project their hopes for the future through the manipulation of objects and architecture.

My work is being published as contributions in edited volumes, including the forthcoming *Oxford Handbook of Roman Britain* (Millett, M., Moore, A. and Revell, L. (eds.)). In addition, the culmination of the *Memoria Romana* project was marked by an international conference at the Getty Villa, California in April 2013, at which I was invited to speak; other speakers included Professor Sue Alcock (Brown University) and Professor Greg Woolf (University of St Andrews). The proceedings of this conference will be published next year by the Getty Museum Press.

For further information, see:

http://www.utexas.edu/research/memoria/grant_recipients.html

My research on the Memoria Romana project was generously funded by the Max Planck Society and the Alexander von Humboldt Foundation.



The Getty Villa: this reconstructed Pompeian villa made the perfect environment to share ideas about memory in the Roman world. Photo by Bobak He'Eri, reproduced under Wikimedia Creative Commons license.

Tephra Records of East African Changing Environments

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The African tropics are highly sensitive to global climatic change. The nature and timing of localized responses to the Quaternary glacial cycles and to shorter (millennial to centennial in scale) climatic oscillations vary both in space and time. Understanding the relationship between the complex palaeoenvironmental record of East Africa and modern human evolution therefore requires careful consideration of the relative timing of archaeological developments and potential environmental forcing factors. This can only be done by accurate and precise comparisons between independently dated records, which vary in duration and temporal resolution, and are often poorly dated beyond the limits of the radiocarbon method.

Far-travelled volcanic ash layers preserved in sedimentary sequences act as isochronous marker horizons, providing a secure basis for direct temporal correlations between disparate palaeoenvironmental and archaeological archives. Ongoing investigations into lake sediment records of the last interglacial cycle stretching from Ethiopia to Malawi have shown that both visible and non-visible (*cryptic*) ash layers from the volcanic centres of Africa, and beyond, can be identified and used to connect records over thousands of kilometres. This work is essential for testing and improving existing age models, and to better understanding the rates and patterns of past environmental change and consequences for human populations.

One highlight of the project so far has been the discovery of a cryptic ash layer from the Younger Toba Tuff (YTT) super-eruption (75,000 years ago) within the undisturbed sediments cored from Lake Malawi. The tephra layer provides an accurate and precise chronological marker for this detailed record of African palaeoenvironmental change, which revises the timings of widely recognized climatic events such as the African Megadroughts. Furthermore, examination of the chemical and organic composition of the laminated Lake Malawi sediments above and below the YTT layer reveals no evidence of a prolonged or extreme climatic deterioration. These findings suggest that the YTT eruption did not significantly affect the climate of East Africa and therefore would have had no major impact on modern human populations living there at that time.

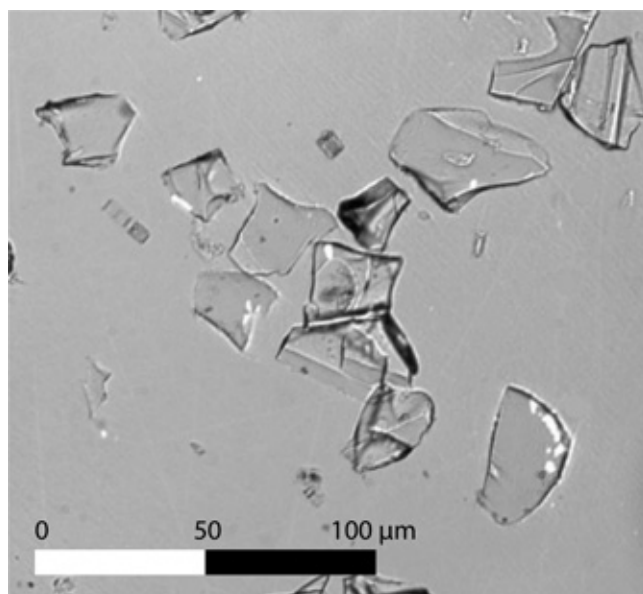
This project aims to provide the first coherent pan-regional tephrostratigraphy for the last glacial cycle in East Africa, and this chronological framework will enable

the relationship between the dramatic climate changes of the last glacial cycle and modern human behaviour to be assessed. This research will also make a vital chronological contribution to the construction of precise and accurate future climate models and detail the long-term eruptive history of East African explosive volcanism, helping to predict impending challenges within these marginal environments.

For further information, see:

Lane, C.S., Chorn, B.T. and Johnson, T.C. 2013: Ash from the Toba super-eruption in Lake Malawi shows no volcanic winter in East Africa at 75 ka. *Proceedings of the National Academy of Sciences* 110 (20), 8025–9.

This research project is funded by a Leverhulme Trust Early Career Fellowship (04/2012–3/2015). Access to lake sediment cores has been supported by collaborations with Professor Thomas Johnson from the Large Lakes Observatory, University of Minnesota Duluth; Professor Christopher Schulz, Syracuse University; Professor Henry Lamb, University of Aberystwyth; and Dirk Verschuren, Ghent University.



Volcanic glass shards (<100 micrometres) from the YTT eruption discovered within 75,000-year-old sediments from Lake Malawi.

The Medieval Preservation of Ancient Monuments at Miletus in Turkey

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When the Roman temple of Serapis at Miletus in Turkey (1) was excavated a century ago, it came as a surprise that nearly all parts of the colonnaded porch (2) had survived. They were found buried under the debris of the Byzantine city walls (3) that had collapsed in a medieval earthquake. The fortifications had incorporated the front wall of the Serapeum (4), and the porch with its lavish façade had remained standing outside the city walls right up until the earthquake. To the excavators writing in 1924, ‘it appeared incomprehensible why the temple porch was not demolished and the material re-used in the building of the fortifications.’

During the 2012 fieldwork season, however, we were able to solve the puzzle. A re-examination of the city walls revealed that the temple porch had served as a monumental gate for the Byzantine city. The gateway consisted of three entrances, one being the old front door (5) of the Serapeum in the centre of the porch, the other two being new gates that flank the porch on either side. The west gate (6) opened onto an ancient street (7) leading to the church of St Michael and the so-called bishop’s palace. The east gate (8) is flanked by a tower, and in the corner between wall and tower stands an ancient garland sarcophagus with a broken lid, which will have been brought here from the Roman necropolis.

The triple gateway that resulted formed the largest and most ornate entrance to the Byzantine city. The temple porch had been retained on account of its beauty and venerable antiquity – in other words a conservationist approach to ancient buildings. What had ‘appeared incomprehensible’ to the early excavators has since been observed more often at Miletus, where the Late Antique and Byzantine inhabitants took an evident pride in the preservation and display of their ancient heritage.

The re-examination of the city walls is part of a larger research project on various aspects of the Late Antique and Byzantine settlement history of Miletus. Annual fieldwork campaigns have been ongoing since 2006 and lead to international workshops and conferences at Oxford: on

‘Approaches to Middle Byzantine Miletus’ in Trinity Term 2012 and on ‘Small Finds and the Big Gap in the Byzantine Settlement History of Miletus and Ephesus’ in Trinity Term 2013.

For further information, see:

Niewöhner, P. 2011: The riddle of the Market Gate. Miletus and the character and date of the earlier Byzantine fortifications of Anatolia. In Dally, O. and Ratté, C. (eds.), *Archaeology and the Cities of Asia Minor in Late Antiquity* (Ann Arbor, Kelsey Museum Publication 6), 103–22.

Niewöhner, P. in press: Neue spät- und nachantike Monumente von Milet und der mittelbyzantinische Zerfall des anatolischen Städtewesens. *Archäologischer Anzeiger* 2013/2 (with contributions from O. Dally, E. Erkul, S. Feist, S. Giese, D. Göcmen, T. Hintermann, M. Kruij, M. Maischberger, B. Raubo, P. Schneider, A. Scholl, N. Schwert, V. Sossau, F. Stroth, H. Stümpel).

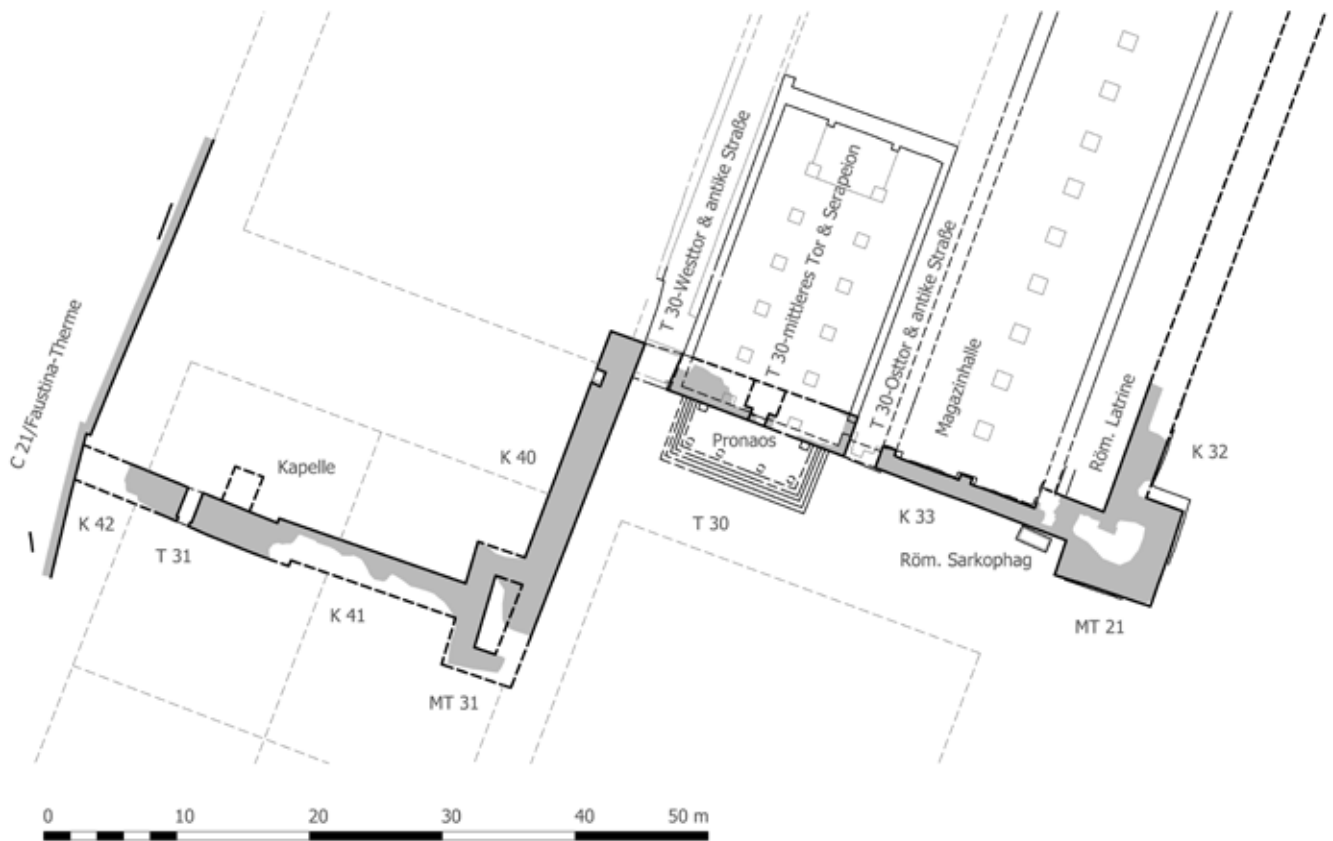
The excavations at Miletus are principally funded by the German Archaeological Institute. The growing involvement of students and scholars from Oxford is supported by the Craven Committee, the Oxford Centre for Byzantine Research, the Meyerstein Bequest, and various collegiate travel and research grants.



The excavated remains of the Roman temple of Serapis and the Byzantine city walls.



An ancient garland sarcophagus with a broken lid in a corner between wall and tower.



Plan of the Roman temple and the Byzantine city walls. © Stefan Giese.



Reconstructed elevation of the temple porch after its incorporation into a triple gateway of the city walls. © Stefan Giese.

The Palaeodeserts Project: Climate Change and Human Evolution in the Arabian Desert

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The Palaeodeserts Project is a bold new initiative to examine the relationship between climate change over the last one million years and its effect on human demographic history in the Arabian peninsula. The Palaeodeserts Project applies an interdisciplinary approach, combining information from palaeoenvironmental studies, palaeontology, geography, geochronology, animal and human genetics, archaeology, rock art studies and linguistics.

At the heart of the project are the following six hypotheses that will be tested over the next five years:

- 1 Hominin and animal range expansions are inextricably linked with wet phases in the Pleistocene and Holocene periods.
- 2 Arid and hyper-arid periods resulted in population contractions, genetic bottlenecks, and extinctions.
- 3 Hominin and animal settlement are linked with variations in physiogeography and palaeohydrology across the Arabian Desert.
- 4 Hominins and animals migrated along specific dispersal routes across the Arabian Desert.
- 5 Cultural innovations set hominins apart from boundary conditions in mammals.
- 6 Economic and social practices set Neolithic societies fundamentally apart from Palaeolithic populations.

The first season of fieldwork has recently been completed, encompassing research around the Jubbah Palaeolake in the Nefud Desert of northern Arabia and the Mundafan Palaeolake in the Empty Quarter of southern Arabia. Fieldwork identified long palaeolake sequences, ideal for reconstructing environments through time, and stratified archaeological sites, including Middle Palaeolithic, Epi-Palaeolithic and Neolithic localities. Rock art research was also conducted at Jubbah and Shuwaymis, two localities currently being nominated for listing on UNESCO's World Heritage List. New fieldwork is currently being

planned in areas with vertebrate and aquatic fossil finds and in regions with Acheulean sites.

For further information, see the Palaeodeserts website: <http://www.arch.ox.ac.uk/PALD.html>

The Palaeodeserts Project is funded by a €2.35M grant from the European Research Commission. We thank HRH Prince Sultan bin Salman, President of the General Commission for Tourism and Antiquities, and Professor Ali Ghabban, Vice President for Antiquities and Museums, for permission to carry out our research in the Kingdom of Saudi Arabia. We also wish to thank our close collaborator, Dr Abdullah Alsharekh of King Saud University, for his friendship and guidance.



The Palaeodeserts team is composed of an international, interdisciplinary team. Pictured from left to right: Dr Richard Jennings (Mapping, Oxford), Dr Huw Groucutt (Lithics, Oxford), Dr Ceri Shipton (Archaeology, University of Queensland), Dr Ash Parton (Palaeoenvironments, Oxford), Dr Laine Clark-Balzan (Dating, Oxford), Dr Remy Crassard (Archaeology, CNRS), Paul Breeze (Mapping, King's College, London). Photo: Palaeodeserts Project, 2013.

Lake Suigetsu: Calibrating the Radiocarbon Timescale

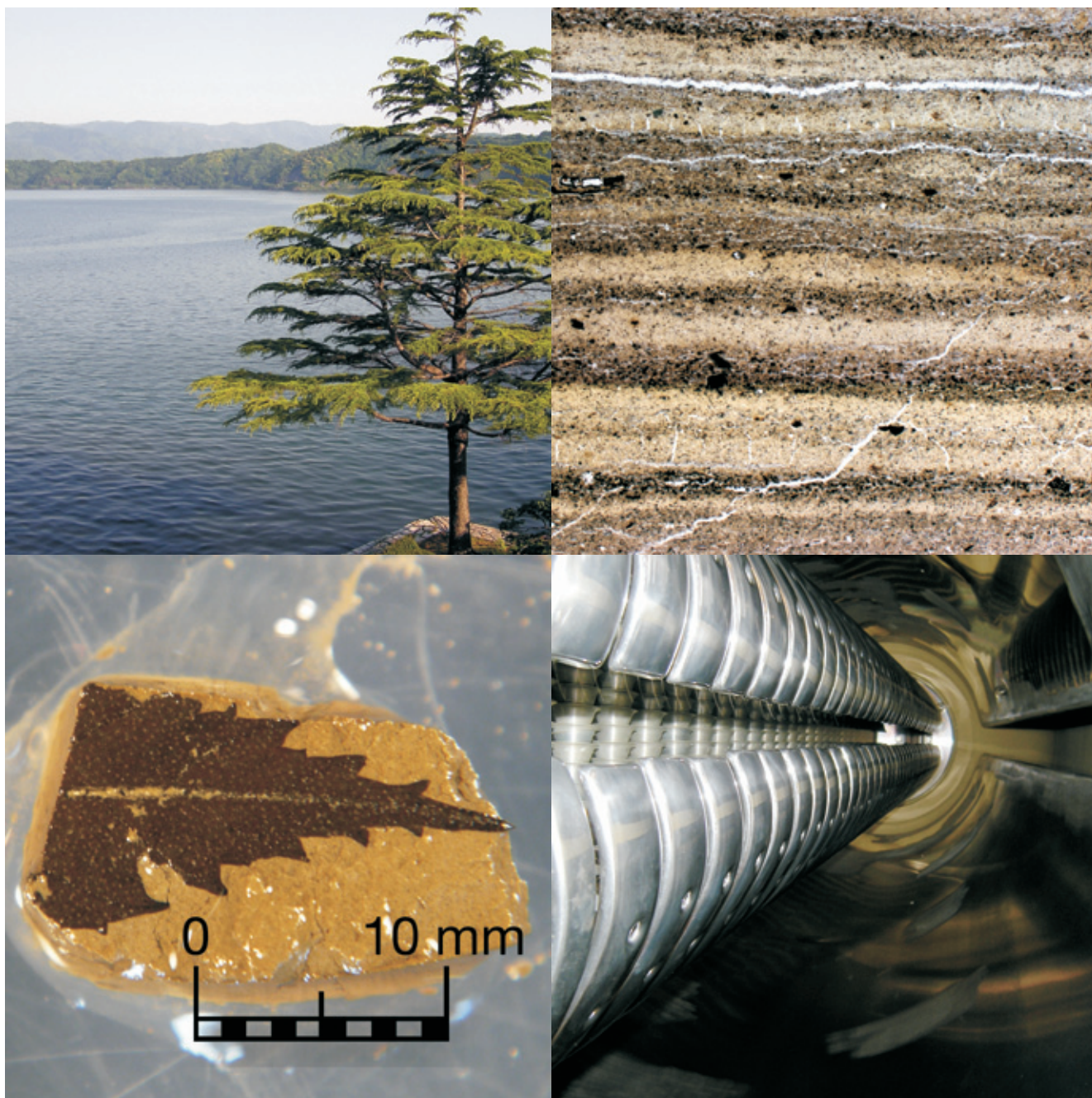
Christopher Bronk Ramsey, Richard Staff and Fiona Brock

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Radiocarbon measurements can only be used as meaningful 'dates' when they have been compared to other measurements on know-age material. Once calibrated onto a proper timescale, they can then be compared with dates from other techniques and with key records of environmental change, such as the Greenland ice cores. This calibration process normally uses tree rings that have been dated using dendrochronology. However, this is only possible for the last 13,000 years or so, leaving

some three-quarters of the radiocarbon timescale much less certain. Until now we have relied on marine records for calibration for older periods, but these are hard to interpret because of changes in the oceans during the last Ice Age.

The Lake Suigetsu research project is a large international collaboration (led by Takeshi Nakagawa from Newcastle University) studying sediment cores collected from a very unusual lake in Japan, which has annual



From top left, clockwise: Lake Suigetsu; annually laminated (varved) sediments from the lake; the accelerator mass spectrometer at Oxford used for radiocarbon measurements; a 25,000-year-old leaf preserved in the sediment. Photos: Christopher Bronk Ramsey, Gordon Schlolaut (GFZ Potsdam, Germany) and Richard Staff.

laminations throughout the last glacial period and which contains beautifully preserved plant fragments, ideal for radiocarbon dating.

This year we published the results from the radiocarbon measurements from this lake in the journal *Science*. These results give us, for the first time, a complete record of terrestrial radiocarbon encompassing the full time-range of the technique. In all there are over 800 radiocarbon measurements from three laboratories in this study, and these will form a key element of the next radiocarbon calibration curve to be published in 2013.

This research will underpin radiocarbon dating throughout the time-range 13,000–50,000 years ago, helping to provide a better understanding of the timings of

archaeological events in the Palaeolithic, in relation to the rapidly changing environmental context of that period.

For further information, see:

www.suigetsu.org

and

Bronk Ramsey *et al.* 2012: A complete terrestrial radiocarbon record for 11.2 to 52.8 kyr B.P. *Science* 338 (6105), 370–4.

This research has been funded by the Natural Environment Research Council (NERC, grant number NE/F004400/1) with student funding from the School of Archaeology.

China and Inner Asia, 1000–200 BC: Interactions that Changed China

Jessica Rawson

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As part of this project, in March 2013 Professor Rawson made a research visit to Baoji, at the western end of the Wei River Valley, the major tributary of the Yellow River. This area lies within an arc of territory that runs from the north-east at the Bohai bay, north of Beijing, through the Ordos area, and the Hexi Corridor, to the western edge of the Wei River basin and then south to Sichuan and Yunnan.

At many points along this arc, the peoples living there between 2000–800 BC were in close touch with their neighbours in the steppe and deserts to the north and west. Traces of this contact are evident in the use of slab graves, single-bladed knives, jingles, mace heads and many types of beads. A burial site of around 1000 BC on the outskirts of the city of Baoji was created by such a group, founding what is known as the Yu polity. The Yu elite, while seeking to emulate their Chinese-speaking Zhou neighbours further east along the Wei River, also clearly maintained contact with regions within the arc. Weapons such as mace heads, shaft-hole axes and unusual pointed base ceramics indicate these contacts. Chariot fittings also depict the

northerners who managed the chariots and horses for the Yu polity (see image).

Sets of miniature vessels from tombs of several generations of the lords buried at Baoji have never been considered and rarely published. The objective of the visit was to examine these miniature vessels and assess their relation to the ceramic vessels used by other groups within the arc, most especially those in the Hexi Corridor and in Sichuan. By analogy with miniatures made in many other societies, such as children's toys, these miniatures can be treated as representations of vessels used at full size. As they are generally unlike the material in the tombs, they must portray vessels from elsewhere, probably one of the sites from which the Yu group came originally. This find underlines the heterogenous nature of early Chinese society, by contrast with the highly unified picture set out in ancient Chinese texts and traditional scholarship. The miniatures have now been discussed in papers presented during 2013 in Taiwan and at Barnaul in Siberia.

This research project is funded by the Leverhulme Trust.



Chariot fitting depicting a chariot driver holding an imaginary creature. The rear of the fitting shows the dress and hair of the figure, indicating that he was from outside central China; found in a chariot pit at Rujiazhuang, near Baoji, Shaanxi Province. Tenth century BC. Height 12.5 cm.

Excavations of a Roman Vineyard at Scafati, near Pompeii, Italy

Mark Robinson

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Professor Robinson is environmental archaeologist for SALVE (Sarno-river plain, Ancient Life in the Vesuvian Environment), led by Dr F Seiler of the Deutsches Archäologisches Institut (DAI) Berlin. The project is concerned with reconstructing the dynamics of rural settlement of the Sarno River plain on the Bay of Naples before AD 79 especially during the Roman period, including the relationships between humans and their environment. Until recently, archaeological effort has tended to be concentrated on the major settlements of the region such as Pompeii, Nuceria and Stabiae, but they were economically dependent on their hinterland.

In September 2012, an excavation was undertaken at the Via della Resistenza, Scafati, close to a villa rustica, to investigate an undisturbed Roman cultivation soil beneath the pumice of the AD 79 eruption of Vesuvius. It exposed the ridged surface of a vineyard. The ridges were at about 0.45 m intervals and plants had been set about 1.38 m apart along the ridge tops. Some very badly preserved wood survived below Roman ground level from some of the older vines but otherwise all that remained were pumice-filled holes and voids where the roots and the stake supports for the plants had decayed. The vineyard was in the process of being replanted at the time of the eruption. This was achieved where there was an older neighbouring plant by pegging down a shoot so it could take root, otherwise the bottom 0.75 m of a cutting was buried. The cuttings rooted near the surface of the soil and the remainder decayed, to

leave voids. The stakes which the vines were trained up could be traced as stains to a height of 1.0 m in the pumice.

A trench was dug through the Roman palaeosol to investigate the prehistoric volcanic and soil sequence. This could be matched with the sequence which underlies Pompeii and included a late Bronze Age/early Iron Age soil surface with marks from cross-ploughing.

Professor Robinson's part in the project is funded by the German Research Foundation (DFG).



Section through a cultivation ridge to show a pumice-filled stake-hole (left) and a pumice-filled root cluster of a young vine (right). There is a void left by a decayed horizontal length of vine cutting to the left of the stake-hole.



The Roman cultivation ridges under excavation.

The Gower Peninsula in Prehistory: A Multidisciplinary Investigation of People and Place

Rick Schulting

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Human remains dating to the Mesolithic period (c.10,000–4000 BC) are very rare in Britain. The limestone caves and rockshelters of South Wales have provided one of the richest areas in this regard. It is difficult to speak of ‘burials’, since the material is very fragmented and scattered, probably mainly as a result of later disturbances (rockfalls, bioturbation, badger and fox denning, later human activity, etc.). Nevertheless, through the application of AMS radiocarbon dating and stable isotope analysis, even such unpromising bone fragments can provide important information relating to the use of marine resources in the Mesolithic, and to the transition to farming in the Neolithic. Indeed, the results obtained thus far have contributed to the view of a sudden and largely complete shift away from the use of marine resources in Neolithic Britain.

A series of small-scale excavations at Foxhole Cave on Gower, South Wales, have been undertaken over the

past few years. The main aim has been to obtain additional Mesolithic human remains, and in particular those dating to the Late Mesolithic, in order (1) to examine dietary variation within the Mesolithic, and (2) to try to bridge a persistent ‘gap’ between the latest known Mesolithic humans and the earliest Neolithic humans (from c.3800 BC). We have been successful in dating human bone fragments to c.5500 BC, but material later than this remains elusive.

Another noteworthy point concerning Foxhole is its location within a few hundred metres of the famous Paviland Cave, the home of Britain’s only definite Palaeolithic burial, the ‘Red Lady’. So far, we have no clear evidence of human activity at Foxhole at this time, though unmodified Pleistocene faunal remains are present and have been dated to more than 30,000 years old. Post-excavation work is ongoing, and there are plans to undertake further excavations at this and other sites on Gower.



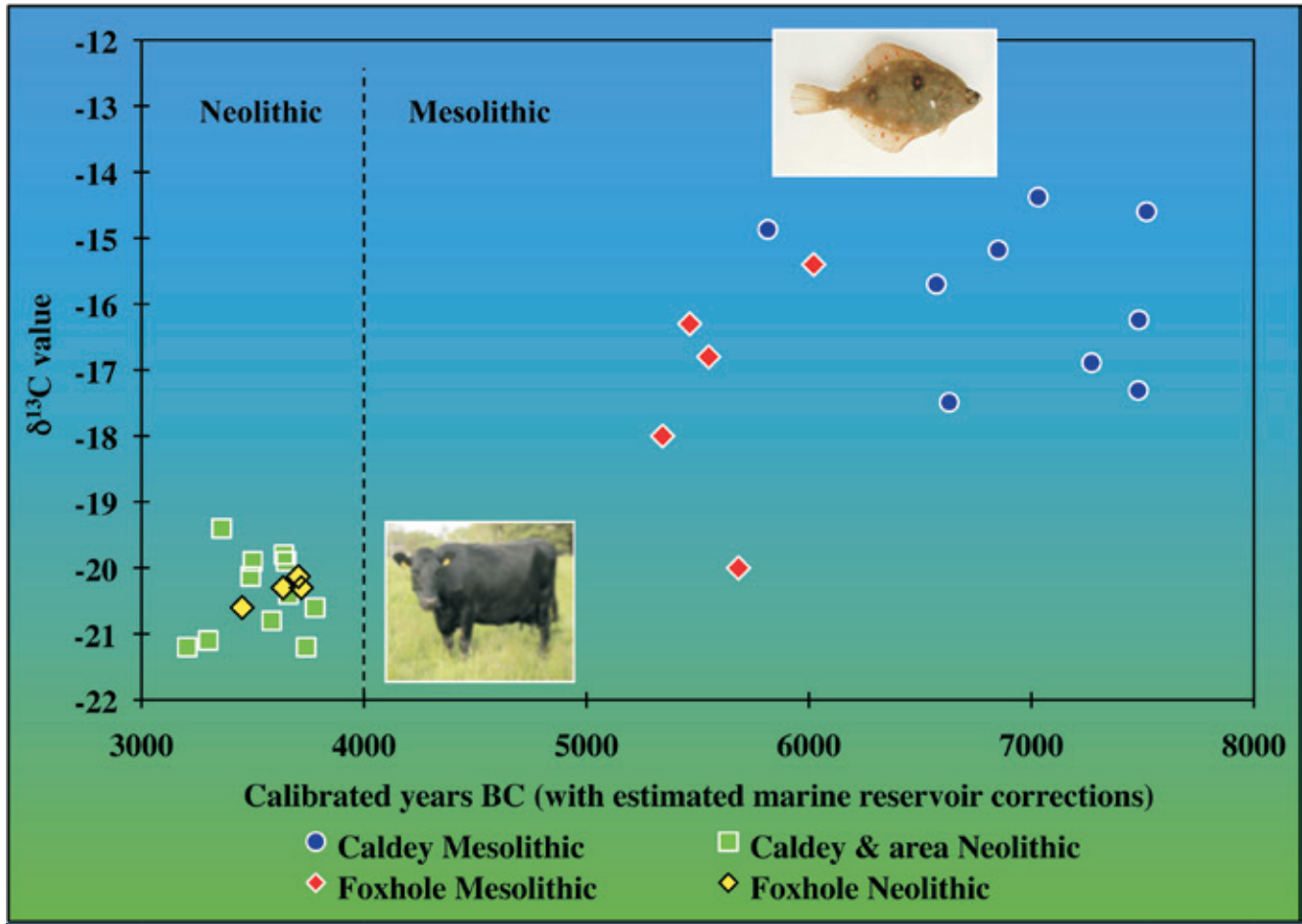
Foxhole Cave, Gower, South Wales. Paviland headland lies at the left-hand side of the view.

A preliminary report on the excavations is in press in the *Antiquaries Journal*:

Schulting, R.J., Murray, E.V., McLaughlin, R., Walker, E.A., Macphail, R.I., Price, C. and Fibiger, L. in press: Mesolithic and Neolithic human remains from Foxhole Cave (Gower, South Wales). *Antiquaries Journal*.

The excavations and dating programme have been supported by the Society of Antiquaries of London, NERC, the School

of Archaeology's Meyerstein Fund, and the University of Oxford's John Fell Fund. Numerous individuals have made contributions to the project, including Rowan McLaughlin, Emily Murray, Elizabeth Walker, Richard Macphail, Cath Price, Linda Fibiger, Cate Frieman, Daniela Hofmann, John Pouncett, Nick Barton, Simon Collcutt, Jean-Luc Schwenninger, Petra Vaiglova, Christophe Snoeck and Joanna Ostapkowicz. Thanks also to the Countryside Council of Wales and to the landowner, Mr Christopher Beynon.



Plot of stable carbon isotope (δ¹³C) values against AMS ¹⁴C dates on human bone collagen from Caldey Island, Foxhole Cave, and other Gower sites.

Aphrodisias: Art and Life in a Greek City under the Roman Empire

R.R.R. Smith

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Aphrodisias is a remarkably preserved Roman-period site in ancient Caria, south-west Turkey. It was a prosperous, medium-sized *polis* whose life is vividly represented in its abundant public inscriptions,

buildings, monuments and marble statues. It had an active political life as a city from c.150 BC to AD 600. Its principal remains are of the early and middle Roman empire (first and second centuries AD), but seen through the



South Agora and pool. Recent excavation and archaeobotanical investigation strongly suggest that the 170 m-long pool was once surrounded by palm trees. The complex was then not an agora but an urban park and one that should be identified with the 'Place of Palms' mentioned in an inscription on the fountain basin located at the bottom of the picture. Balloon photograph, looking west 2012.

complicated refracting lens of a continued and carefully maintained 'classical' city-life in late antiquity (fourth and fifth centuries AD). The archaeology of Aphrodisias is especially well suited to the study of public art in its ancient contexts and to the investigation of the elaborate monumental *mise-en-scène* of urban political life in the eastern Roman empire.

The site was exposed in large-scale excavations from 1961 to 1990, and since 1991 research directed by R.R.R. Smith in collaboration with New York University has focused on study, publication, conservation and targeted excavation. The following are current leading projects:

- 1 *Sebasteion*. An extravagant temple complex dedicated to the early Roman emperors (a Sebasteion) is the subject of a combined anastylosis and study project. The 80 marble reliefs from the building have recently been published in a monograph (Smith 2013). They are now on display in a purpose-built museum at the site, and continuing anastylosis of parts of the building allows the visitor to understand the character, scale and effect of the complex.
- 2 *Late antique statues*. The site preserves the best remains anywhere of statue practice in late antiquity, and Smith (supported by a Leverhulme Fellowship for 2013–14) is preparing a detailed contextual publication of this material, together with Julia Lenaghan (Wolfson College).
- 3 *South Agora and pool*. A major new six-year excavation project, begun in 2012, is investigating a unique 170 m-long urban water pool and its surrounding palm plantings. The project is led by the School's Andrew Wilson, with Oxford participants Ben Russell, Mark Robinson and Erica Rowan.

- 4 *Tetrapylon Street*. A second major excavation project, begun in 2008, is excavating the long late antique and post-antique life of one of the city's main public and commercial arteries.

For further general information on the project, see:

<http://www.nyu.edu/gsas/dept/fineart/academics/aphrodisias/aphrodisias.htm>

For the Sebasteion, see:

Smith, R.R.R. 2013: *The Marble Reliefs from the Julio-Claudian Sebasteion: Aphrodisias VI* (Darmstadt).

Principal collaborators:

New York University and the Institute of Fine Arts.

The project has very dedicated friends and supporters: the Friends of Aphrodisias Trust in London (President, Lady Patricia Daunt); the Geyre Foundation in Istanbul (President, Ömer M. Koç); the Friends of Aphrodisias in New York (President, Nina Köprülü); and the Aphrodisias Sevenler Derneği in Izmir (President, Lise Sur). The new projects in the South Agora and the Tetrapylon Street are sponsored by: Mica and Ahmet Erteğün, Baron Lorne von Thyssen, the Headley Trust and the Malcolm Hewitt Wiener Foundation. The J.M. Kaplan Foundation and the World Monuments Fund are major sponsors of the building restoration and conservation work. The Leon Levy Foundation sponsors the student archaeologists. The 1984 Foundation sponsors architectural research and the student architects. And the Kress Foundation sponsors the archaeological conservators. The project is hugely grateful to all these supporters for their outstanding generosity.

Using Volcanic Ash Layers in the Sediment Cores from the Chalco Basin, Mexico to Obtain a Chronology for the Important Palaeoclimatic Record

Victoria C. Smith

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Mexico City is one of the most densely populated regions on Earth, and lies in a very tectonically and volcanically active area. The sediments in the Chalco Basin preserve a detailed record of the past climate and volcanic history of the region. Drill cores of these sediments can be used to assess how the climate has changed over hundreds of thousands of years, and establish how the climatic system will respond to anthropogenic-driven change. Volcanic ash layers (tephra) from numerous explosive eruptions are preserved within the Chalco Basin sediments. These tephra layers provide a record of the tempo of the volcanic activity, necessary for evaluating the volcanic hazard. The eruption deposits are also key to obtaining a chronology for the past climatic record as they can be dated using $^{40}\text{Ar}/^{39}\text{Ar}$ methods. A detailed timescale will allow the past climate archive to be directly compared to others in this tropical region, and

around the globe, providing information on the propagation of climate change. Cores of the upper 120 m of sediment in the Chalco Basin clearly show that the record is pristine for such studies. We are working on the tephra within the cores and show that they can be reliably dated and correlated to specific volcanic eruptions. This pilot work is key to securing funding for a larger collaborative International Continental Scientific Drilling Program (ICDP) project to extract the deeper sediments and obtain up to 800,000 years of information on the past environmental change and eruption history.

For information on other tephrochronology projects, see the departmental webpage.

This project, including the postdoctoral research position for Paul Albert, is funded by the John Fell Fund.



(Top) The Chalco Basin within Mexico City. Sediments in this basin extend back 800 kyrs. These sediments also include volcanic ash layers from the numerous small cones that surround the basin and the larger volcanoes further away. (Bottom) The large Nevado de Toluca volcano (4285 m above sea-level) located 80 km south-west of Mexico City. The volcano has experienced numerous large explosive eruptions that have distributed tephra over Mexico City. Many of these tephra layers contain biotite and could be dated using $^{40}\text{Ar}/^{39}\text{Ar}$ methods.

Student Profiles

Daniela Boos Pedroza

I've been working with archaeological remains for years through chemistry. As an undergraduate in the States, I majored in Art History and dual-minored in Chemistry and Spanish. I went on to complete a postgraduate program in Archaeological Conservation in London. Conservation seemed like the natural choice, coming from a chemistry and history background, and I am glad I pursued it, but it made me realize I want to carry out scientific enquiry and use analytical equipment beyond the scope of conservation. To guide my career path into a scientific field, I decided to apply for doctoral research in archaeological science.

My original plan was to return to the States, where I figured I was more likely to find funding for a doctorate degree. I met Professor Mark Pollard, Director of the University of Oxford's Research Laboratory for Archaeology and the History of Art (RLAHA), during my internship year as a conservation student. I tried picking his brain about Ph.D. programs in archaeological materials science in the United States, but our conversations led to the realization of similar research interests, and concluded

with a tour of the laboratory facilities at Oxford. I liked the fact that RLAHA has a strong research emphasis on archaeological chemistry and materials science. I was also impressed with RLAHA's laboratories, in particular the two mass spectrometers used for radiocarbon dating and stable isotope analysis. Needless to say, I changed my mind about a State-side Ph.D.

I am now in my second year of doctoral research. Although ideally archaeology and archaeological science should be in the same building to maintain holistic interactions, it is very convenient to be located in the heart of Oxford's science area. RLAHA's surrounding departments, especially Materials Science around the corner, Inorganic Chemistry and the Radcliffe Science Library up the road, the Chemistry Research Laboratories across the street, Earth Science next door, and Geography in-house, have all been generous in extending their resources to me. Moreover, the University Parks are nearby for the occasional refreshing stroll. Overall, I am pleased with my academic outcome at Oxford, the Institute of Archaeology and RLAHA.



Shriya Gautam

History, to me, has always had a special appeal as a subject, and I first became interested in archaeology at the age of ten, when my teacher, while explaining the significance of the human past, said to an enchanted bunch of ten-year-olds that the mysteries of history are open to anyone who would be interested in deciphering them. I remember everyone I knew wanted to do it then but as time went by, things like a job with more money or social recognition became a priority for them, but for me archaeology was more than just a Santa Claus story and I knew right then that it was the only thing I could see myself doing. Almost at the same time, I had started dreaming another dream, something everyone in the small hill-station in India, where I am from, thinks of as people think of fairies and magic – to join the University of Oxford. Little did I know then that dreams and career plans do come true in the form of a single acceptance letter within 11 years.

Being a part of the School of Archaeology at Oxford has been nothing short of a fairytale for me. I received my acceptance letter on my birthday and haven't looked back since. Every moment of this magical, enchanted place has taught me so much, has made me a better person, has instilled in me more confidence and has just given me more and more to dream of. Of course I have gone through the usual things all students go through, spent countless sleepless nights working on my coursework and dealt with both criticism and praise, but more than anything else I have found a family in Oxford, within the Institute, where a cup of coffee and a good conversation (that is not just limited to excavations and research) are a solution to all problems.

One of the most useful things I have learnt here is how to analyse information critically and incorporate it within



research work. Being analytical along with being lucid and to-the-point, as well as being able to argue efficiently with the use of relevant examples, is one of the most valuable lessons this course has taught me. Above all, I have learnt to challenge myself and test my own strength by venturing to do things outside my comfort zone, and to be quite honest, being a bit of a daredevil is not really a bad idea when you want to be an archaeologist!

My stay in Oxford has undoubtedly been one of the best experiences of my life and I am packing with me a bagful of information, trunks full of knowledge and an entire truckload of good memories to take away. I have been more than fortunate to be a part of this prestigious University and I do hope that some day soon I shall be able to give it back something in return for all that it has given me.

Will Heisey

Archaeology has long been a subject of fascination for me. The very real connection to the past that can be felt through studying and interacting with archaeological remains is a feeling that I still have not quite had enough of yet. Whilst completing my undergraduate degree in Archaeology at Durham University, I developed a keen affection for the collegiate system and British university life. After finding I had been accepted to Oxford to further my studies, I knew that this offer was one far too exciting to pass up. The reputation, history, and (above all) traditions of this institution appealed to me greatly. Oxford's programme in World Archaeology was ideal for a student such as myself with a diverse range of interests. Having felt the need to avoid getting labelled as a specific '-ist' just yet, the wide variety of subjects that were offered gave me a unique freedom to study a mixture of periods and cultures. The weekly tutorial system was one aspect that immediately impressed me upon arriving at Oxford. The informal atmosphere of tutorial discussions really made me feel comfortable enough to speak my mind and raise any questions or problems I had with the subject material immediately and effectively with my course supervisor. The weekly essays prepared me well for the written submissions that were to come, and I can definitely see that I've made quite some progress in my writing ability throughout the year. Whilst the demands of the course certainly took some getting used to, my supervisors and tutors were always at hand to provide constructive



feedback and support. I have had such an enjoyable time reading Archaeology at Oxford, that a transfer into the M.Phil. programme seemed to be the only logical next step for me! This process was a smooth transition, and I eagerly anticipate Michaelmas Term 2013 to continue the great fun that I've had so far.

Eileen Jacob

At 15, I was dead set on becoming a starving artist. I loved writing, and I was slow to admit that a creative writing degree was as likely to accelerate my Romantic Fall from Financial and Artistic Grace as to inspire me. I needed to participate in life if I was to write about it.

The problem was that I liked too many subjects. The only thing I disliked was gym, which doesn't narrow down the list of potential courses all that much. I wanted both stories and tangible material to work with, which neither history nor science alone could satisfy.

What a great fusion, I thought, if I could study all that intrigues me about the past and people through both text and science. Then I remembered that I had loved archaeology as a primary schooler, and I realized that anthropology (and archaeology – it's a subfield in the US, where I hail from) was exactly the fusion I wanted.

Undergrads rarely get to try out Arch and Anth before applying, though choosing a subject that is almost impossible to find dull makes it less of a gamble. Who could find nothing interesting in the entire span of humanity, from our bipedal ancestors to today's diverse population? Still, I was glad to take an anthropology class through a local community college, and I recommend trying out a volunteer excavation or short course to make sure the subject fits your expectations.

As for Oxford, that just sort of fell into place. I knew what I wanted to study, so the extra time and classes required at US universities felt unnecessary. Oxford is a reputable school. Oxford is an experience the average Ohio teenager never even conceives as a possibility. Oxford has a joint degree in Archaeology and Anthropology, and the syllabus contains everything I want to study. Oxford requires an undergraduate thesis and summer experience. Oxford has the tutorial system. It sounded too good to be true!

It still feels too good to be true at times. I enjoy everything, from ethnography to chemical analysis of artefacts. I have especially fallen in love with chronometry, and hope



to obtain a postgrad in some aspect of that. For those more pragmatic than me (failed poet, remember?), Arch and Anth offers many career options: anthropology has a niche in business, while the degree is excellent for international relations, NGO work, policy making, site conservation, museum curation, forensic anthropology ... The degree is a more relevant investment than you might think.

So far, I have been on a couple of excavations and done some interning with zooarchaeology. This summer, I will be working on my thesis research – flint artefacts found at a site in Oxfordshire – and doing an internship at Oxford's Research Laboratory for Archaeology and the History of Art (RLAHA). Those with more anthropological leanings have travelled to all corners of the globe and written some truly original theses. Going into my final year, I am not burnt out; rather, the horizon continues to grow wider.

My future has not confined itself to a single road yet, and for that I am grateful. What I learn about humanity is inspiring, and I want to fill in the many gaps that remain. I learn stories and recover those lost to time. That inspiration can only lead me down good roads.

And there's always poetry. I'll be well qualified to write the next 'Ozymandias', after all.

Rosemary Jeffreys

I have been studying for an M.Phil. in Classical Archaeology since October 2012, and am now in my second and final year. I have had a previous life as a lawyer, and did not do a first degree in Archaeology, but in Law, at Bristol. I had done a couple of Master's degrees in Archaeological Conservation part-time, while I was still working as a lawyer, so was not returning to academic life completely cold, but it has still been very different from anything else I have experienced. I applied because I was keen to do some research on Hellenistic gilded wreaths, and Oxford was offering attractive courses on the archaeology of Macedonia and the Hellenistic period. No other university in the UK was offering anything comparable. I am very fortunate to have this opportunity to study here.

I have found the teaching at Oxford brilliant, and the ratio of two students to one tutor for my subjects an incredible luxury. I have even found that the tutors were prepared to run a course tailor-made for me. This is a privilege I had not imagined in my wildest dreams. The schedule is demanding, with a weekly essay of 3–4000 words for the first four terms of an M.Phil., plus an exam in Trinity Term, but you really do learn this way – it truly is active rather than passive learning. I have found the tutors supportive and keen for us to learn as well as world experts in their subjects. I would say the teaching is far better than when I was first at university: there is far more emphasis on learning how to teach than there used to be. I was fortunate to be accepted by Lincoln College, which has several Classical archaeologists amongst the academic staff as well as the students. I have found the facilities at Oxford, including the Institute of Archaeology, the College and the Ioannou Centre, and specifically the libraries, to be superb. I have been taking the advice to attend some lectures which were not necessarily relevant to my course as well as those which were, and found the lecturers and



other students friendly and welcoming and if, sometimes, a little surprised to find someone of my age still in full-time education they are too polite to say so!

I am spending a few weeks in Greece in the summer between the first and second years of my M.Phil. to do some research on the wreaths in the museums there, and have received an award from the Craven Fund, which is very welcome.

Embarking on a course at Oxford as a mature graduate student is a major commitment, in terms of time as well as finance, and there are no facilities for studying for a degree part-time as at other universities. It is not, perhaps, for everyone, but if you are prepared to work and take advantage of the opportunities offered you will find it immensely rewarding.

Jerome Mairat

I have been interested in Roman numismatics since my childhood. Like many numismatists, I initially collected coins, but soon preferred the books, for the knowledge they contain, rather than possessing the objects themselves.

In spite of my great interest in history, I decided to study Mathematics at the University of Paris. After a Master's degree, I worked for a year as a researcher in Mathematics applied to Finance in Paris, and then, for eight years, as a proprietary trader in an investment bank, in Paris, Tokyo and London. During all these years, my interest in numismatics remained unchanged; I worked on Roman coins during my free time, at week-ends and during my holidays, writing articles and compiling catalogues. In 2005, I had the honour to be invited as a visiting scholar by the Ashmolean Museum in order to publish the Chalgrove II hoard – a hoard found in Oxfordshire that contains the coin of a 'forgotten' Roman Emperor named Domitianus II. The hoard is now on display in the galleries of the Ashmolean Museum. Although I was living quite far away (in Tokyo at that time), it was for me an unforgettable experience to stay for several weeks in the prestigious city of Oxford, having access to the same facilities as the most distinguished scholars working in this University.

In 2010, I realized that it was time for me to move on and to fulfil a dream: to complete a D.Phil. at the University of



Oxford. The question was not in which university I should do a Ph.D. in Roman numismatics: it was Oxford or nothing. The University of Oxford represents for me the height of excellence, a unique place for its intellectual rigour and its openness to new ideas.

From 1 October 2013, I will be working as the collections manager of the Heberden Coin Room, Ashmolean Museum. I will be in charge of the management of the numismatic collection and will be supporting the Keeper in his curatorial role (Roman coins). I guess it is the beginning of a second career.

Dominic Pollard

Settling upon Archaeology and Anthropology as the degree I wanted to pursue at university was the end of a long process of formation and consideration of my interests. Always a fan of chemistry and biology, specifically evolution and genetics, at A-level I developed an avid fascination with history and the nature of our windows onto it through studying Classical Civilisation. I felt sure pursuit of one to degree level would necessitate abandonment of the other. I need not have been worried. Archaeology and Anthropology offered the coalescence of these seemingly disparate interests, and indeed it is this multi-disciplinary approach that I believe makes the course so engaging and rewarding. It is only through the application of scientific, methodological rigour in combination with an appreciation of historiography, taphonomy and the many other processes that complicate the link of present and past that we can begin to construct compelling accounts of life in the societies we investigate. The disciplines of Archaeology and Anthropology are themselves complementary, and each challenge and further advance the study of the other, offering a unique understanding of the changes and continuities in human culture, belief and practice.

My decision to apply to Oxford came down to the nature of the course structure, and once more relates to the importance of inter-disciplinarity. While at other universities specialization in either archaeology or anthropology was encouraged, Oxford maintained a focus on both areas, continuing to highlight their links and dependencies into the second and third years. The retention of this breadth of study is what most appealed to me about Oxford, combined of course with the attractions of the tutorial system and the prospect of being taught by some of the subjects' leading academics. I was yet further



enticed by the presence of the Pitt Rivers and Ashmolean Museums in Oxford, and the potential they offered for augmenting academic study with material experience.

Looking back over my first year, the course has, if anything, exceeded my expectations. The lectures always provide a solid grounding in the relevant areas of study, while tutorials offer a stimulating discursive forum for exploring ideas and examples beyond the scope of the lectures. The practical classes have supplemented the insights afforded by lectures and tutorials by exploring further the physical application of scientific and analytical techniques. In sum, then, the course has developed my, indeed all our academic abilities in a number of ways. Reading and typing speed aside, the process of writing essays and discussing them in tutorials has promoted argumentative coherency and concision, while laying the groundwork of a theoretical and practical understanding which can then be critically applied to new sources, ideas and approaches. Set this against the backdrop of the infinite variety of people, times and places under study and you are left with a degree in equal parts testing and rewarding.

Selected Publications

Nick Barton

- 2012 (with Clark-Balzan, L. A., Candy, I., Schwenninger, J.-L., Bouzouggar, A., Blockley, S. and Nathan, R.): Coupled U-series and OSL dating of a Late Pleistocene cave sediment sequence, Morocco, North Africa: significance for constructing Palaeolithic chronologies. *Quaternary Geochronology*, doi:10.1016/j.quageo.2012.06.006
- 2012 (with Lowe, J., Blockley, S., Bronk Ramsey, C., Cullen, V.L. *et al.*): Volcanic ash layers illuminate the resilience of Neanderthals and early modern humans to natural hazards. *Proceedings of the National Academy of Sciences USA* 109, 13532–7. doi:10.1073/pnas.1204579109
- 2013 (with Bouzouggar, A.): Hunter-gatherers of the Maghreb: 25,000–6000 years ago. In Lane, P. and Mitchell, P. (eds.), *Oxford Handbook of African Archaeology* (Oxford).
- 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*, <http://dx.doi.org/10.1016/j.jhevol.2013.06.003>

Amy Bogaard

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- 2012 (with Staff, R. A., Bryant, C. L., Brock, F., Kitagawa, H., van der Plicht, J., Schlögl, G., Marshall, M. H., Brauer, H. F., Payne, R. L., Tarasova, P. E., Haraguchi, T., Gotanda, K., Yonenobu, H., Yokoyama, Y., Tada, R. and Nakagawa, T.): A complete terrestrial radiocarbon record for 11.2 to 52.8 kyr B.P. *Science* 338 (6105), 370–4.
- 2013 (ed. with Shortland, A. J.): *Radiocarbon and the Chronologies of Ancient Egypt* (Oxford).

Jessica Rawson

- 2012: Chinese bronzes. In Ekserdjian, D. (ed.), *Bronze* (current exhibition at the Royal Academy), 42–6.
- 2013: The First Emperor’s tomb: the afterlife universe. In Michaelson, C. (ed.), *The Terracotta Army and Treasures of the First Emperors of China* (Finland, Museum Vaprikkii, Tampere Museums’ Publication 127), 97–118.

Mark Robinson

- 2012: The place of Silchester in archaeobotany. In Fulford, M. (ed.), *Silchester and the Study of Romano-British Urbanism* (Portsmouth, R.I., Journal of Roman Archaeology Supplementary Series 90), 213–26.
- 2013: The relative abundance of *Onthophagu* species in British assemblages of dung beetles as evidence for Holocene climate change. *Journal of Environmental Archaeology* 18, 132–43.
- 2013: Holocene archaeological evidence of extinct and very rare British Scarabaeoidea. *Journal of Environmental Archaeology* 18, 143–53.

Rick Schulting

- 2012 (with Bello, S. M., Chandler, B. and Higham, T. F. G.): A cut-marked and fractured Mesolithic human bone from Kent's Cavern, Devon, UK. *International Journal of Osteoarchaeology*, doi:10.1002/oa.2261
- 2012 (with McClatchie, M., Bogaard, A., Colledge, S., Whitehouse, N. J., Barratt, P. and McLaughlin, R.): Neolithic farming in north-western Europe: archaeobotanical evidence from Ireland. *Journal of Archaeological Science*, online version available at doi.org/10.1016/j.jas.2012.10.022
- 2012 (with Murphy, E. M., Beer, N., Kasparov, A. and Pshenitsyna, M.): Iron Age diet in southern Siberia: information from stable carbon and nitrogen isotopes and dental palaeopathology. *Journal of Archaeological Science* 40, 2547–60.
- 2013: War without warriors? The nature of interpersonal conflict before the emergence of formalised warrior élites. In Ralph, S. (ed.), *The Archaeology of Violence: Interdisciplinary Approaches* (Albany, IEMA Proceedings 2), 19–36.
- 2013 (with Fibiger, L., Ahlström, T. and Bennike, P.): Patterns of violence-related head trauma in Neolithic southern Scandinavia. *American Journal of Physical Anthropology* 150, 190–202.

Bert Smith

- 2012: The Second lives of classical monuments at Aphrodisias. In Stephanidou-Tiveriou, T. (ed.), *Klasikē paradosē kai veōterika stoicheia stēn plastikē tēs rōmaikēs Elladas (Roman Sculpture in Greece: Classical Tradition and New Elements)* (Thessaloniki), 57–73.
- 2012: Monuments for new citizens in Rome and Aphrodisias. In Dickmann, J.-A., von den Hoff, R. and Pirson, F. (eds.), *Kunst von Unten? Stil und Gesellschaft in der antiken Welt von der 'arte plebea' bis heute. Arte dal basso? Stile e società nel mondo antico, dall' «arte plebea» ad oggi: in onore di Paul Zanker per il suo 70° compleanno* (Wiesbaden), 171–84.
- 2012 (with Dignas, B.): *Historical and Religious Memory in the Ancient World* (Oxford).
- 2012 (with Ertuğ, A.): *The Gods of Nemrud: The Royal Sanctuary of Antiochos I and the Kingdom of Commagene* (Istanbul).
- 2013: *The Marble Reliefs from the Julio-Claudian Sebasteion at Aphrodisias* (Darmstadt/Mainz).

Victoria Smith

- 2012 (with Costa, A., Folch, A., Macedonio, G., Giaccio, B. and Isaia, R.): Transport and impact of volcanic ash from the Campanian Ignimbrite super-eruption. *Geophysical Research Letters* 39, L10310. doi:10.1029/2012GL051605
- 2012 (with Tomlinson, E. L., Arienzo, I., Civetta, L., Wulf, S., Hardiman, M., Lane, C. S., Carandente, A., Orsi, G., Rosi, M., Müller, W., Thirlwall, M. and Menzies, M. A.): Geochemistry of the Phlegraean Fields (Italy) proximal sources for major Mediterranean tephra: implications for the dispersal of Plinian and co-ignimbritic components of explosive eruptions. *Geochimica et Cosmochimica Acta* 93, 102–28. doi:10.1016/j.gca.2012.05.043

- 2012 (with Tomlinson, E. L., Kinvig, H. S., Blundy, J. D., Gottsmann, J., Müller, W. and Menzies, M. A.): The Upper and Lower Nisyros Pumices: revisions to the Mediterranean tephrostratigraphic record using micron-beam glass geochemistry. *Journal of Volcanology and Geothermal Research* 243–4, 69–80. doi:10.1016/j.jvolgeores.2012.07.004
- 2013 (with Shane, P.): Using amphibole crystals to reconstruct magma storage temperatures and pressures for the post-caldera collapse volcanism at Okataina volcano. *Lithos* 156–9, 159–70. doi:10.1016/j.lithos.2012.11.008
- 2013 (with Staff, R. A., Blockley, S. P. E., Bronk Ramsey, C., Nakagawa, T., Mark, D. F., Takemura, K. and Danhara, T.): Identification and correlation of visible tephra in the Lake Suigetsu SGO6 sedimentary archive, Japan: chronostratigraphic markers for synchronising of east Asian/west Pacific palaeoclimatic records across the last 150 ka. *Quaternary Science Reviews* 61, 121–37. doi:10.1016/j.quascirev.2013.01.026

Maria Stamatopoulou

- 2012: Thessaly (Prehistoric to Roman). *Archaeological Reports* 58, 75–95.
- 2013: The archives of A. S. Arvanitopoulos (1874–1942) and their importance for the study of Thessalian archaeology. In Mazarakis-Ainian, A. (ed.), *Proceedings of the 3rd International Conference 'The Archaeological Work in Thessaly and Central Greece, 2007–2009', Vol. 1* (Volos), 17–29.
- 2013 (with Galanakis, I.): A preliminary report on the archival material from the excavations of the tholos tomb at Ano Dranista (Ano Ktimeni) in Thessaly by A. S. Arvanitopoulos (1911). In Mazarakis-Ainian, A. (ed.), *Proceedings of the 3rd International Conference 'The Archaeological Work in Thessaly and Central Greece, 2007–2009', Vol. 1* (Volos), 205–18.
- 2013 (with Katakouta, S.): Οι ταφικοί περίβολοι της Φαρσάλου. In Sporn, K. (ed.), *Griechische Grabbezirke klassischer Zeit. Normen und Regionalismen. Internationales Kolloquium am Deutschen Archäologischen Institut, Abteilung Athen, 20.–21. November 2009* (Munich, Athenaia 6), 83–94.

Eleanor Standley

- 2013 (with Hicks, D. and Forward, A.): Post-Roman Europe. In Hicks, D. and Stevenson, A. (eds.), *World Archaeology at the Pitt Rivers Museum: A Characterization* (Oxford), 262–78.

Letty ten Harkel

- 2012: Review of *Things from the Town: Artefacts and Inhabitants in Viking-Age Kaupang*, ed. D. Skre (2011) and *Excavations at Helgö XVIII: Conclusions and New Aspects*, ed. B. Arrhenius and U. O'Meadhra (2011). *Medieval Archaeology* 56, 348–9.
- 2012: Review of *Settlement and Lordship in Viking and Early Medieval Scandinavia*, ed. B. Poulsen and S. Sindbæk (2011). *Medieval Settlement Research* 27, 75–6.
- 2013: Material culture and urbanism: the case of Viking-Age Lincoln. *Anglo-Saxon Studies in Archaeology and History* 18, 157–73.

- 2013: Landscapes and identities: the case of the English landscape c.1500 BC-AD 1986. *Post-Classical Archaeologies* 3, 349–56.
- 2013: Review of *The Oxford Handbook of Anglo-Saxon Archaeology*, ed. H. Hamerow, D.A. Hinton and S. Crawford (2011). Oxford: Oxford University Press. *English Historical Review*, doi:10.1093/ehr/cet151

Dustin White

- 2012 (with Losey, R. and Nomokonova, T.): Fish and fishing in Holocene Cis-Baikal, Siberia: a review. *Journal of Island and Coastal Archaeology* 7(1), 126–45.
- 2012 (with Mackay, A., Bezrukova, E., Leng, M., Meaney, M., Nunes, A., Piotrowska, N., Self, A., Shchetnikov, A., Shilland, E., Tarasov, P. and Wang, L.): Aquatic ecosystem responses to Holocene climate change and biome development in boreal central Asia. *Quaternary Science Reviews* 41, 119–31.
- 2012 (with Shchetnikov, A. A., Filinov, I. A. and Rutter, N.): Late Quaternary geology of the Tunka rift basin (Lake Baikal region), Siberia, Russia. *Journal of Asian Earth Sciences* 46, 195–208.
- 2013 (with Mackay, A., Bezrukova, E., Boyle, J., Holmes, J., Panizzo, V., Piotrowska, N., Shchetnikov, A., Shilland, E. and Tarasov, P.): Multiproxy evidence for abrupt climate change impacts on terrestrial and freshwater ecosystems in the Ol'khon region of Lake Baikal, central Asia. *Quaternary International* 290–1, 46–56.
- 2013 (with Preece, R. C., Shchetnikov, A. A. and Dlussky, K. G.): Late Glacial and Holocene environmental change reconstructed from floodplain and aeolian sediments near Burdukovo, Lower Selenga River Valley (Lake Baikal region), Siberia. *Quaternary International* 290–1, 68–81.

Andrew Wilson

- 2012: Saharan trade in the Roman period: short-, medium- and long-distance trade networks. *Azania: Archaeological Research in Africa* 47(4), 409–49.
- 2012: Raw materials and energy. In Scheidel, W. (ed.), *The Cambridge Companion to the Roman Economy* (Cambridge, Cambridge Companions to the Ancient World), 133–55.
- 2012 (with Schörle, K. and Rice, C.): Roman ports and Mediterranean connectivity. In Keay, S. (ed.), *Portus and the Ports of the Roman Mediterranean* (London, Archaeological Monographs of the British School at Rome), 367–91.
- 2012 (with Silver, M., Bang, P.F., Erdkamp, P. and Morley, N.): A forum on trade. In Scheidel, W. (ed.), *The Cambridge Companion to the Roman Economy* (Cambridge, Cambridge Companions to the Ancient World), 287–320.
- 2013: The aqueduct of Butrint. In Hansen, I. L., Hodges, R. and Leppard, S. (eds.), *Butrint 4. The Archaeology and Histories of an Ionian Town* (Oxford), 77–96.
- 2013 (ed. with Bowman, A. K.): *The Roman Agricultural Economy: Organization, Investment, and Production* (Oxford, Oxford Studies in the Roman Economy 3).
- 2013 (with Quinn, J.): Capitolia. *Journal of Roman Studies* 103.

Major Grants 2012–2013

Nick Barton

Earliest symbolism and cemeteries in prehistoric North Africa (Leverhulme Trust)

Amy Bogaard

*Malaria's Austronesian fingerprint – connections of *Plasmodium vivax* with past human migrations and cultural evolution in the Indo-Pacific* (Wellcome Trust)

Amy Bogaard

The agricultural origins of urban civilisation (European Research Council)

Timothy Clack

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

Barry Cunliffe

Atlantic Europe in the Metal Ages (AEMA): Questions of shared language (Arts and Humanities Research Council)

Michael Dee

Fractured land – drought and fall of Old Kingdom Egypt (Leverhulme Early Career Fellowship)

Thomas Higham

PALAEOCHRON – precision dating of the Palaeolithic (European Research Council)

Thomas Higham

Colonisation of Europe by modern humans (Leverhulme Trust)

Thomas Higham

Seeing genes in space and time: Woolly mammoth (Natural Environment Research Council)

Lectures and Seminars

Lectures

Maritime Worlds Seminars (*Special Lectures*)

2 May Dr Myriam Seco Alvarez (Real Academia de Bellas Artes de Santa Isabel de Hungria de Sevilla and University of Granada)
Spanish–Lebanese underwater archaeology cooperation in Tyre, Lebanon

3 May Dr Myriam Seco Alvarez (Real Academia de Bellas Artes de Santa Isabel de Hungria de Sevilla and University of Granada)
The Temple of Millions of Years of Thutmosis III at Thebes

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

14 March Professor Evgenij Nikolaevich Chernykh (Institute of Archaeology, Russian Academy of Sciences)
The archaeology of Eurasia in the Early Metal Age; new ideas, new hypotheses

14 May Professor Tristram R. Kidder (Professor and Chairman, Department of Anthropology, Washington University)
Archaeological perspectives on the decline and fall of the western Han Empire

Prehistoric and Early Greece Graduate Seminar (*Special Lecture*)

15 February Pamela Gaber (Lycoming College)
Regionalism in the transition from Bronze to Iron Age Cyprus: the view from Idalion

School of Archaeology Meyerstein Lecture 2013

21 May Professor Nicholas Conard (Universität Tübingen)
Why art evolved and Neanderthals went extinct

Seminars

Ancient Architecture Discussion Group

25 January Stephen Smith (Royal Holloway)
Sacred by design? Double-rounded moulding on Roman altars and podia

1 February Niccolò Mugnai (Leicester)
At the edge of the Roman world: architecture and decoration at Sala (Chellah, Rabat – Morocco)

8 February Amanda Sharp (Oxford)
Figured capitals in the architecture of Augustan Rome

15 February David Scahill (Bath)
Design and innovation in stoa architecture of the late 4th century BC: the South Stoa at Corinth

22 February Janet DeLaine (Oxford)
Things to do with brickstamps: the supply of brick to Trajanic Ostia

1 March Dirk Booms (British Museum)
The Architectural reconstruction of the Imperial Villa at Villa Magna

8 March Stefano Camporeale (École Normale Supérieure, Paris)
“Opus Africanus”: problems of origin, diffusion and uses in the western Mediterranean

3 May Yukiko Kawamoto (KCL)
Colonnades and intercolumniations in Roman domestic architecture

10 May Michael Vickers (Oxford)
The caryatids on the Erechtheum at Athens: questions of chronology and symbolism

17 May Ben Russell (KCL)
Sub-elite marble use and re-use at Pompeii and Herculaneum: the evidence from the bars

31 May Martin Gallagher (Oxford)
Artificiality in entrance façades from Macedonia to Sicily: 340–200 BC

Archaeobotany Discussion Group

15 October Peter Matthews (National Museum of Ethnology, Osaka)
*Investigating the evolutionary and geographical origins of taro, *Colocasia esculenta*, an ancient root crop in Asia, Africa and Oceania*

- 5 November Lindsey Friedman
Dietary complexity amongst hunter-gatherers in Japan
- 12 November Petra Vaiglova (Oxford)
Results of combining plant and animal stable isotopes at Kouphovouo, southern Greece, and extending this approach to other early farming villages in the eastern Mediterranean and western Central Asia
- 3 December Alison Crowther (Oxford)
Documenting modern contamination in an ancient starch lab
- 21 January Jennifer Bates (University of Cambridge)
Combining two complementary datasets for studying Indus agricultural strategies: macrobotanical and phytolith analysis from two rural sites in Haryana
- 4 February Lisa Lodwick (Oxford)
Well considered: interpreting townscape and landscape from taphonomically complex waterlogged plant remains in Silchester
- 18 February Elizabeth Stroud (Oxford)
Archaeobotany of Pre-Pottery and Pottery Neolithic Abu Hureyra: was the archaeobotanical assemblage formed from crop processing or dung burning?
- 4 March Alice Williams (Oxford)
Plants in pits? An investigation into phytolith remains from the village of Burj, north-west India, looking at how past urbanisation may have affected the plant assemblage
- 13 May Frits Heinrich (University of Groningen)
Nitrogen and carbon stable isotope analysis and manuring: agricultural change and economic growth in the Upper Thames Valley from the Late Iron Age to the Early Roman period: the case of Gravelly Guy (with Palaeodiet Group Meeting)
- 20 May Luiseach Nic Eoin (Oxford)
Before the flood: salvage ethnobotany in western Lesotho
- 3 June Ceren Kabucku (University of Liverpool)
*Burning experiments with reeds (*Phragmites australis*) at Boncucku, Konya Plain, central Anatolia: identifying non-wood fuel types in archaeobotanical assemblages*
- 10 June Catherine Longford (University of Sheffield)
The plant economy of Sos Hoyuk, a Kura-Araxes village in northeastern Anatolia

Barbarian Prehistory Seminar Series

- 9 November George Bodi (Institute of Archaeology, Iași)
The scarce and the plenty – on the economic strategies of a Chalcolithic community in the floodplain of the Bahlui River, Iași County, Romania
- 20 November Professor Barry Cunliffe
The Celts – the changing paradigm
- 4 December Ina St George (Oxford)
Colour in the Neolithic
- 22 January Dr Mark Pearce (University of Nottingham)
Perceiving mining landscapes
- 26 February Dott. Ingamar Franz (University of Freiburg)
Pottery manufacture and significance of pottery at Çatalhöyük around 6000 cal. BC
- 5 March Chelsea Budd (Oxford)
Early evidence for agriculture in south-east Europe: stable isotope studies of diet
- 21 May Dr Andrea Dolfini (University of Newcastle)
From ore to metal: technology and social understanding of early metallic substances in central Italy

Eurasian Archaeology Special Seminar

- 7 November Michael Frachetti (Washington University in St Louis)
Civilisations recast: an epigenic understanding of culture, participation and non-uniform institutional complexity

Graduate Work in Progress

- 26 February Tyler Franconi
Settlement and population along the Roman Rhine

Greek Archaeology Group

- 19 October Olympia Bobou (Ashmolean Cast Gallery)
The Temple of Artemis at Messene: a Late Antique display case
- 15 November Jonah Rosenberg (Oxford)
Vein pursuits: sculptors going after blood
- 29 November Stella Skaltsa (Saxo Institute, University of Copenhagen)
Commemorating the dead in Hellenistic Thera: the testament of Epikteta

- 24 January Dr Athanasia Kyriakou (Aristotle University of Thessaloniki)
Exceptional burials at the sanctuary of Eukleia at Aegae (Vergina): the golden oak wreath
- 7 February Dr Elisabetta Pala (University of Cagliari)
The Athenian Kerameikos between VI and V century BC: a view into the Pioneer Group
- 14 February Professor Kenneth Sheedy (Macquarie University)
The Neisos Gem: Alexander as Zeus?
- 7 March Professor Michael Vickers (Oxford)
The Oxford–Batumi Pichvnari Expedition: a Greek emporium on the Black Sea coast of Georgia
- 25 April Dr Melissa Veters (Leicester)
Mycenaean terracotta figurines in settlement contexts – from refuse patterns to ritual practices? Thoughts on the archaeology of religion based on case studies from Tiryns
- 9 May Dr Manolis Manoledakis (International Hellenic University, Thessaloniki)
Early Greek presence in the Black Sea
- 23 May Professor James Whitley (Cardiff)
The material entanglements of writing things down: agency and the origins of the Greek alphabet?
- 6 June Dr Senta German (Ashmolean Museum)
A consideration of the role of the internet in combating the illicit antiquities trade
- 13 June Nathan Badoud
The Piombino Apollo reconsidered
- 6 February Erik Carlsson-Brandt Fontan
*Roman coastal economy in northwestern Iberia: *Uillae maritimae*, *cetariae* and *salinae**
- 13 February Elsbeth Van Der Wilt
Thonis-Heracleion: a perspective on a customs office in the 4th century BCE
- 20 February Alkiviadis Ginalis
The Byzantine port of Demetrias, Greece
- 27 February Dr Jon Henderson (University of Nottingham)
The Pavlopetri Underwater Archaeological Project: excavating and recording a submerged Bronze Age city
- 6 March The Atlantic and the Mediterranean half-day seminar
- 15 May Rod Stead (University of Southampton)
Balangay boats and the elusive caracoa: maritime archaeology in southeast Asia
- 22 May Professor Robert L. Hohlfelder (University of Colorado)
Searching for ancient shipwrecks off Greece: developing a protocol for deep-water survey
- 29 May Jennifer Craig (McGill University)
Navigation tools analysis – what is required in an interpretive spread sheet and how does that information transfer to an international database?
- 5 June Giles Richardson (Oxford)
Recreational archaeology? Sport divers and maritime research in the UK – a personal reflection
- 12 June Professor David Blackman
Studying ancient shipsheds

Maritime Worlds Seminars

- 17 October Dr Peter Matthews (National Museum of Ethnology, Osaka)
Were plaited pandanus leaf sails an early model for woven lateen sails (cotton or hemp) in the Indian Ocean?
- 14 November Brian Fahy (Oxford)
Holistic shipwreck narratives in medieval southeast Asia
- 28 November The Indo-Pacific World half-day seminar
- 23 January Ignacio Crespo Lineiro (ARGOS SL)
Archaeology of maritime trade in XVIth century Europe: Xove's shipwreck
- 30 January Carlos Cabrera Tejedor
Evidence from the ancient port of Hispalis

Medieval Archaeology Seminar

- 15 October Chris Scull
Saxon Rendlesham re-visited
- 12 November Alice Blackwell
Northernmost Northumbria and its neighbours: reassessing Anglo-Saxon small finds from Scotland
- 26 November Paul Booth (Oxford Archaeology)
'Roman' and 'Anglo-Saxon' settlements and burials at Horcott, Gloucestershire: continuities and discontinuities on the Thames Valley gravels

- 21 January Oliver Harris
Places past and present: the Ardnamurchan Viking boat burial
- 4 February Mark McKerracher
Mid Saxon agriculture reconsidered
- 18 February Jane Harrison
Building mounds: Viking-Age coastal settlement in the Orkney Islands and the North Atlantic, c.800–1200 AD
- 4 March Robin Fleming
Women, children and hard-working men in fifth-century Britain

Oxford Centre for Asian Archaeology, Art and Culture Seminar Series

- 6 November Dr Yijie Zhuang (Oxford)
In search of ancient cultivated soils in north and south China: a geoarchaeological approach
- 13 November Dr Valerie Jurgens (SOAS)
The Karlbeck Syndicate 1930–1934 – an interesting collector's consortium of Chinese archaeological objects dating from China's Bronze Age period
- 20 November Professor Yasuhiro Taniguchi (Kokugakuin University, Japan)
Why did pottery use begin in Pleistocene Far East?
- 13 February Dr Peter Hommel (Oxford)
Changing clay: hunter-gatherers, pottery and the significance of choice at the eastern edge of Siberia
- 20 February Professor Hirofumi Kato (Hokkaido University)
Ainu ethnohistory from the archaeological perspectives
- 27 February Professor Jianjun Mei (University of Science and Technology, Beijing)
The painted bronze waterfowls from the Mausoleum of the First Emperor of Qin: manufacturing technologies and their implications
- 4 March Professor Bryan Hanks (University of Pittsburg)
Late prehistoric lifeways in the central Eurasian Steppes: untangling multivariate processes and long-term rhythmic social transformations

- 12 March Professor Evgenij Nikolaevich Chernykh (Institute of Archaeology, Russian Academy of Sciences)
The nomadic cultures of the Eurasian Steppe Belt and the bridge between East and West
- 15 May Ms Rebecca Beardmore (UCL)
Late Bronze to Iron Age transitions in Semirech'ye, Kazakhstan: insights from phytolith analysis
- 22 May Dr Sascha Priewe (British Museum)
The transmission of religion in late Neolithic China
- 29 May Professor Hitoshi Fukase (School of Medicine, Hokkaido University)
Population history of the modern Japanese from the perspective of physical anthropology

Oxford University Archaeological Society

- 15 October Dr Martin Henig (Oxford)
The mystery of the Brading mosaics
- 22 October Paul Booth (Oxford Archaeology)
Roman landscapes for the Upper Thames Valley
- 5 November Jack Carlson
Imperial power and the imperial tombs of Rome and Qin-Han China
- 12 November Professor Kevin MacDonald (Institute of Archaeology, UCL)
Coincoin: a decade of historical archaeological research on a Louisiana Creole family and their slaves
- 14 January Dr Matthew Davies (McDonald Institute, Cambridge University)
Why archaeology is important in Africa
- 28 January Roger Thomas (English Heritage)
Mapping the towns: English Heritage's urban survey programmes
- 11 February Professor Mark Robinson (Oxford)
The environmental archaeology of a peristyle garden at Pompeii
- 18 February Sam Derbyshire (Oxford)
'Ethno-archaeology in the 21st century' – directions over the past 60 years, focusing particularly on eastern and western Kenya
- 25 February Natasha Rees (Oxford)
The great eolith debate
- 13 May Elizabeth Brophy (Oxford)
Placing Hellenistic royal statues in Egypt

3 June Rachel Hesse (Oxford)
Roman sacrifices from a zooarchaeological perspective

Palaeolithic and Quaternary Seminar

11 October Ciprian Ardelean (University of Exeter)
Early human occupation, climate change, Pleistocene–Holocene transition and more dilemmas: pioneering date from central-northern Mexico

25 October Bob Kelly (University of Wyoming)
A 10,000-year record of continuous climatic impact on human foraging populations in the western US

8 November Nick Ashton (British Museum)
Conquering the cold: the earliest humans in northern Europe

15 November Ignacio de la Torre (UCL)
The Oldowan to Acheulean transition in East Africa: insights from new research at Olduvai Gorge (Tanzania)

22 November Laura Basell (Bournemouth University)
Human evolution at the headwaters of the Nile

17 January Simon Underdown (Oxford Brookes)
The Cattedown Bone Caves: rehabilitating a Victorian archaeological treasure

24 January Rob Dinnis (British Museum)
Recent research on the Upper Palaeolithic of Wales

31 January William Davies (University of Southampton)
Fifty shades of mobility and behavioural modernity: rejecting the ‘sapient paradox’

7 February Rachel Bynoe (University of Southampton)
The great fossil mine of the southern North Sea: exploring the potential of submerged Palaeolithic archaeology

14 February Michael Pante (UCL)
The carnivorous feeding behaviour of early Homo at Olduvai Gorge, Tanzania

28 February Matt Pope (UCL)
Ice Age Island: new views on the human occupation of the Channel island of Jersey

7 March Terry Hardaker (Ashmolean Museum)
Exploring Namibia’s Palaeolithic potential without a trowel

25 April Professor Danielle Schreve (Royal Holloway, University of London)
Wolves and wildcats: surviving the end of the Pleistocene in Somerset

2 May Professor Stephen Oppenheimer (Oxford)
Out of Africa: when, which way and how many exits

9 May Dr Alex Pryor (University of Cambridge)
Processing and consumption of soft plant tissues at Dolni Vestonice II, 25,000 years ago

16 May Dr Eleanor Scerri (University of Southampton)
Transcending symbolism: the evolutionary dynamics of population differentiation

30 May Professor Christopher Henshilwood
Tracing the origins of behaviourally modern Homo sapiens in southern Africa

6 June Dr Mike Morley (Oxford Brookes University)
Middle and Upper Palaeolithic palaeoenvironments of the western Balkans, and implications for hominin populations: evidence from Crvena Stijena Rockshelter, Montenegro

13 June Dr Hannah Russ (Oxford Brookes University)
Fish and fishing during the Upper Palaeolithic in western Europe

Prehistoric and Early Greece Graduate Seminar

15 October Garth Gilmour (Oxford)
The Sanctuary of the Paired Deities at Idalion, Cyprus

13 November Vicky Vlachou (Université Libre de Bruxelles and University of Athens)
Aspects of funerary behaviour at Marathon during the Geometric period

27 November Alexandra Alexandridou (Université Libre de Bruxelles)
Exploring the early settlement of Kephala on Skiathos. Preliminary observations based on the pottery evidence

22 January Rik Vaessen (University of Sheffield)
Thinking about ceramics: some reflections on ceramic change and continuity on the west coast of Asia Minor at the beginning of the Early Iron Age

5 February Philip Johnston (Harvard University)
Economic activities and colonial contexts in the western Mediterranean 800–500 BC

- 19 February Reine-Marie Bérard (Université Paris 1 Panthéon-Sorbonne)
Megara Hyblaea: funerary practices in the necropolis of an early colonial Greek city
- 5 March Artemis Georgiou (Archaeological Research Unit, University of Cyprus)
Made to impress: Late Cypriot cylinder-seal reliefs on pithoi and their economic, social and political associations
- 30 April Tobias Krapf (University of Basel and Sorbonne, Paris)
The northern Aegean during the Late Bronze Age: a view on the pottery of Macedonia and Albania
- 14 May Giorgios Bourogiannis (Medelhavsmuseet, Stockholm)
The Ayia Irini Project at Medelhavsmuseet, Stockholm. Looking beyond the figurines
- 28 May Katrin Bernhardt (Österreichische Akademie de Wissenschaften, Vienna)
Cosmopolitans and hillbillies – on the regional, restricted Mycenaean influence on Crete in LM IIIA–B
- 11 June Alexander Vacek (Oxford)
The Al Mina ware in the light of the latest archaeometric results
- RLAHA Seminar Series**
- 10 October Michael Dee (RLAHA)
Dating the rise and fall of the first Egyptian state
- Peter Bray (RLAHA)
Its life but not as we know it: metallurgical datasets and theoretical archaeology
- 17 October Cassian Bramham-Law (RLAHA)
Cladoceran subfossils: indicators of Lateglacial environmental and ecological change
- Alison Crowther (RLAHA)
Sealinks in East Africa: 3 field seasons in 30 minutes
- 24 October Jassim Happa (Department of Computer Science, University of Oxford)
Computer graphics for art history and archaeology applications
- 31 October Angela Vaughan (RLAHA)
Taforalt: vampire goats & zombies (or, Diet and environment at Taforalt, Morocco: an isotope study)
- 7 November Nivien Speith (University of Bradford)
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