

PAST

THE NEWSLETTER OF THE PREHISTORIC SOCIETY



Registered Office: University College London, Institute of Archaeology, 31–34 Gordon Square, London WC1H 0PY

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

Beyond Lake Villages in the Neolithic of Austria

Waterlogged archaeological sites offer exceptional insights into prehistoric life. Excellent preservation conditions for most organic materials enable archaeological research to deploy its full interdisciplinary arsenal and gain a deeper understanding of socio-economic and ecological conditions. The waterlogged sites on the shores of the Alpine lakes and in the wetlands of the perialpine zone are among the most famous and evocative. Currently, about a thousand sites dating to the time span 5000–500 BC are known from around the Alps. In 2011 UNESCO World Heritage status was accorded to 111 of them, spread across six different modern nation states.

Nearly 30 waterlogged lacustrine sites are known from Austria. Most are scattered around the northern Alpine lakes of Upper Austria (Attersee, Mondsee, Traunsee), with two south of the Alpine range (Keutschacher See, Hafnersee). Chronologically, they fall within a broad time span from approximately 4200 to 500 BC. The most important group are the 23 sites in Upper Austria, most of which are associated with the archaeological cultural entity known as the *Mondsee Group* (4th millennium BC). It is known for its distinctive, white encrusted ceramics and early rich evidence for copper casting.

The Austrian sites were discovered shortly after those in Switzerland, but modern transdisciplinary research has

been limited. The conferral of World Heritage status was an important impetus to the development of a network of national and federal institutions (including the University of Vienna, the UNESCO World Heritage Management Association ‘Kuratorium Pfahlbauten’, the University of Innsbruck, the Upper Austrian State Museum and the Natural History Museum Vienna) which have begun several collaborative projects to address these shortcomings.

Excavating the hilltops

Since 2014, the University of Vienna and the Ludwig Boltzmann Institute for Archaeological Prospection and Virtual Archaeology (LBI ArchPro) have been conducting archaeological fieldwork around lakes Attersee and Mondsee. The aim is to investigate settlement history and land use in the hinterlands of the lakes within a diachronic perspective. One major success of our excavation campaigns was the discovery of a hilltop settlement dating to the 4th and early 3rd millennium BC just north of Lake Attersee at Lenzing. For the first time in Austria, we have knowledge of a hinterland settlement contemporaneous with the lakeshore sites. Excavations are currently taking place on the fortified multi-period hilltop site of Buchberg-am-Attersee, whose main phase appears to extend from the Middle Bronze Age to the Iron Age. Earlier phases are expected.



View over Lake Attersee. © K. Kowarik



Typical Mondsee pot
© Museum Mondsee /
OÖLM

Excavating underwater

The underwater sites in the lakes Attersee, Mondsee, Keutschacher See and Hafnersee have been subjected to repeated underwater survey in recent decades. In 2015, the Federal State of Upper Austria (which has scheduled a major exhibition on lakeshore settlements for 2020) and Kuratorium Pfahlbauten initiated a five-year research programme (the *Zeitensprung* project) that aims to gain new insights into settlement structure and history, as well as human–environment interactions. It includes excavations and an extensive interdisciplinary programme. As a pilot project, a part of the Seewalchen site at the northern end of Lake Attersee has been excavated and was radiocarbon dated to 3800–3500 cal BC, thus associating it with the Mondsee Group. Evidence for an older settlement phase (4200 BC) nearby was also found, and there are indications for human activity in the 7th millennium BC.

Since 2016, the excavations have focused on another 4th millennium site, Weyregg II on the eastern shore of Lake Attersee, which is well protected by sediment and undisturbed. The research history of lake villages in Austria means we lack stratigraphic context for the majority of Mondsee Group artefacts currently known; thus one of the aims of the Weyregg II excavation is to establish a highly resolved stratigraphy of this multi-phase site. The new excavations will also provide typo-chronological information and will be complemented by archaeobotanical, archaeozoological, sedimentological and palynological analysis.



Excavation under water at Lake Attersee, Seewalchen I. © H. Pohl, palafittes.

Going Beyond Lake Villages

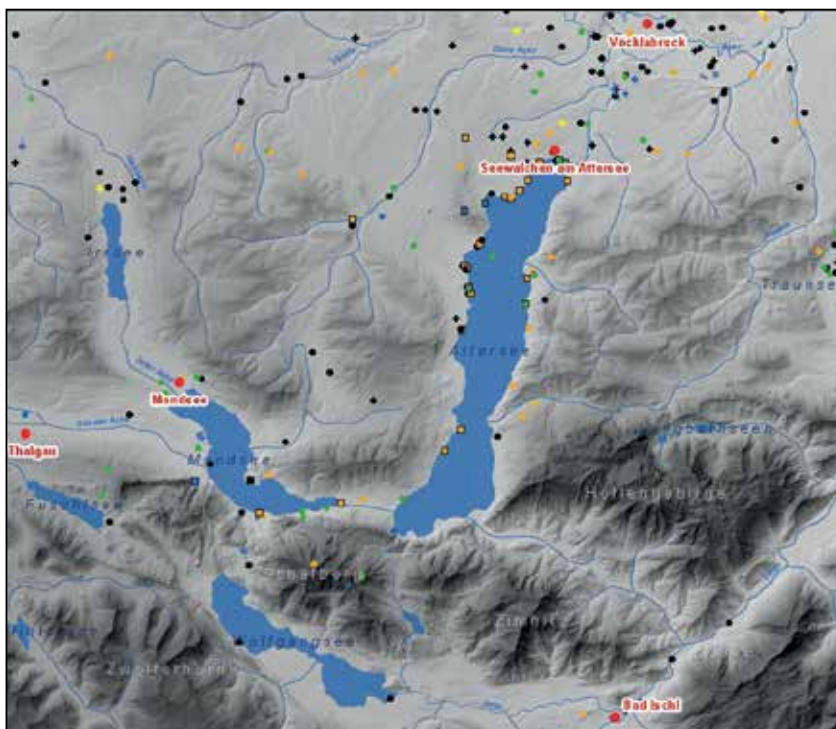
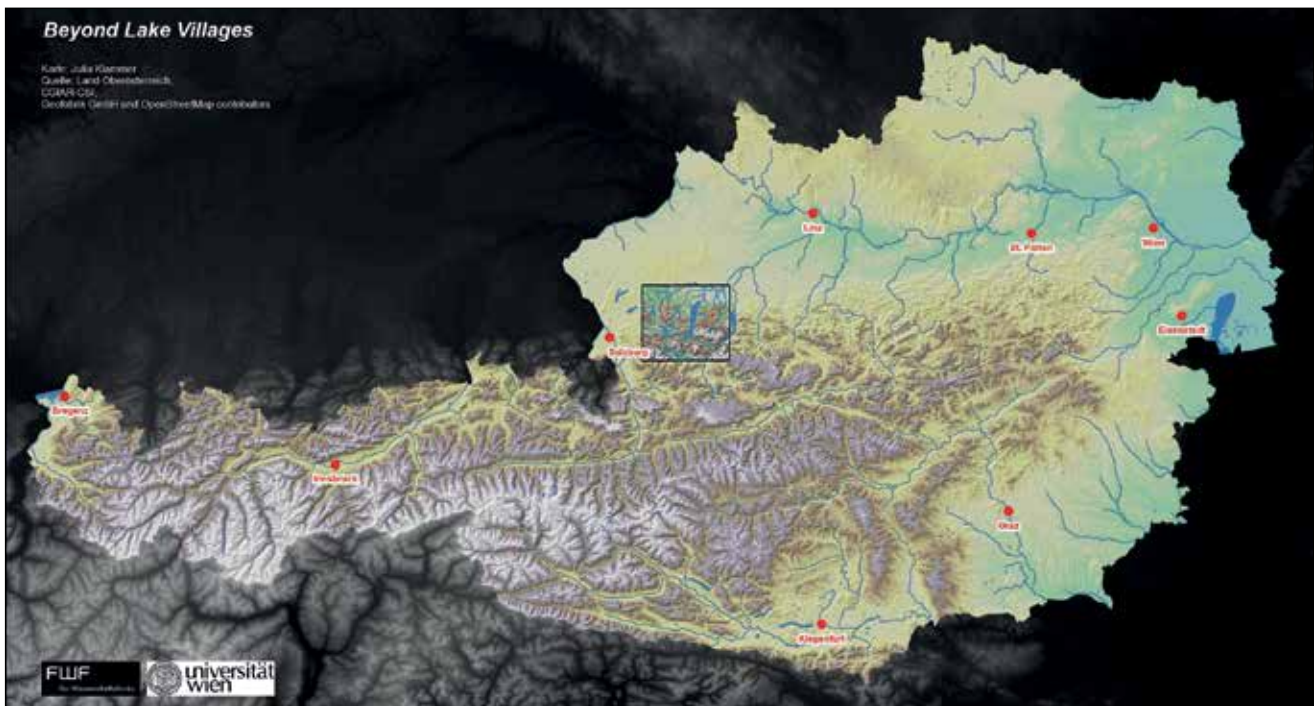
The Beyond Lake Villages project (jointly funded by the Swiss, German and Austrian national funding agencies, SNF, DFG and FWF, see also <https://beyondlakevillages.wordpress.com/news/>) focuses on the 4th millennium BC as a time of fundamental change in Europe's early agrarian societies, while also considering developments in a broader time frame. Since 2015, an international team has been establishing a highly resolved Holocene palaeoenvironmental record, enhancing our understanding of landscape in terms of spatial networks, and integrating palaeoenvironmental data sets with archaeological data in three research areas: the Bernese Swiss Plateau; Lake Constance and the Federsee region in southern Germany; and Attersee and Mondsee.

The investigation of sedimentary archives is a central aspect of our work. We focus on climatic and anthropogenic impacts on past ecosystems, as well as on prehistoric agricultural systems and subsistence strategies, through reconstructing past forest use and tree/shrub diversity and regeneration cycles. Different types of sedimentary archives have been targeted. In June 2016, a sediment core 14 m long was taken from Lake Mondsee at a water depth of 64 m. The stratigraphy is currently being analysed for geological, sedimentological and biological proxies. The first results from Mondsee suggest the use of fire *c.* 6000–5000 cal BP, associated with the earliest pastoral activities and cultivation of cereals in the area, and coinciding with eutrophication of the lake (indicated by the presence of *Tetraedron cf. minimum*).

Attention is also being paid to the analysis of lake sediments within archaeological contexts. Short (< 1m) stratigraphies, including cultural layers reflecting past human and livestock activities, were recovered during the 2016 excavation of Weyregg II. Systematic palynological investigations are currently under way, revealing possible short- and long-term sedimentary hiatuses before and after the establishment of the Neolithic village, which suggests low lake water levels; a strong presence of cereal remains, possibly hinting at very local processing and food preparation; and fungal spore types that highlight the presence of extensive amounts of livestock/human faeces within the cultural layers.

A landscape perspective

One major goal is to understand land use at a landscape level. Land use in the direct vicinity of the lakeshore settlements has been intensively investigated, but much less attention has been paid to the broader landscape. We have conducted surveys using LiDAR and aerial photography, with a developing geophysics programme. These have allowed us to identify a range of potential archaeological features in the hinterland of the lakes. Three areas around lakes Mondsee and Attersee were chosen for field survey and geophysical prospection to enhance our understanding of the full range of surviving features and to assess preservation conditions. We are now using GIS methods such as cost surface calculations and viewshed analysis, but also looking at site location choices. A Master's thesis is currently focused on building a predictive model for the lakeshore sites. This will be tested



Location of *Beyond Lake Villages* research area (above) and location of currently known sites (left). Yellow: Neolithic; green: Bronze Age; blue: Iron Age; black: prehistoric (unspecified); dots signal unspecified sites, squares signal settlement sites, crosses are undated graves. © BELAVI

by underwater survey. A further Project, ‘OÖ ArchPro Pfahlbauten’, is currently getting under way to develop the technology for extensive high-resolution underwater archaeological prospection. We hope that taken together, these investigations will shed new light on the Neolithic of the Mondsee region and deepen our understanding of human–environment interrelations in the 4th millennium BC in the circumalpine area.

Acknowledgements

We would like to thank the following project partners: The Federal State of Upper Austria, the Mayr-Melnhof estate,

the Attersee and other local councils, the University of Bern/Oeschger Center, the Landesamt für Denkmalpflege Baden-Württemberg, LBI ArchPro, the Central Institute for Meteorology and Geodynamics (ZAMG), and the Universities of Vienna and Innsbruck.

Kerstin Kowarik (University of Vienna; Kerstin.kowarik@univie.ac.at), Jakob Maurer, Henrik Pohl, Cyril Dworsky, Jutta Leskovaar, Klaus Löcker, Helena Seidl da Fonseca, Julia Klammer, Christoph Daxer, Michael Strasser, Marie-Claire Ries, Benjamin Dietre, Jean Nicolas Haas (University of Innsbruck; Jean-Nicolas.Haas@uibk.ac.at), Immo Trinks, Timothy Taylor (University of Vienna; Timothy.taylor@univie.ac.at)

Well, well, well... getting to the bottom of the Belle Tout Shaft

Over a century ago a dished hollow had been noticed nestling against the valley entrenchment at Belle Tout on the Sussex cliffs near Beachy Head. In 1912, H.S. Toms identified it as a pit, and Richard Bradley recorded it during his 1968–9 excavation at Belle Tout. Shortly after, a cliff fall early in 1971 conveniently sectioned the feature, exposing a chalk-cut shaft about 43 m deep from the top of the cliff and continuing into the chalk wave-cut platform. It was a remarkable piece of engineering. Below the 10–12 m diameter weathering cone, it was vertical-sided, almost perfectly circular, with a diameter of about 1.7 m only tapering about 9 m above the foot of the cliff. A series of foot holes and at least two types of tool mark were recorded. Excavation in 1975 showed it to go at least 0.8 m into the wave-cut platform and below a layer of festering and stinking seaweed, beach cobbles and sand was a black, silty, waterlogged deposit with some organic remains, including fibrous material, twigs and wood shards.

The shaft was an attraction; and numerous notable local archaeologists visited, took photographs, made their own notes and have their own recollections ... but no concerted formal attempt was ever made to fully record, sample or excavate it in any way.

What was the shaft?

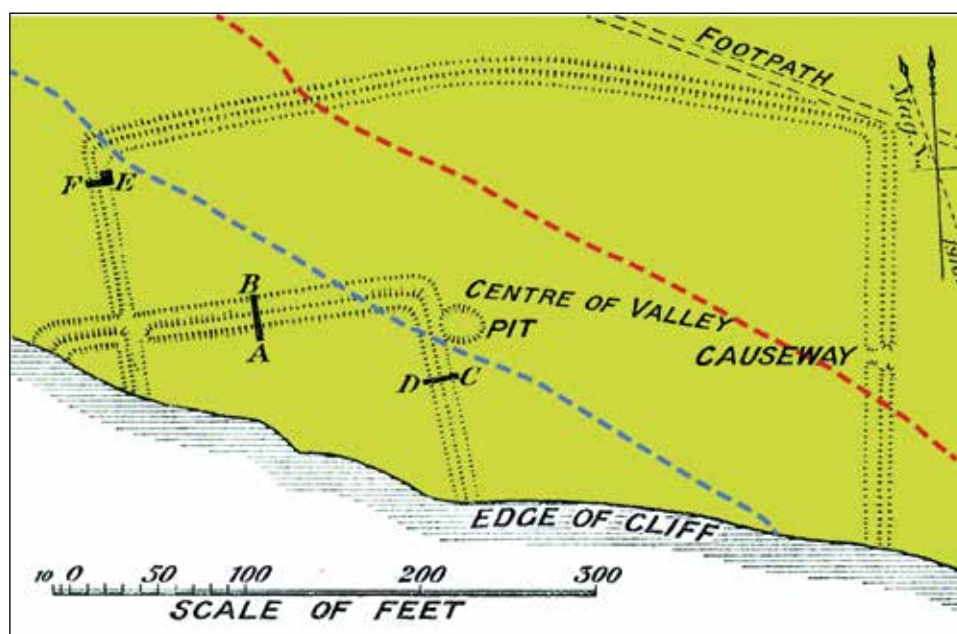
The function of the shaft is not immediately clear, but it has strong parallels with the Bronze Age well at Wilsford, south of Stonehenge, which contained waterlogged oak bucket bases, alder bucket staves, rope and evidence of a covering canopy. Certainly the bottom of the Belle Tout shaft, virtually at the base of the cliff, was waterlogged; it was single-handedly part-excavated by the late Arthur Sayers and about 1 m in diameter. A bucket of salty, waterlogged silt sat in Arthur's house for years. I shared the bedroom with it for nearly 9 weeks in 1980 when I lodged there and,

at Arthur's insistence, did take some souvenirs in the shape of wet, slimy, twisted or plaited twigs, a couple of pieces of flat wood several inches square (waterlogged bucket staves or bases?), some small twigs, some roundwood rods (c. 6 mm diameter) and a small jar of the odorous silt. Some of the wood was later identified as hazel (*Corylus*), alder (*Alnus*) and hawthorn (*Crataegus*).

What date was the shaft?

Perhaps one of the most enigmatic problems is the date of the shaft. Richard Bradley has suggested that a series of footholes towards its base were possibly cut by a metal pick and a metal blade. Later, a Middle Bronze Age body sherd was found about 20 m down. However, there is no reason why the shaft could not be Iron Age, Roman, Saxon, Medieval or even Post-medieval. It cut the southern valley entrenchment at Belle Tout, thought to be of Beaker date. The shaft remained exposed in the cliff for many years and finally collapsed c. 1984. Its base was buried by piles of chalk rubble; later it was buried by metres of flint cobbles. And there it lay for three decades.

The significance of a potential prehistoric, Roman or later well base and all it could hold, including its accompanying palaeo-environmental record, was in danger of being lost. So I decided to retrieve it. It now resided on the wave-cut platform, probably between about 10 and 30 m from the current cliff line. Finding it, however, was a challenge: it required repeated visits to a landscape constantly changed by tides and storms bringing in and stripping out cobbles and boulders. A series of local, energetic volunteers from the NT Seven Sisters Archaeology Project, CITIZANS project and South Downs Research Group were unleashed to search for it. If we could re-locate the base of the shaft, we could explore its dark muddy secrets and provide a date, plus a regionally important palaeo-environmental record.



Toms' 1909 plan showing the 'pit' in the centre of the valley. Red line indicates approximate location of cliff in 2015, and blue line in 1968.



The Belle Tout shaft as exposed in the 1970s, with the shaft and its fill (left), and foot holes (right) (Photos: David Freke 1976).

Between October 2015 and February 2016, the band of volunteers searched and scoured the foreshore. After storm Imogen in February, the crew met success, finding an almost perfectly circular feature filled with beach pebbles, now some 15 m from the cliff. Their exhaustive searching had found the shaft. Part one done.

To excavate this was potentially difficult (tides) and very costly, and would be inappropriate without a full research design, specialist team and full funding. Our next step, therefore, was to lift off recent pebbles, expose the precious archaeological deposits, plan them and auger the shaft base to give an idea of the extent of the deposits and potential goodies they might contain. A limited number of volunteers were enlisted, and Prof Martin Bell joined us from Reading to help. The team carefully exposed the shaft, removed the modern beach pebbles... and found the base of the fully scoured-out shaft at only 20 cm depth – we were too late! Apart from modern debris including a 19th–20th century washer or rove and a .303 cartridge case, which had not left

a stain on the base of the shaft, six other copper alloy and one ferruginous stains were present. These are more likely to represent older objects lying against the sides and edges of the shaft and subsequently removed by the tide. They are currently being analysed by Dr Chris Carey (Brighton University). A number of tool marks were cast in dental alginate and are being studied by Martin Bell.

The valley entrenchments

Although the shaft itself is now gone, the area still warrants further examination, as two sub-rectangular enclosures are sited in the shallow dry valley. Although the larger, northern enclosure (c. 64 × 37 m) overlies the southern one, both have generally been considered to belong to the same archaeological period. Toms' excavations in 1909 trenched both enclosures and indicated the northern at least to be Beaker. However, David McOmish has suggested that the enclosures may be medieval in date. While both entrenchments are subrectangular and sited in the valley



Above: The team discover the infilled shaft in April 2016.

Right: Martin Bell and Mike Allen recording the excavated shaft.



bottom, they are distinctly different in size, shape and construction.... and, therefore, presumably date? The southern enclosure has straight sides marked by a bank and external ditch, the northern one, excavated by CG Archaeology last summer, has an internal ditch and one distinctly bent or kinked side – clearly, it is a different type of field monument. So are they really both of the same archaeological period?

Although the southern rectilinear valley entrenchment has been entirely lost to cliff fall, the shaft did cut the enclosure ditch. A radiocarbon date from the base of the shaft will therefore not only date the shaft, but also provide a firm *tpq* for the lost enclosure. The Prehistoric Society has contributed significant towards ^{14}C dating (results pending) and working on the archive. Watch this space.

Mike Allen, Allen Environmental Archaeology & Bournemouth University (aea@themolluscs.com)

What killed the Neanderthals? Understanding environmental change during the Middle to Upper Palaeolithic transition in northern Spain

The extinction of the Neanderthals and their subsequent replacement by Anatomically Modern Humans (AMH) during the Middle–Upper Palaeolithic transition (*c.* 40,000 years ago) shaped the course of evolution forever. Neanderthals are the close relatives of AMH, and their demise enabled the human race to develop and thrive. But why did Neanderthals become extinct?

A host of factors have been proposed, including dietary differences between Neanderthals and AMH, technological inefficiency of Neanderthals, imbalances in demography, competition between the species, cognitive differences, declines in genetic diversity and environmental shifts. The extinction of the late Neanderthal populations coincides with several global-scale changes in environment, including a series of warming and cooling events during the Middle–Upper Palaeolithic transition, which may have been a contributing factor.

Identifying environmental change over these long timescales can be a challenge. On a broader scale, climatic trends have been identified from Greenland ice cores, where oxygen isotopes have recorded changes in temperature over tens of thousands of years. However, while ice cores provide an indication of overarching changes they do not reflect the localised conditions experienced by humans inhabiting cave

sites in parts of Europe further afield, and other methods must be sought.

Environmental proxies such as pollen, microfaunal remains and sediments can inform on past ecological conditions, but when dealing with an archaeological record that is 40,000 years old many of these indicators are not preserved, suffer from taphonomic biases that can cause gaps in the record, or were not recovered at all during older excavations. Luckily, stable isotope analysis of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ from bone collagen of animal bones, which are routinely found, can also be used to understand past environments. The Cantabrian region is an ideal test case.

The Cantabrian region on the northern coast of Spain hosts many rich Middle and Upper Palaeolithic transitional cave sites, including El Castillo, El Mirón, Labeko Koba and La Viña, among others. The region contains extensive evidence of Neanderthal occupation, followed by AMH activity in caves represented by stone and bone tools, animal bone assemblages, etc. The region was clearly an important location for both human species and represents a unique opportunity to understand the factors that contributed to Neanderthal extinction, and especially the localised environmental conditions they experienced.

This research is part of a larger investigation undertaken at the International Institute of Prehistoric Research in Cantabria (IIIPC), University of Cantabria (for funding, see Acknowledgements), exploring human responses to environmental change during the Middle–Upper Palaeolithic transition in the Cantabrian region and central Serbia, both of which are refugia for late Neanderthal populations. The research is an international collaboration with researchers in Spain, the UK, Serbia, Germany and Canada.

One of the key aspects is to use bone collagen $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ stable isotope analysis of hunted ungulate remains to characterise past environments experienced when Neanderthals, and subsequently AMH, occupied the sites. This is the first time that this technique has been used on animals from this period and region.



The mountainous Cantabrian region holds a wealth of Middle and Upper Palaeolithic sites, making it an ideal region for understanding the responses of late Neanderthals and AMH to environmental changes (Photo: J. Jones).

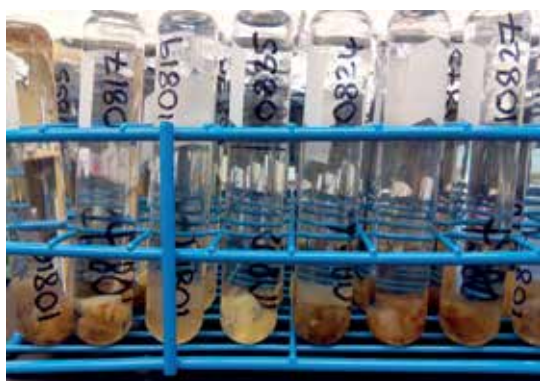


Sampling animal bones for analysis in the museum. Only a small piece of bone (less than 1 g) is required (Photo: L. Agudo Pérez).

Analysis of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in bone collagen is a technique developed in the 1980s to reconstruct past diets. The body uses carbon and nitrogen in the food we consume, leaving a semi-permanent record of diet in bone tissue, which represents the last 10–15 years of life of a human (or almost the entire life of an animal). The technique tells us about foods that were directly consumed by an individual (as opposed to indirect indicators, such as animal bone assemblages). This makes $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ analysis very valuable for exploring past diets. In humans the technique has been able to determine that Neanderthals ate a more meat-rich diet, whereas AMH consumed a more diverse diet, including fish, plants and meat.

More recently, the technique has been used to investigate animal diets. Plants growing in an environment take on varying amounts of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ depending on the conditions they experience, such as how wet or cold the environment is and the amount of tree cover, amongst others. Animals consuming these plants take on their isotopic signatures. Humans then hunt the animals as food and deposit the bones in archaeological sites. By analysing the $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values in the bones it is possible to extrapolate what the environment was like when these animals were alive. When used alongside more traditional environmental proxies, the technique produces very powerful environmental reconstructions, directly related to the environment in the vicinity of human occupation sites at the time.

In the Cantabrian region, red deer are the species most commonly found on archaeological sites, allowing them to be consistently compared between chronological periods. We use bones with evidence of anthropogenic alteration, such



Small bone pieces demineralising in acid, part of the process to extract collagen from the bones to analyse for carbon and nitrogen stable isotopes (Photo: J. Jones).

as cut marks from meat removal and fresh fractures from marrow extraction, to ensure that all evidence of climatic and environmental change can be directly correlated to periods of human activity. By comparing the bones deposited during different periods by Neanderthals and AMH it is possible to determine how the environment changed in between these times. Specifically, the project is addressing the following questions:

- How did the climate and environment in the Cantabrian region change throughout the Middle–Upper Palaeolithic transition?
- How did Neanderthals and AMH respond to the environmental changes?
- To what extent did climatic fluctuations contribute towards the extinction of the Neanderthals?

Initial results show that there were shifts in the environment across the transition, with the climate becoming warmer when AMH first appeared. A similar pattern was observed in neighbouring south-west France at this time, suggesting that this might have been a trend experienced more widely in Europe. Results also suggest that in the eastern part of the Cantabrian region, animals within both Neanderthal and AMH cultural levels fall into two groups, one with higher and one with lower $\delta^{15}\text{N}$ values. This could suggest that animals were being hunted from distinctly different parts of the landscape. Another interpretation is that this represents climatic oscillations within these archaeological levels, and this possibility is being explored further as a hypothesis.

In summary, there were climatic and environmental changes across the Middle–Upper Palaeolithic transition. It is likely that whilst the climate played an important role in the extinction of the Neanderthals, it was one of a combination of many factors. Further research is needed to explore changes in dietary behaviour in response to these environmental oscillations to investigate whether differing subsistence strategies of Neanderthals and AMH played a role in the former's ultimate demise.

Acknowledgements

This research has been supported by the European Commission through FP7-PEOPLE-2012-CIG (322112), by the Spanish Ministry of Economy and Competitiveness (HAR2012-33956) and University of Cantabria grants awarded to Dr. Ana B. Marín-Arroyo. ABMA has a contract of the Ramón y Cajal Research Program (RYC-2011-00695) and JJ is funded by a Marie Skłodowska-Curie individual fellowship. The analytical research was undertaken at the Max Planck Institute for Evolutionary Anthropology and is funded by the Max Planck Society. Many thanks to the Museum of Prehistory in Cantabria (MUPAC), the University of Oviedo and the Centro de Patrimonio Cultural Mueble de Gipuzkoa (Gordailua) in Guipúzcoa for facilitating the sampling of animal bones.

Jennifer R. Jones (jonesjr@unican.es) and Ana B. Marín-Arroyo, Instituto Internacional de Investigaciones Prehistóricas de Cantabria (IIIPC), Universidad de Cantabria

Notice of the 2017 (for 2016) Annual General Meeting

The AGM will be held on Saturday 24th June 2017 at 4.25pm at the University of Southampton

Agenda

1. Minutes of the Annual General Meeting held at Edinburgh University on 4th June 2016 (papers available from the website or from the Honorary Secretary)
2. President's report
3. Secretary's report
4. Editor's report and R. M. Baguley Award
5. Treasurer's report
6. Subscriptions
7. Report on meetings, study tours and research days
8. Future composition of Council
9. Awards
 - Collections Study Award
 - John and Bryony Coles Award
 - Research Grants (Bob Smith Award and Leslie Grinsell Award)
 - Conference Fund
10. Election of Officers and Members of Council

The meeting will be followed at 5.00pm by the 26th Europa Lecture by Helle Vandkilde (University of Aarhus): 'Small, medium, and large: Globalization perspectives on the Afro-Eurasian Bronze Age'. The lecture will be followed by a wine reception.

Registered Office: University College London, Institute of Archaeology, 31–34 Gordon Square, London WC1H 0PY.

Notes

1. A member entitled to vote at the meeting may appoint a proxy to attend and, on a poll, vote in his or her stead. A proxy must be a member, other than an institutional member.
2. To be valid, an instrument of proxy (together with any authority under which it is signed or a copy of the authority certified notarily or in some other way approved by Council) must be deposited with the Secretary, The Prehistoric Society, c/o Department of Britain, Europe & Prehistory, The British Museum, Great Russell Street, London WC1B 3DG, by 4.30pm on the 13th May 2016.
3. Forms of proxy may be obtained from the Secretary at the above address.

The Prehistoric Society 2016

This report covers the period of January to December 2016.

Meetings and study tours

The Society has continued to fulfil its commitment to reach a wide range of regional audiences and to promote its aims and objectives through a varied and wide range of lectures, conferences and tours throughout Britain. The Society's events continue to represent collaborations with a number of other archaeological bodies and societies. In January joint lectures were given with The Society of Antiquaries and the Devon Archaeology Society. Alex Gibson (University of Bradford and President of the Prehistoric Society) talked on the 'The Bronze Age Neolithic: the reinvention of tradition' in Edinburgh and Aberdeen. Jim Leary talked on 'Recent work in the Vale of Pewsey' in Exeter. In April, Peter Boyer gave a joint lecture with the London and Middlesex Archaeological Society on the topic of 'Neolithic ditches, Middle and Late Bronze Age enclosures at West Drayton'. In October, Anwen Cooper delivered a joint lecture with the Norfolk Archaeology Society on 'Round barrow relationships: considering the role of round barrows in English landscapes from 1500 BC–AD 1086'.

In October, Ben Elliot delivered the 15th Sara Champion lecture at the Society of Antiquaries, discussing 'Antlerworking practices of the British Mesolithic: materials, identities and technologies within the landscape'. For the fifth year this was successfully combined with the presentation of the Society's

Undergraduate dissertation prize (also covered in this issue of *PAST*). The Society's springtime one-day conference (the first in a series exploring new directions in the landscapes of prehistory) focused on 'The land, the sea and the sky'. A report on the conference, held at the Society of Antiquaries, can be found in *PAST* 83.

In October a very successful joint conference with the Royal Archaeological Institute was held in Carlisle on 'The Neolithic of Northern England'. Another impressive range of tours to sites and excavations were offered, including trips to Must Farm in February, led by Mark Knight, the Vale of Pewsey in July, led by Jim Leary, and the 'People of the Heath' excavations in Petersfield (Hampshire) in September, led by Stuart Needham.

Europa Prize

Professor Peter Wells (University of Minnesota) was the 2016 recipient of the Europa Prize. This year's Europa was based around the theme 'Dynamics of art, design and vision in Iron Age Europe', and was held at University of Edinburgh on the 3rd and 4th of June 2016. The Europa Lecture was preceded by a day conference of lectures largely given by new researchers. The following day's lectures were delivered by speakers invited by the Europa prize winner and the President of the Society. The Society's AGM followed (see below) and the day culminated in the presentation of the Europa award to Prof Wells and his Europa lecture, 'Design

for communication in the Iron Age'. A review of the Europa prize conference appeared in *PAST* 84.

Research Grants

Research grants were awarded to M. Davis (Experimental Iron Age glass making), M. Díaz-Guardamino (Iberian Palaeolithic Art), M. Edmonds (Digitising the Mike Pitts archive), R. Loveday (Geophysical survey in the Midlands and East Anglia), R. Madgwick (Bone analysis at Navan Fort, Northern Ireland), M. Parker Pearson (excavation of a geophysical anomaly at Durrington Walls), R. Williamson (for materials, moulding and casting costs for making experimental Bronze Age Sussex loops), and G. Longhitano (for textile tools research in Copenhagen).

The John and Bryony Coles Award went to N. Sutton for excavations in Papua New Guinea, the Bob Smith Prize to R. Madgwick, and the James Dyer Prize to R. Williamson. The SUERC Award went to K. Cleary (Knowth passage tomb; two dates) and A. Jones (Making a mark: Neolithic objects; one date). The Leslie Grinsell Prize went to Roy Loveday. The newly created Collections Study Award went to D. Cansfield (Brighton & Hove Prehistoric Peoples research project). An award from the conference fund was made to M. Palmero Fernandez to attend the International Congress on the Archaeology of Ancient Near East.

The Annual General Meeting for 2015/16

The AGM was held on Saturday 4th June 2016 at 4.25pm in Edinburgh University, after the 25th Europa Conference and immediately before the Europa Lecture.

The President reported on a very busy, yet successful year, providing details of the Society's core activities, publications, excursions, lectures and conferences. It was noted that subscription rates may need to increase in coming years with due notice to be given to members. The President then thanked all Council and members who have assisted with a range of events during the year. Warm thanks were offered to retiring Officers and Council members Anwen Cooper and Jacqueline Nowakowski. Reports were also given by the Secretary, Managing Editor and Treasurer. The following officers and members of Council were then elected:

President	Dr Alex Gibson
Vice-President	Dr Roy Loveday
Treasurer	Dr Clare Randall
Secretary	Dr Neil Wilkin
Managing Editor/Editor of PPS	Dr Julie Gardiner
Editor PAST	Dr Daniela Hofmann
Editor, Prehistoric Society Research Papers Series	Dr Mike Allen
Book Reviews Editor	Ms Pippa Bradley
Meetings Secretary	Dr Marcus Brittain
Conservation CoOrdinator	Dr Jane Siddell
Council	Dr Andy M. Jones Dr Elizabeth Walker

The Baguley Award

The Baguley Award was presented to Christopher Standish, Bruno Dhuime, Chris Hawkesworth and Alistair Pike for their paper 'A non-local source of Irish Chalcolithic and Early Bronze Age gold' in Volume 81 of the *Proceedings*.

Undergraduate Dissertation Prize

As in previous years, each University department was invited to submit only one dissertation for the Society's Undergraduate Dissertation Prize. The winner was Amy Walsh (Royal Holloway, University of London). The three runners up were Rory Connolly (Institute of Technology, Sligo), Aran McMahon (University of Cambridge) and Alex Alexander (University of Glasgow). Commended dissertations were submitted by Alicia Nunez-Garcia (Edinburgh University); Fergus Hooper (UCL) and Christopher Scott (University of Sheffield). The awards were made after the Sara Champion lecture on the 26th October 2016, at the Society of Antiquaries.

Publications

During 2016, the Society published Volume 82 of the *Proceedings of the Prehistoric Society*, which contained 13 refereed papers covering a range of topics spanning the Neolithic to the Iron Age in Britain, Ireland, continental Europe and the Near East. As usual, three editions of *PAST*, the Society's newsletter, were published during the year.

Advocacy

The Society continued its active role in advocacy in relation to the New Neighbourhood Planning and Infrastructure Bill, continuing concerns regarding the proposed developments at Old Oswestry Hillfort, concerns regarding finds from Banks chambered cairn on South Ronaldsay, Orkney, and Canteen Kopje, a Palaeolithic site in South Africa threatened by mining operations. The Society continued in its attempts to support the inclusion of prehistory in the primary school's National Curriculum by pursuing the goal of including a range of free and trusted teaching resources relating to prehistory and prehistoric sites on the Society website and in providing assistance to teachers.

Membership and administration

Membership of the Society is healthy and continues to rise. The Society's online and social media presence (on Facebook and Twitter) has also developed considerably in the last year, with 2300 followers on Twitter and 8500 on Facebook.

As ever, the Society would not be able to function without a large number of individuals giving freely of their time and knowledge to organise events and to deliver the results of their fieldwork and research. The Society offers sincere thanks to all those who have helped throughout the year, and especially to its administrator, Tessa Machling.

The 3rd Neolithic and Early Bronze Age Research Student Symposium

The 3rd annual Neolithic and Early Bronze Age Research Student Symposium (NEBARSS) took place on the 18th and 19th of November 2016 at the UCL Institute of Archaeology in London. Speakers discussed a broad range of archaeological research into the Neolithic and Early Bronze Age periods and the event provided a platform for postgraduate, independent and early career researchers to present their work in an informal environment. The symposium was organised by UCL PhD students Barney Harris and Robert Kaleta and was kindly sponsored by the Prehistoric Society and the UCL Joint Faculty Institute of Graduate Studies.

The theme of the 2016 symposium was 'Anarchy in the UK?', a playful concept designed to challenge speakers to consider how their work contributes to understanding social change in prehistory beyond linear, evolutionary narratives of increasing hierarchical control. The theme also highlighted the importance of revolutionary shifts within archaeological theory.

The conference commenced on the evening of Friday 18th with a keynote lecture from UCL's Mike Parker Pearson. His presentation, 'Back to the future: contemporary issues in British later prehistory', highlighted an emerging new scientific turn in archaeology, based on Big Data, quantitative modelling, materiality studies, ancient DNA and isotope analyses. His own research on the genetics of Neolithic Bell Beaker communities demonstrated the potential for new analytical technologies to contribute to research questions framed by post-processual archaeological theory. The lecture was followed by questions and a wine reception.

On Saturday the 19th the first session included new research on challenging the connotations of animal domesticity (Emily Banfield, University of Leicester), visualisation of Neolithic domestic dwellings in the Milfield Basin (Seren Griffiths, University of Central Lancashire) and domestication of the Neolithic and Bronze Age mind (Alexander Aston, University of Oxford). The second session centred on monumental

construction and labour, including papers on the origins of the sarsen stones at Stonehenge (Katy Whitaker, University of Reading), the construction of communities through long barrow building, reviewed through assemblage theory (Mareike Ahlers, Newcastle University) and a review of Renfrew's (in)famous chiefdom hypothesis in light of additional labour estimates for monument construction in Wessex (Barney Harris, UCL).

The third session included talks on the significance of categorising artefacts, using the Unstan Bowl as a case study (Michael Copper, University of Bradford), farming and ceramic production in Anatolia (Beatrijs De Groot, UCL) and highlighting the alleged absence of cremations in the British Chalcolithic (Anna Bloxam, UCL). The fourth and final session focused on emerging digital platforms for engaging the public in archaeological sites and centred on a current project at Çatalhöyük, Turkey (Tara Copplestone, University of York and Izzy Bartley, University of Aarhus) and the reoccurring colours red, black and white in the Neolithic megalithic monuments of Atlantic Europe (Penelope Foreman, Bournemouth University). It concluded with a second keynote lecture from Joanna Brück (University of Bristol) on mortuary practices and social evolution in Early and Middle Bronze Age Britain, with a critical re-evaluation of the Amesbury Archer and the Boscombe Bowmen burials.

The symposium created a relaxed atmosphere for new researchers to gain experience in presentation, promote current research and gain valuable insights from other academics, as well as providing a highly captivating day of archaeological research for the audience. The environment was positive and encouraging for all guests, volunteers, speakers and professors, and we look forward to next year's symposium hosted at UCLAN.

A selection of the presentations from the conference are available online at nebarss.wordpress.com

*Barney Harris, Dannielle Croucher and Hayden McKee,
University College London*

The 15th Sara Champion Memorial Lecture, October 2016

Antler is a versatile and special material, used to make a variety of artefacts, both utilitarian and decorative. Its natural shedding and regrowth is seasonal and can be conceptually linked to cycles of death and rebirth. In the 15th Sara Champion lecture, titled '*Antler working practices of the British Mesolithic: Materials, identities, technologies within the landscape*', Dr Ben Elliott of the University of York set out to present the highlights and results of his PhD examining Mesolithic antler artefacts, with the benefit of looking back at his research a few years after it was completed.



The President greeting Ben Elliott at this year's lecture. Photo: Marcus Brittain.

Starting with a dataset of 105 sites from across Britain where Mesolithic antler artefacts had been previously identified, Dr Elliott explained to us how he soon realised that only 16 of these sites had stratified deposits. Wary that some of the artefacts may therefore not in fact be Mesolithic, he reviewed the available AMS dates and showed that some object types such as uniserial barbed points (previously assumed to be Mesolithic based on comparisons with Danish assemblages) actually span the Upper Palaeolithic as well as parts of the Mesolithic, whereas base mattocks and maceheads are later prehistoric. In a reassessment of the terminology used to describe antler artefacts and through detailed examination of objects Dr Elliott also found that many so-called mattocks may, owing to the nature of their

hafting, be better described as axes. He argued that subtle changes in terminology can better align British descriptions of artefacts with Continental examples, allowing broader comparisons to be made. For example, by linking T-axes identified in Scotland to similar artefacts from the North Sea basin, Dr Elliott raised interesting questions about the spread of ideas and technology in the early fifth millennium BC.

In an impressive and articulate lecture, Dr Elliott demonstrated the value of careful and thoughtful research into prehistoric material culture. New discoveries and data are important, but fascinating insights can also be made through the reassessment of objects awaiting rediscovery in our museum stores.

Jody Joy, Museum of Archaeology and Anthropology, Cambridge

Prehistoric Society Undergraduate Dissertation Prize 2016

The awards to the winner and three runners-up for the Society's 2016 Undergraduate Dissertation Prize were presented at the Society of Antiquaries before the Sara Champion lecture on the 26th of October. The overall winner of the prize was Amy Walsh (Royal Holloway, University of London) for her dissertation on 'Developing a strategy to approach the scientific investigation of Pleistocene deposits along the High Speed Rail Two (HS2) route through Buckinghamshire'. Amy received three years' free membership of the Society, her choice of one of the Society's in-print monographs, a cheque for £100 and the opportunity to submit an abridged version of her dissertation for publication in the *Proceedings*. The three runners-up, each receiving a current copy of the *Proceedings*, were Rory Connolly (Institute of Technology, Sligo) for his dissertation on 'Morphometric characterization of *Pavella vulgata* shells: investigating variations in shell morphology from Late Mesolithic and Early Neolithic occupation levels at Fanore More, County Clare'; Aran McMahon (Cambridge University), who could unfortunately not attend in person, for 'Clutching at claws? Assessing



This year's prize winners. From left to right, Alex Alexander, Amy Walsh, Rory Connolly and the President. Photo: Marcus Brittain.

talon usage at Neanderthal sites as evidence for symbolic behaviour'; and Alex Alexander (Glasgow University) for 'Neolithic pottery from Dunning, Perthshire. Understanding Neolithic ceramic practice using a multi-disciplinary approach'. The judges of the prize were impressed with the overall quality of the dissertations this year.

Prehistoric Society Undergraduate Dissertation Prize 2017

The Prehistoric Society invites submissions for the 2017 undergraduate dissertation prize. The award celebrates the dissertation that has made the greatest contribution to the study of prehistory in any part of the world. The Prize is open to students from any University in Britain and Ireland. Each Department is invited to submit one dissertation by a candidate who completes her or his degree during the 2016/17 academic year. The judges will assess entries on the basis of the quality of work, the originality of the approach and the degree to which the research advances our understanding of prehistory. The final decision is at the discretion of the Society.

The winner will receive three years' free membership of the Society, the choice of one of the Society's in-print monographs and £100. Three runners-up will be awarded a current copy of

the *Proceedings of the Prehistoric Society*. An abridged version of the successful dissertation will be considered for publication in the *Proceedings*. The Prize will be presented prior to the Sara Champion lecture on the 25th of October 2017.

This prestigious prize represents an excellent opportunity for outstanding young scholars to have their work publicly recognised, in the magnificent setting of the Society of Antiquaries, Burlington House in Piccadilly. Entries for the current academic year are to be sent as PDF documents by the host Department to Professor Bob Chapman at r.w.chapman@reading.ac.uk, by **Friday 21st July**. Entries can only be accepted if accompanied by the email address, postal address and contact phone number **both** for the candidates **and** for their supervisors.

Robin Hood's Other Ball? A newly-discovered causewayed enclosure at Larkhill, Wiltshire

Wessex Archaeology was commissioned by the consultancy WYG on behalf of Defence Infrastructure Organisation to carry out archaeological investigations ahead of development for the Army Basing Programme. One phase of these works, which collectively involve an ambitious project to accommodate the 4000 additional Service personnel and their families who will be based on and around Salisbury Plain by 2019, required the total excavation of about 13 ha to the east of Larkhill Camp.

The site, which is only a half mile north-west of Durrington Walls and 1.8 miles north-east of Stonehenge, was previously thought to be free of significant archaeological remains. Evaluation trenching revealed a Wessex linear and other ditches which were considered to be parts of Later Bronze Age and Iron Age field systems, an undated unaccompanied inhumation burial, a sub-rectangular Iron Age enclosure, lynchets and terraces of probable Romano-British date, and the extensive remains of military practice trench systems, predominantly from the First World War.

The results were of sufficient interest and in an area of sufficient archaeological sensitivity for Wiltshire Council Archaeology Service to require full excavation of the area. Stripping commenced in July 2016.

Among a host of interesting features, the most notable prehistoric discovery was a series of seven ditch segments against the site's southern boundary, forming 117 metres of an arc of a circle approximately 210 metres in diameter.

The enclosure and its associated features represent a major new discovery in the Stonehenge landscape. The excavated part lies only 300 metres outside the northern boundary of the Stonehenge World Heritage Site. The causewayed enclosure sits just below the brow of the low hill occupied by Larkhill Camp, commanding broad views to the north-east across the valley of the river Avon towards Barrow Clump and Sidbury. While most of the enclosure remains uninvestigated within Larkhill Camp, projections of its size suggest that its entire circuit lies on the northern side of the hill, therefore looking out across the Avon valley rather than south and south-west towards Stonehenge.

Within the excavated area, only a single line of ditch segments was encountered. While it may be possible that other circuits of ditch exist inside the area defined by the excavated segments, there are none without it, on the north side at least. The projected diameter compares well with that of Robin Hood's Ball, 2.5 miles to the west-north-west, perhaps suggesting that an inner ditch circuit could be expected.

The ditch segments varied in length, width and depth. Some of these differences may have resulted from variations in the chalk into which they are cut, but some of them seem to have been choices on the parts of the builders. In many segments,



Aerial photograph of the causewayed enclosure ditches under excavation (Photo: Adam Stanford).

individual episodes of cutting and recutting could be seen, with later cuts both deeper and shorter than the originals.

The two easternmost ditch segments (to the right in the photograph) were separated by an unusually wide causeway of 13.5 metres, which may have been an entrance. Centrally within this gap was a shallow oval stepped pit containing Early Neolithic pottery.

Other ditch segments contained ceramics of varying types. The primary fills contained fragments of bowls, most of which were stylistically local, but which also included forms that were more typical of the South West. Other material recovered from the excavated ditch segments included large quantities of flint debitage and some tools (arrowheads, scrapers), animal bone (predominantly cattle), fragments of a human skull and a large sarsen saddle quern. Fills higher in the sequence contained small and abraded quantities of Grooved Ware and Beaker, and a complete Collared Urn had been placed into the almost completely silted segment at the western end. Cattle bone from the base of the ditch was radiocarbon dated to 3780–3650 cal BC.

On the eastern side of the possible entrance, the partially silted ditch was cut through by a large posthole, one of a line of five on a roughly north-east–south-west alignment.



Lugged pottery of South Western type from one of the ditch segments.



Saddle quern from one of the ditch segments.

Cattle bone from the posthole cutting the enclosure ditch was radiocarbon dated to 2480–2290 cal BC.

The Larkhill enclosure adds a very significant architectural element to the Early Neolithic Stonehenge landscape north of the World Heritage Site. Known sites of this date are situated on the ridge of high ground running east of south-east from Robin Hood's Ball and the cluster of long and oval

barrows to its east and north-east, to the summit occupied by the Knighton Long Barrow and the oval barrow south of it adjacent to the Packway, and continuing on to end at the scarp above Durrington Walls. The Larkhill enclosure sits on a low eminence east of the Packway barrow and may be the focal point around which it and the Knighton Barrow cluster. Geophysical survey has revealed what may be the remains of a further ploughed-down long barrow 600 metres to the north, suggesting that further elements of the Early Neolithic landscape await discovery.

Excavation is now complete, but post-excavation analysis remains to be undertaken.

Acknowledgements

Excavations were undertaken by a team from Wessex Archaeology directed by Steve Thompson and managed by Si Cleggett. Martin Brown managed the project for WYG on behalf of Defence Infrastructure Organisation. Wessex Archaeology would like to thank Adam Stanford of Aerial Cam for his work at very short notice.

Matt Leivers, Wessex Archaeology (m.leivers@wessexarch.co.uk)

Excavation of a large Bronze Age burnt mound complex on a hilltop site in Suffolk

Between March and October 2016, Suffolk Archaeology CIC excavated 10.6 hectares in the first phase of works in advance of residential development to the north-west of Bury St Edmunds. The site lies on a north-facing slope on the south side of the valley of the River Lark, overlooking the eastern end of the Fornham Cursus (and associated monuments), a scheduled monument (SF114) which runs for 1.87 km north-west to south-east along the base of the valley, on the south side of the river. A ditched square Roman enclosure was sited at the top of the hill with good views in every direction across the surrounding countryside. Iron Age activity was recorded across the whole excavated area, including over 100 circular pits concentrated at the north end of the site. However, the most enigmatic feature refers to occupation during the Late Neolithic/Early Bronze Age. Small hints appeared that something unusual was present within the excavation area relating to this period, with numerous subsoil and surface finds of worked flint throughout a large area. I knew at this point that we were looking at something exciting and very special given the location. The amount of finds present spurred us to investigate the elevated area of the site further, trying to find out what this activity related to and what had occurred at this location in prehistory.

The geology is variable across the site and there was evidence of successive campaigns of mineral extraction from the Roman to the Post-medieval periods, as well as large natural colluvium-filled hollows. Archaeological features contemporary with the later use of the cursus complex were primarily identified at the upper, southern part of the slope,

c. 1 km from the valley bottom, where the geology was a mixture of clay, gravel and chalk.

Within one of the natural hollows, in an area of clay geology, a large ring of heat-altered flint over 20 m in diameter was uncovered, together with evidence of a cobbled surface. Some three months later, and after the excavation of many tonnes of material, a complex of features including a series of large and smaller pits, huge dumps of heat-altered flint within a charcoal matrix and a metallised surface bearing signs of repair were revealed.

The complex covered an area of 23 × 21 m in an irregular circular shape. A cobble surface (0.1–0.2 m thick) made up of flint and sandstone lay at the base, depressed into the natural glacial deposits of sand and clay. This was overlain by



Overview of the burnt mound hollow (Photo: Flypod).



Left: Earlier circular pit showing lenses of water-borne deposits (Photo: P. Boyles, Suffolk Archaeology).

Right: Burnt mound hollow and associated pits 100% excavated, taken with a pole camera (Photo: T. Carter, Suffolk Archaeology).

a layer of charcoal and heat-altered flint (0.2–0.4 m thick), which in turn was sealed by two natural silting layers (0.7 m thick). The later layers of silting seen at the top of the feature were cut by an Iron Age D-shaped enclosure.

The main hollow was excavated in quadrants, which were subdivided into two-metre squares to maximise recovery of finds data. Once the layers covering the cobbled surface were excavated the true complexity of the feature could be seen.

Two large pits were located towards the centre of the hollow; the later oval pit measured 8 × 4 m and cut the cobbled surface, whilst the other circular pit was 9 × 8 m and seemed to be earlier than or contemporary with it. These two pits contained complex fill sequences and would have held water, shown both by the presence of water-borne deposits and as experienced on site in wet weather. The later oval pit had a clay lining on one side where it cut a seam of sand. Three possible surface water run-off gullies led into these pits. Six postholes (with five further possible ones) seemed to surround the earlier circular pit. These postholes were sealed by the cobbled surface and were only seen once it was removed, suggesting that in its earliest phase there may have been a structure around the top of the pit, perhaps to aid its construction. Finds retrieved from these pits include Bronze Age pottery, flint and animal bone.

Seventeen smaller pits of various sizes from 0.8 m to 2.5 m in diameter were located mostly around the edge of the hollow and all cut the cobbling. These contained deposits of heat-altered flints and charcoal with finds of pottery and struck flint; one pit even yielded a large assemblage of decorated Beaker pottery and flint tools. Most notably, more than 249 flint scrapers have been found across the complex, with most originating from the flint and charcoal layer above the cobbles, although many were also recovered from the pit fills and within the surface.

In many ways, the site resembles other wells and burnt mound complexes found on the fen edge (e.g. Bradley Fen in Cambridgeshire and Northwold, Norfolk), but its location high above the valley is unusual. These are only preliminary results, but it is hoped that analysis of environmental samples and other scientific techniques, as well as further research into parallels, will reveal more about the function of this feature. The working hypothesis is that organic materials, perhaps hides or wattle hurdles, were being processed, with water being collected in the larger pits and heated within the smaller pits. One of the smaller pits, which contained two dumps of heat-altered flint on top of a greasy fill that seemed to have a high organic component, may hold the key to the activities occurring within this complex.

A droveway, probably also Bronze Age in date, was seen running from top to bottom of the slope, 130 m east of the burnt mound complex, and pits containing Bronze Age pottery were dispersed across the southern part of the site. This shows that the burnt mound complex was within an area of other Bronze Age activity and not just an isolated feature. Further funded analysis on the mound is currently under way, with residue analysis, soil micromorphology and finds categorisation and dating planned in order to shed more light on the processes that were occurring within this feature. In the meantime, any suggestions are welcome.

Acknowledgements

The author would like to thank Countryside for funding this project and John Trehy (Terence O' Rourke) for consulting, Dr Abby Antrobus (Suffolk County Council Archaeological Service) for her input and monitoring of the project, Kasia Gdaniec (Cambridgeshire Historic Environment Team), Alex Bliss (Suffolk County Council Archaeological Service) and Edward Martin for information on burnt mounds and Flypod and Tim Carter (SACIC) for aerial photography.

Michael Green, Suffolk Archaeology CIC (Michael.Green@suffolkarchaeology.co.uk)

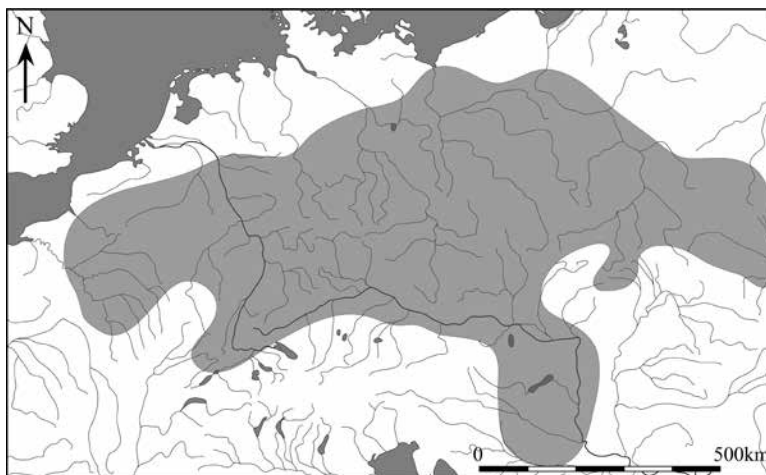
Networks in the *Linearbandkeramik*

Gordon Childe once wrote of the *Linearbandkeramik* (hereafter LBK) that the 'whole culture down to the finest details remains identical from the Drave to the Baltic and from the Dniester to the Meuse'. The LBK (c. 5500–4900 cal

BC) brought farming from the Great Hungarian Plain to a vast area of central Europe. By approximately 5000 cal BC the culture stretched from the Paris Basin to western Ukraine and is known for its impressive longhouse architecture and pottery



Above: A reconstructed longhouse from Straubing Zoo, Bavaria (Photo: P. Bickle).



Right: Extent of the LBK by 5000 cal BC.

decorated with incised curved or linear patterns. While this is arguably one of the most uniform of European Neolithic archaeological cultures, regional and local variations are now demonstrated in its material culture, subsistence practices, burials and settlement activities.

With Fiona Coward (University of Bournemouth), a project has been set up to try and make sense of the balance between, on the one hand, quite impressive uniformity, especially so given the size of the LBK, and the extent of regional diversity now demonstrated in various classes of evidence. Differences between regions are increasingly well mapped, not only in material culture, house architecture and burial rites, but also in bioarchaeological evidence, such as palaeopathology and isotopes, suggesting daily life might have been quite varied. Ancient DNA, however, tells a more uniform story and large-scale migration of the population from the Great Hungarian Plain now seems to have spread the LBK across Europe.

As part of the project *The first farmers of central Europe: diversity in LBK lifeways*, a database of about 3000 LBK burials was collated, recording information about burial rites, grave goods, geographic location, as well as palaeopathology and isotope data. This database, which hopefully will soon be available online through the Archaeological Data Service, provided an ideal case study for investigating similarity and difference in cultural practices. The data was subjected to Social Network Analysis (SNA). SNA, originating from sociology, is a tool for investigating the strength and form of relationships between individuals. It should not be used uncritically in archaeology, but is a useful way of exploring patterns in data, particularly as a means of quantifying the ties between multiple data points. It has, to date, been successfully applied to tracing lithic and pot networks, but more rarely to burial and isotopic data. The aim was to move beyond describing similarities and differences, to investigating and interpreting the underlying reasons for regional diversity and widespread similarity.

Tracing the circulation of raw materials such as lithics and *Spondylus* shells (found as jewellery and personal ornamentation in graves) provides a picture of long-distance trade. More localised networks can be seen in pottery

decoration. The main motif on pottery demonstrates chronological change, but smaller secondary motifs can be traced across settlements. This pattern has been interpreted as women taking their own kin group's style into their husband's family in the form of the smaller secondary motifs, but adopting their new family's main decorative scheme. Such hints at patrilocality (where women move on marriage) have also been suggested by strontium isotope ratio analysis, a key marker of the geology from which an individual has sourced their childhood diet. Carried out on over 500 individual burials as part of the *Lifeways* project, the strontium isotope ratios showed more variability for women than men. This suggests that LBK women were far more likely than men to be buried away from the location where they had spent their childhoods. To this picture of people moving and objects circulating, can we add another dimension to our understanding by investigating the sharing and spread of cultural practice?

Preliminary analysis indicates that geographical closeness had only a small impact on how similar burial practices were. Therefore, while some regional patterning is visible (e.g. in preferences for certain types of grave good or position of the body in the grave), overwhelmingly LBK regions drew on the same vocabulary of burial rites across the whole of the distribution. The results become more challenging to interpret, however, when we attempt to consider the amount of diversity within different regions and sites. Some areas seem to have followed the 'rules' more strictly, while other regions appear to have tolerated more diversity. Interestingly, no 'core' area could be identified. Comparisons with network analysis carried out on later and similarly widespread cultural complexes, such as the Corded Ware, do however suggest that we should not lose sight of the degree of similarity across the LBK. In the end, we return to Gordon Childe's comments and argue that amongst the diversity, there were shared cultural practices that crossed Europe with the LBK.

Acknowledgements

Many thanks to the Prehistoric Society's research fund and Fiona Coward, University of Bournemouth. More information on the *LBK lifeways* project and the collaborators can be found at: <http://www.cardiff.ac.uk/share/research/projectreports/lifeways/>

Penny Bickle, University of York

Exhibition Review: 'Art of Prehistoric Times' at the Martin Gropius Bau, Berlin

Last year Berlin's Martin Gropius Bau hosted a retrospective exhibition of paintings of rock art from the Frobenius Institute's collection. The exhibition, 'Felsbilder aus der Sammlung Frobenius: Kunst der Vorzeit', or 'Art of Prehistoric Times. Rock Paintings from the Frobenius Collection', ran from 21 January to 16 May 2016. The display was held in Berlin's top exhibition space and brought together 127 paintings from the collection's archive at Goethe University in Frankfurt am Main, many never shown in public before. This was the largest exhibition ever held by the Frobenius Institute.

Professor Leo Frobenius (1873–1938) organised a total of 22 expeditions to rock art regions in Africa, Europe, Indonesia and Australia in pursuit of his research into 'culture morphology'. After his sixth African expedition in 1912 he took painters with him to copy rock art in colour and original size, something unavailable with the photographic methods of the day. By the time of his death in 1938 almost 5000 copies had been produced. However with the passage of time and the development of colour photography, plus the unavoidable interpretative component of the images, the reproductions became discredited as a form of scientific documentation and instead are now viewed as an art form in their own right.

At the Martin Gropius Bau the paintings were spread over five rooms and varied from postcard-sized (Wadi Sura, Egypt) to over ten metres long (Lesotho). Art from southern, central and north Africa had a dominant presence, especially with the size of the canvases and the sheer mass of superimposition of images. Other works were from Europe (Altamira, Dordogne, Valcamonica and Scandinavia), Irian Jaya and northern Australia. Alongside were placed expedition photographs showing the artists at work recording and painting on canvas, as well as camp scenes in the Sahara desert. Display cases held notebooks, cameras and contemporary newspaper clippings, along with expedition detritus recently excavated from Wadi Sura (accompanied by a video recording).

The fifth room of the exhibition was arranged to show art displayed in 1937 at the Museum of Modern Art (MoMA) in New York, when contemporary works by modern artists such as Klee, Miró, Arp and Masson were exhibited alongside the rock art. Although the names of the Frobenius works shown are known, those by the modern artists have been lost. Contemporary newspaper articles (also on display) reveal that journalists were impressed by the canvases of rock art but decidedly unenthused by the modern works.



Left: Figures from Wadi Sura, the 'Cave of Swimmers', Egypt. Watercolour by Elisabeth Charlotte Pauli. Published by kind permission of the Frobenius Institute Frankfurt am Main.

Right: Hand stencils, fish and moon from Arguni, Irian Jaya, Indonesia. Watercolour by Albert Hahn. Published by kind permission of the Frobenius Institute Frankfurt am Main.



Of particular interest to members of the Prehistoric Society was the room with canvases from the 1932 Libyan Fezzan expedition, which showed art from sites visited on the Society's field trip seventy years later (see *PAST* 43).

A rock art workshop held to coincide with the exhibition included a public discussion on future developments in rock art research, debated by a distinguished panel of researchers: Paul Bahn, Margarita Diaz-Andreu, Jo McDonald and Tilman Lenssen-Erz, moderated by Nathan Schlanger. The conclusions may be summarised by saying that politics and money (too little or too much) are perhaps the biggest threat to rock art, and that new digital technologies can unravel some of the secrets behind the art, but the experimental nature of such technology makes its results ephemeral and transitory until effective methods of digital archiving and future proofing are developed.

A lasting legacy of the exhibition is the two-volume German-language publication *Kunst der Vorzeit* (Vol.1: Felsbilder aus der Sammlung Frobenius; Vol. 2: Texte zu den Felsbildern der Sammlung Frobenius [Vol. 1: Rock art from the Frobenius collection; Vol. 2: Text]), copiously illustrated with expedition photographs and colour images of the rock art reproductions.

Acknowledgements

Thank you to the Frobenius Institute for permission to use the figures in this article; and to Richard Kuba, Benedikt Burkard and Margarita Diaz-Andreu.

Michael P. Rainsbury, SCR Ustinov College, Durham

The copy date for *PAST* 86 is the 15th of May 2017. Contributions to Editor, Daniela Hofmann, Archäologisches Institut, Universität Hamburg, Germany. Email: daniela.hofmann@uni-hamburg.de. Contributions as e-mail attachments are preferred (either Word or rtf files) but submissions on disc are also accepted. Illustrations can be sent as drawings, prints, tif or jpeg files. The book reviews editor is Pippa Bradley, c/o Wessex Archaeology, Portway House, Old Sarum Park, Salisbury, Wiltshire, SP4 6EB, email: p.bradley@wessexarch.co.uk. Queries over subscriptions and membership should go to the Society administrator Tessa Machling at the London address on page 1.