

Association for Environmental Archaeology

AEA Newsletter 139

May 2018

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Chair's Piece

Dear members,

It is a busy time for the AEA with lots going on and especially with General Data Protection Regulations (GDPR) coming into force in the UK on 25th May. Please do take time to reply to recent emails from the association on GDPR if you have not already done so. More information on this is included on page 22 of this addition of the newsletter.

It is also time to get in your nominations for the AEA managing committee. This year we are seeking nominations for secretary, three ordinary members and one student representative. More details are included on page 20 of this newsletter. We are also accepting nominations for the individual and institutional 3-year membership awards. Find out more about these on page 22.

We have recently awarded a record number of small research grants to environmental archaeologists from across the world. You can find out more about the research the association is helping fund on page 17. In addition, the association ran a mini-debate on biomarkers of the Anthropocene as part of British Science week via our twitter account. The winner of the popular vote was wheat, followed closely by the broiler chicken. Dung fungi came third and dung beetles in fourth position. 102 votes were cast, including 32 as part an activity stall run by Liz Pearson as part of

Science Night at the Hive in Worcester, UK. I'd welcome ideas from members for Science Week in 2019. It is a great way to engage people with our work.

I thoroughly enjoyed the recent *Pests of Society* conference and would like to thank David Smith, Zoë Hazell and Ruth Pelling for putting together such a great day. Thanks also to the University of Birmingham students and Historic England specialist work-based training placements for providing such sterling support behind the scenes and on the day. For our next conference we return to Arhus, Denmark. In the meantime enjoy the hazy days of summer and take lots of pictures of #ScientistsandSamples to enter our photo competition.

Gill Campbell,

May 2018



Liz Pearson in front of her stand at the Hive in Worcester as part of Science Night

Micro-Environments in the Cantabrian Region (northern Spain): The possible key to the region's popularity during the Palaeolithic

Authors: Jennifer R. Jones^{1, 2} and Ana B. Marín-Arroyo^{2, 3}

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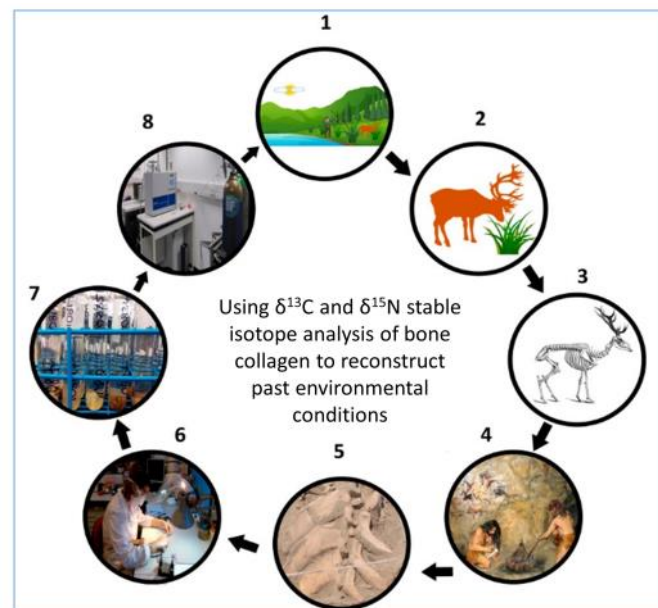
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The Palaeolithic was a period of great environmental change with a series of warmer and colder climatic fluctuations associated with the Heinrich events, as recorded in the Greenland ice core records. These climatic changes had large impacts on vegetation and animal populations, consequently affecting human groups. These changing environmental conditions have been proposed to be one of the major factors that contributed to the decline of late Neanderthals. It is now known that the extinction of the Neanderthals and their subsequent replacement by Anatomically Modern Human (AMH) populations was not a single pan-European event, but took place at different across Europe. To understand the nature of the Middle-Upper Palaeolithic transition it is crucial to study individual geographical regions where both human species coexisted to reconstruct the environmental conditions that they faced.

The Cantabrian Region, spanning the coastline of Northern Spain, was occupied throughout the Palaeolithic. It boasts a wealth of cave and rock-shelter sites, with rich archaeological sequences, spanning the Middle to Upper Palaeolithic transition and beyond. New radiocarbon dating evidence has helped to establish a secure chronology for the transition in the region, revealing that Neanderthals and AMH there co-existed for <1000 years. This suggests that the environment may have played a role in the change of population that happened around 42-41 ka cal BP.

To explore palaeoenvironmental conditions in the region stable isotope analyses of $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ in bone collagen were undertaken. It is a measure of long term-average diet over 10-15 years of life within individuals. This technique is often used to reconstruct human diet, but analysis of animal bones are also used to reconstruct palaeoenvironmental conditions. Plants growing in an environment take on different ratios of carbon and nitrogen isotopes from the atmosphere

depending on the conditions they experience, such as temperature, tree cover or altitude. Animals eat these plants, and take on these signatures in the bodily tissues. When combined with traditional environmental proxies, stable isotope analysis of bone collagen can provide valuable information on what the past environment was like. Figure 1 explains how this process works further.



- 1) Plants grow in the landscape and take on different ratios of carbon and nitrogen depending on the environmental conditions that they experience such as: rain, tree cover, moisture levels, soil type, amongst other factors.
- 2) Animals living in the landscape eat the plants and take on these different ratios of carbon and nitrogen (with a fractionation effect).
- 3) The bones of the animals preserve a long term average record of past environmental conditions from throughout its lifetime.
- 4) Human groups hunt and eat the animals, and the bones are discarded, often leaving evidence of cut marks, or cracking from bone marrow extraction.
- 5) The bones are excavated in archaeological sites, and are stored in museums and collections.
- 6) Bones are sampled by archaeologists for analysis (between 0.4-1g is usually needed).
- 7) Collagen from the bones is extracted in a laboratory.
- 8) The extracted collagen is analysed using mass spectrometry to obtain $\delta^{13}\text{C}$ and $\delta^{15}\text{N}$ values. By comparing the results to other environmental indicators (e.g. pollen records, microfauna, macrofauna) it is possible to extrapolate what the environment was like.

Figure 1: A diagram explaining how carbon and nitrogen stable isotope analysis of bone collagen can be used to reconstruct palaeoenvironmental conditions.

Two sites from Cantabria were recently studied to explore past environmental conditions. El Castillo, located in Puente Viesgo (Figure 2), and Covalejos cave in Pielagos are respectively located in the upper and lower parts of the Pas river valley. They contain long sequences from late Lower to Upper Palaeolithic activity, although Neanderthals and modern human occupations are well represented predominantly by technological artefacts, and animal remains with evidence of human consumption (e.g. butchering marks and bone breakage from marrow extraction). By sampling Middle and Upper Palaeolithic levels at both of these sites it was possible to establish what environmental conditions were like when human groups occupied both caves, and to compare results between these locations.

All values $\delta^{13}\text{C}$ recorded were within the range expected for animals feeding in a relatively open



Figure 2: Monte Castillo. The site of El Castillo Cave is located in Monte Castillo, in the village of Puente Viesgo. Within Monte Castillo four Palaeolithic cave sites are located, each containing Upper Palaeolithic cave art. The vestibule of El Castillo contains a large archaeological sequence of more than 20 levels, dating from the Lower Palaeolithic onwards, and the cavity extending beyond is famous for its impressive upper Palaeolithic cave art.

landscape. This suggests that the area was not heavily wooded, which is supported by the pollen record available for El Castillo, where steppic taxa dominated. A key finding was that at Covalejos there is a high variation in nitrogen values observed in archaeological levels accumulated by both Neanderthals and AMH. The different nitrogen values suggest that animals accumulated in these layers were habitually feeding in a variety of distinct microenvironments ('isozones'), indicating that a range of different hunting locations probably within the same or adjacent systems valleys were being used during both the Middle and Upper

Palaeolithic. At El Castillo, the nitrogen values were all within a similar range for all levels, suggesting that Neanderthals and AMH were exploring isotopically similar areas of the landscape. The evidence from both sites suggests that isotopically distinctive locations were being exploited during both the Middle and Upper Palaeolithic, and indicates that a variety of microenvironments were present in the Cantabrian region during this time. This microenvironmental diversity is potentially a result of the mix of mountains and valley systems in close proximity to the coast (Figure 3), creating an isotopically varied landscape ('isoscape'), separated by natural boundaries. Body part representation of hunted red deer suggests that animals were transported almost complete to the sites, suggesting that these varied microenvironments were all available within a relatively short distance of the site, supporting that the idea of a high level of diversity within a small geographical area.



Figure 3: Mirador de la Casa del Rey, which neighbours the Pas valley. The Cantabrian region is characterised by steep mountain ranges, and river systems, with the North Atlantic running along the Northern coast of Spain. This environmentally distinct region likely created distinctive conditions, and may explain how a range of microenvironments came to be present within a relatively small geographical area.

Red deer are consistently exploited at both sites throughout the period of study, suggesting that they were ecologically able to adapt to the changing climatic conditions. The continued persistence of red deer in the landscape may have been facilitated by the presence of these microenvironments, offering a range of habitats in which to survive during the harsh conditions of MIS3.

The mosaic environment presented by the Cantabrian

Region appears to have produced suitable habitats for animals to thrive in throughout the Middle and Upper Palaeolithic, ensuring that they were a predictable resource available for humans to successfully hunt. This may explain why the region was so consistently occupied throughout this period, and especially during the Upper Palaeolithic. Further ongoing investigations of other sites across Northern Spain will shed further light on this hypothesis.

This research was part of a wider programme of research undertaken at the International Institute for Prehistoric Research of Cantabria, University of Cantabria (Santander, Spain) which has been seeking to explore the palaeoenvironmental conditions experienced by humans in the region throughout the Palaeolithic period. The methodology undertaken used multi proxy studies of animal bone collagen stable isotope analysis in addition to generating new radiocarbon dating evidence from archaeological sites to establish secure chronologies and correlation of these findings with wider environmental proxies (sedimentology, pollen, micro and macromammals).

Two of these European Commission funded projects exploring Palaeolithic environments were: EURORREFUGIA (FP7-PEOPLE-2012-CIG 322112) "Human subsistence and climate change in European refugia: late Neanderthals and early modern humans. CLIMAPROX (H2020-MSCA-IF-2014-656122) "Hunter-Gatherer adaptations in northern Iberian Refugia from the Last Glacial Maximum to the Mesolithic: a multi-proxy climatic investigation".

Further results from both of these projects are currently being prepared for publication. So, look out for more research into Palaeolithic environments in Northern Spain coming soon!

Acknowledgements

This research was 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. Analytical research was undertaken in collaboration with Prof. Michael Richards at the Max Planck Institute for Evolutionary Anthropology and was funded by the Max Planck Society. Many thanks to the Museum of Prehistory in Cantabria (MUPAC) for facilitating the sampling.

For further readings and published data discussed in this piece please see:

Jones, J.R., Richards, M.P., Reade, H., de Quirós, F.B. and Marín-Arroyo, A.B., 2018. Multi-Isotope investigations of ungulate bones and teeth from El Castillo and Covalejos caves (Cantabria, Spain): Implications for paleoenvironment reconstructions across the Middle-Upper Palaeolithic transition. *Journal of Archaeological Science: Reports*. Available online 8th May 2015. <https://doi.org/10.1016/j.jasrep.2018.04.014>
 Marín-Arroyo, A.B., Rios-Garaizar, J., Straus, L.G., Jones, J.R., de la Rasilla, M., Morales, M.R.G., Richards, M., Altuna, J., Mariezkurrena, K. and Ocio, D., 2018. Chronological reassessment of the Middle to Upper Paleolithic transition and Early Upper Paleolithic cultures in Cantabrian Spain. *PloS one*, 13(4): 0194708.



Figure 4: Some research members from the Bioarchaeology and palaeoclimate group at the IIIIPC, Universidad de Cantabria that work on different aspects of human-environment interactions during the Palaeolithic. The labs also host important osteoarchaeological and bioarchaeological reference collections.

Autumn 2018 conference | Aarhus (Denmark)

Moesgaard Museum and Department of Archaeology & Heritage Studies, Aarhus University

Thursday 29th November 2018 – Saturday 1st December 2018

It is our pleasure to announce that the “39th Association for Environmental Archaeology Conference” will be hosted from 29th November to 1st December 2018 at Moesgaard Museum (MOMU) and Aarhus University ‘Moesgaard Campus’ in Denmark. The venue of the meeting is the new museum building, which houses key Danish archaeological collections and is a major focus for environmental archaeology. MOMU has strong collaborative links with the Department of Archaeology & Heritage Studies of Aarhus University, a leading department in its field.

Some of the earliest applications of ecological knowledge in archaeology (if not even the start of human palaeoecology itself) are traceable to mid-19th century Denmark. Back then, archaeologists and natural scientists started collaborating to study anthropogenic shell deposits known as *køkkenmøddinger* (kitchen middens). The early studies on these well-preserved sites probably represent the first truly interdisciplinary excavation projects in the history of archaeology. These addressed research themes still relevant to environmental archaeology and archaeological science today, such as environmental and vegetational changes, site formation processes, plant and animal exploitation, seasonality of human behaviour, subsistence and diet.

As we are in the course of another ‘scientific revolution’ in archaeology, with the development of biomolecular archaeology and ancient DNA, all the aforementioned topics are relevant for the AEA meeting in Aarhus. Papers merging different methods of environmental and biomolecular archaeology will be particularly welcome, as well as contributions on the human palaeoecology of Scandinavia and northern Europe. Oral presentations and posters dealing with methods which have not been applied to Scandinavian contexts previously, are also relevant for this conference.

Conference website: <http://conferences.au.dk/aea2018/>

For further information please e-mail the organizers at: AEA2018AARHUS@cas.au.dk

We look forward to seeing you in Aarhus, with best wishes,

Marcello A. Mannino, Associate Professor in Archaeological Science, School of Culture & Society, Aarhus University

Peter Hambro Mikkelsen, Department of Archaeological Science and Conservation, Vice-director of Moesgaard Museum

Spring Conference Review: Pests of Society

Birmingham, 21st April 2018

Nora Battermann

This year, the one-day AEA Spring Conference took place on the 21 April at the University of Birmingham. Put together by David Smith (University of Birmingham), Zoë Hazell (Historic England) and Ruth Pelling (Historic England) the conference placed focus on Pests of Society, a topic that generated a huge interest and made for an enjoyable and informative day with a variety of topics covered: pests of food production and storage, pests in buildings and structured timbers, pests in collections, and pests in the wider environment/landscape. Due to this broad scope the organisers managed to bring together not only a variety of environmental archaeologists but also representatives of museums and heritage as well as commercial archaeologists, resulting in a great mix of people and lively discussions.

David Smith kicked off the day with a cheerful welcome and then opened the stage for pests of food

production and storage. This session, chaired by Gill Campbell, raised interesting questions on the spread of insect pests of pulse crops and the use of protective measures against them; highlighted the importance of considering and building biogeographies in order to understand the spread of grain pests; and considered possible solutions to the lack of attention paid to recovery methods necessary for the retrieval of insects in commercial archaeology.

After a refreshing coffee break focus was placed on modern day pests in collections (those which are very much alive and causing problems, not the dead ones that are part of collections!). Quite fittingly the first paper provided a contrast to the last paper of the previous session in placing focus on the difficulties caused by wood borers and other pests on historical ships – a search for living insects (and mould) and ways to find and recover/remove them. Having thus gained an impression of the number and diversity of pests present in just one kind of heritage, the following presentation introduced a project website that aims to collate information on pests in collections by providing means for insect identification and forms to submit information on the kind and number of insects that are identified in museum collections, but also standing buildings and heritage. The session concluded with a report on how detailed recording and bespoke strategies of pest control and mitigation can help maintain and improve a reference collection as big as that of Historic England at Fort Cumberland.

Over lunch discussions were continued before the next session provided insights (in some cases quite literally) into pests in buildings and structured timbers. Discussed was the role of pests in the rate of biodegradation of timbers underwater; the estimation of larvae diet in oak wood for possible species identification with archaeological implications; xylophagous galleries found in Iberian Iron Age wood;



David Smith kicks off the conference.

the remains of xylophagous species left in archaeological wood and their potential for species identification; the potential of using surface images of historical woods for estimating internal damage with potential application in standing buildings; and a conceptualisation of snail-fauna in buildings.

The final session of the day focused on pests in the wider environment and landscape and the first paper, focussing on elm declines (!) and their meaning and conceptualisation, provided the audience with the first pollen diagram of the day. Then, vertebrates in the form of packrats made their first appearance (or at least their droppings did), as a pest with possible potential for environmental reconstruction before the day was concluded with a number of musings on pest species behaviour and a bit of 'fussing about' uncovering questions on wasp and grain pest behaviour.

A curry, lots of laughter and more discussions followed the day of presentations. Thank you to the organisers for putting together such a successful conference and highlighting the relevance of pests in past and present society.



Eva Panagiotakopulu's paper 'Pests and ectoparasites: introductions, itineraries and importance.'



Full house at the start of the conference.

The fox in the henhouse and other stories

Nora M. Battermann



As one of the largest predators in Britain, the red fox (*Vulpes vulpes*) is considered a pest by many. In legal terms, this conception first manifested itself in the Vermin Act of 1566 which promised rewards of 12 pence for every head of a fox handed in to a church warden. According to surviving records, plenty of rewards for foxes were claimed, suggesting that the animal was a nuisance to many (Lovegrove 2007, 210). However, the consultation of other sources indicates that the relationship between humans and foxes was diverse and complex.

The fox in the henhouse

Medieval bestiaries usually describe the fox as a thief of poultry and other foodstuffs. It is therefore not surprising to find that in bestiaries, foxes are frequently depicted carrying geese or chickens (fig. 1).



Figure 1: Fox stealing a goose (Koninkl.ike Bibliothek, KB, KA 16, Folio 72v)

The fox as a trickster

In addition to its tendency to steal birds, the fox is often described as a trickster. Two of its most popular manoeuvres include feigning death to attract birds which it then attacks (fig. 2), and getting rid of fleas by carrying wool into a river and letting it go once all the fleas have saved themselves onto it (Lloyd 1980, 18).



Figure 2: Fox feigning death to attract birds (The Morgan Library and Museum, MS M.81, fols. 11v-12r)

Reynard the Fox

The most popular beast epic of the Middle Ages is *The Romance of Reynard the Fox* in which Reynard repeatedly avoids persecution through his wit and cleverness until he finally faces a trial: in combat with Isegrim the Wolf, Reynard either wins (fig. 3) or at least survives (depending on the version) making him the silently admired hero of the late (Salisbury 1994, 122).



Figure 3: Reynard in combat with Isegrim (Wikimedia)

The fox and religion

The fox pretending to be a priest is a common theme in illuminated manuscripts and stained glass windows. The proverb "when the fox preaches, look to your geese" (fig. 4) arose in the Middle Ages when the fox was associated with the devil, trying to deceive and mislead innocent, faithful people (Cummins 1988, 142).



Figure 4: Fox preaching to geese (Stained Glass Museum, ELYGM.L.1900.7)

The fox as companion

Zooarchaeological evidence from Randall Manor, Kent, might be suggestive of a fox kept as a companion animal or pet. The specimen has highly worn teeth which could be linked to old age and therefore indicative of captivity (fig. 5). However, investigations are still in progress.



Figure 5: Tooth wear of fox from Randall Manor, Kent.

Conclusion

Although medieval law clearly defines the red fox as a pest, conceptions of the animal are diverse which become apparent once multiple lines of evidence are consulted. This research is being conducted as part of my PhD "Revealing Reynard: A 10,000 year cultural biography of human-fox interactions" which analyses in detail how perceptions of foxes have changed through time.

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 Salisbury, J.E. (1994). *The beast within: animals in the Middle Ages*. London: Routledge.

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Midlands3Cities Doctoral Training Partnership
 Nottingham Lescar Center Birmingham



Arts & Humanities Research Council

The Archaeology of Woodlands Conference

Białowieża, Poland, 19-21 April 2018

Krystyna Truscoe

I recently attended *The Archaeology of Woodlands* conference which took place in April this year in the Białowieża National Park in north-east Poland. The conference was funded by a number of bodies including the Association for Environmental Archaeology (AEA) and the University of Reading. The national park contains the best preserved fragment of the Białowieża Forest, the last natural forest of the European Lowland Area. The forest as a whole covers a vast area which straddles the border between Poland and Belorussia. A defining characteristic of the park is its biological diversity, including 809 vascular plant species and 283 lichen species. Best known of the 52 mammal species found within it is the European bison. The largest free-living population of approximately 500 is found here and the European bison the symbol of the park. It can also be seen on the Żubrówka vodka label (from *żubr* meaning bison), which is flavoured with bison grass (*Hierochloe odorata*) which grows in the Białowieża Forest.



Figure 1: Mire within the protected zone of Białowieża National Park.

The conference papers covered a fascinating range of approaches to investigating the archaeology of woodland areas. A number of papers which highlighted the use of environmental techniques to investigate the archaeology of woodlands, including Catherine Barnett (University of Reading), who described the range of strategies used to investigate woodland areas during the Silchester Environs Project, including charcoal and pollen analysis, excavation and remote sensing. Katarzyna Kajukała (Adam Mickiewicz University,

Poznań) presented results from the Głębczek peatland in northern Poland, where analysis of charcoal particles has been used to restrict past occurrences of fire activity. Hrvoje Potrebica (University of Zagreb) discussed fascinating Iron Age landscapes in the Pože-ga Valley (Croatia) revealed through lidar survey and Rafał Zapłata (Cardinal Stefan Wyszyński University, Warsaw) and Krzysztof Stereńczak (Forest Research Institute) looked at non-invasive techniques to research and protect archaeological sites within Białowieża Forest.



Figure 2: Dr Catherine Barnett speaking at the conference on the Silchester Environs Project.

Other fascinating papers focussed on human-forest interactions and the relationship that people have to heritage within woodland. Erin Gibson (University of Glasgow) discussed the attitudes of local people to the heritage of the Adephe State Forest in Cyprus and Małgorzata Karczewska (Central and Eastern Europe Research Centre) looked at the issues surrounding the protection of First World War forest cemeteries in north-eastern Poland. The cemeteries are German or Russian in origin and are either of little interest to modern populations or are the targets of vandalism.

I took part in the poster session, presenting my research into Pamber Forest near Silchester (Hants) using airborne remote sensing techniques and outlining the methodology used in my current doctoral research. Poster subjects included methodological approaches

to studying woodland, the identification of past human activity from the prehistoric to early modern and particular sites within the Białowieża Forest.

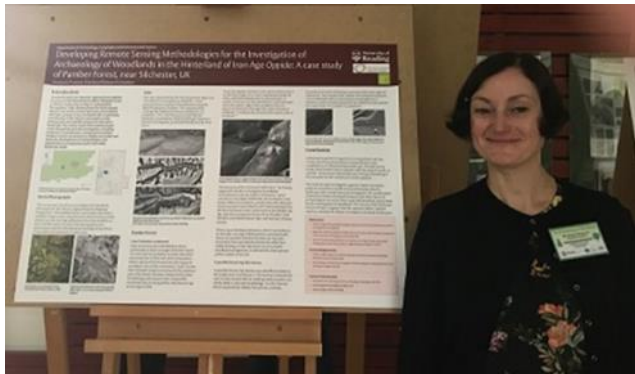


Figure 3: The author at the poster session.

The conference also included a trip out to the protected zone of the forest in the company of Andrzej Keczyński of the Białowieża National Park and the conference introductory speaker Professor Małgorzata Latałowa (Department Plant Ecology, University of Gdańsk). Professor Latałowa expanded on her work investigating sediments of mid-forest lakes and mires and gave us a fascinating insight into past human activity within the forest.



Figure 4: Professor Latałowa giving an open air lecture.

We were also informed that the gates to this protected area were the inspiration for the design of the entrance to Steven Spielberg’s Jurassic Park!

In addition to our field trip our hosts offered the non-Polish delegates a visit to a reserve where we could see the types of animals that live in the forest without having to get up at 5am (or study vodka bottle labels). These included wolves, European bison, lynx and roe deer. Other social events included the confe-



Figure 5: The (Jurassic) park gates.

rence dinner and a meal in a local restaurant, where local bison and venison were on the menu, accompanied by strong homemade fruit-flavoured spirits (nalewki) and of course, Żubrówka.



Figure 6: The European bison.



Figure 7: The bison as depicted on the Żubrówka label.

Integrated Microscopy Approaches in Archaeobotany

University of Reading, 24th-25th February 2018

Dan Young

The 2018 Integrated Microscopy Approaches in Archaeobotany (IMAA) Workshop was held in the School of Archaeology, Geography and Environmental Science, University of Reading on the 24th and 25th February 2018. The third time this workshop has been held, it was the biggest yet, bringing together over 60 specialists in geoarchaeology, Non-Pollen Palynomorphs (NPPs), palynology, plant macrofossils and phytoliths working in universities, major heritage organisations and professional archaeology. It was led by this year's organising committee from the University of Reading, including Dr Rowena Banerjea, Dr Catherine Barnett, Dr Marta Portillo and Dr Daniel Young. The weekend began with an introduction by Dr Rowena Banerjea and Dr Cathie Barnett, before morning sessions on 'Woodland exploitation', 'Plant use in funerary, religious and ritual contexts' and 'Beyond the microscope: method development and microanalysis'. Highlights during these sessions included fascinating talks by Pille Thomson (Estonian University of Life Sciences) on macroscopic soil charcoal as an indicator of historical land use, and Lara Gonzalez Carretero (UCL) on integrated methodology for the analysis of archaeological meals from Neolithic Catalhoyuk (Turkey). After lunch, Amy Smith (University of Reading) gave us an introductory talk on Egyptian and Greek botany in the Ure Museum of Greek Archaeology, followed by an invitation for workshop attendees to visit the museum over the course of the weekend – many of whom made the short walk over to have a look through the collections.

The integrated microscopy sessions began on the Saturday afternoon, starting with 'Analysis of

Macroscopic and Microscopic Charcoal'. After an introductory talk by Hans Huisman (Cultural Heritage Agency of the Netherlands), Petra Dark, Cathie Barnett (both University of Reading) and Koen Deforce (Royal Belgian Institute of Natural Sciences) led microscope sessions where we were encouraged to get hands on with the microscopes and a selection of samples from various sites – it was standing room only as the excitement peaked for these sessions! After coffee Rowena Banerjea and Lionello Morandi (University of Tübingen) led an introductory talk on 'Dung-microbotanical remains and associated features', followed by a brilliant practical session assisted by Wendy Matthews, Aroa García-Suárez and Marta Portillo. The workshop attendees were given a chance to relax after some hard work on the microscopes at the evening's drinks reception, accompanied by a range of posters in the Archaeology Building, followed by an entertaining evening meal (and drinks) at the Sizzling Spice.



Plenty to discuss during one of the well-earned coffee breaks.



Dorian Fuller talking us through the contributions of charred and waterlogged plant remains in the study of rice domestication in the Yangtze.

Sunday's session began with 'Wild plants in the archaeological record', with excellent talks from Marta Portillo (University of Reading) and Chris Stevens (UCL). After coffee we moved on to the theme of 'Subsistence Networks and Diet' and 'Wetland Archaeobotany', with fascinating talks from Dorian Fuller (UCL) on the contributions of charred and waterlogged plant remains in the study of rice domestication in the Yangtze, and Lenka Lisa (Institute of Geology-Czech Academy of Sciences) on an experimental floor of the mill in Dolní Němčí. Dan Young (University of Reading) wrapped up the talks for the weekend with a session on the role of human activity in the decline of *Sphagnum austinii* in Ireland. After lunch it was back to the microscopes, with phytolith break-out sessions led by Marta Portillo and Martin Hodson (Oxford Brookes University). Our final session for the weekend was a microscope session on wetland archaeobotany, with a talk by Dorian Fuller on wetland macrofossils from the Yangtze, and Dan Young led a session on the identification and interpretation of *Sphagnum* moss from raised peatlands.



Charcoal and coprophilous fungal spore discussions around the microscope.

Overall, the weekend was a well-attended, vibrant workshop that provided a great opportunity to network, stimulating a wide range of exciting international and interdisciplinary exchanges across diverse academic and professional sectors. The microscopy sessions provided some unique opportunities for hands-on experience of a range of proxies, with the subsequent discussions providing an important foundation for future research agendas, collaborations and funding applications. We have plenty of ideas for next year's workshop – watch this space!



*Dan Young leads a microscope session on the identification of *Sphagnum* moss from raised peatlands in Ireland.*

We are happy to accept ideas or suggestions for the 2019 IMAA Workshop – if you have any that you would like to put forward, please contact Dr Rowena Banerjea (r.y.banerjea@reading.ac.uk).



The Prehistoric Society Europa Conference 2018 Coastal Archaeology in Prehistory



University of York, 22–23 June 2018
A conference celebrating the achievements of
Professor Geoff Bailey, University of York,
in the field of European prehistory

Image: © Maritime Archaeology Trust and the DISPERSE Project



20th FRWG meeting in 2019 -- Portland, Oregon, USA

Mark your calendars, for the 20th Meeting of the Fish Remains Working Group (FRWG) set for August 26-30, 2019 in Portland Oregon, USA, followed by a weekend field trip to the Oregon Coast.

The FRWG is an outstanding way to meet with scholars from around the world in a small supportive atmosphere. And Portland, Oregon is a perfect place for such a gathering. Fish were and continue to be of fundamental importance to Indigenous people and the broader citizenry of the region. Please consider joining us in August 2019!

We'll have a website in place by June 2018, to help you with planning.

The local organizer and host is Virginia Butler (Portland State University (U.S.A.)), with help from a planning committee: Madonna Moss (University of Oregon, U.S.A.), Iain McKechnie (University of Victoria, Canada), Elizabeth Reitz (University of Georgia, U.S.A.) and Jen Harland (University of the Highlands, Orkney). Questions? contact virginia@pdx.edu

All Roads lead to Portland: August, 2019!



John Evans Dissertation Prize 2018

After assessing a strong range of projects the panel are please to announce the 2018 recipients of the John Evans Dissertation Prize

John Evans (1941-2005) was an inspirational environmental archaeologist, responsible for advancing the discipline and fostering many of today's top researchers in the field. His many books continue to make a contribution to practical and theoretical aspects of environmental archaeology. To honour the memory of John and his achievements within environmental archaeology, the Association for Environmental Archaeology (AEA) has an annual competition for the best undergraduate and Masters dissertations in any aspect of environmental archaeology.

The 2018 recipients of the John Evans Dissertation Prize are:

Undergraduate: Calum Edward, BSc Physical Geography and Geology, Plymouth University

Investigating potential climatic and anthropogenic change, through sub-fossil non-biting midge (Chironomidae) larvae analysis, surrounding the Black Loch of Myrton crannog, Dumfries and Galloway, Scotland.

Chironomidae (non-biting midges) that are preserved in lake sediments are well-established indicators of past climates, due to their rapid response to environmental change. Notably, chironomid-inferred temperature reconstructions are able to provide quantitative estimates of past temperature change, with the aid of numerical chironomid-based inference models, and they are renowned for their reliability as indicators of Late-Glacial climate change. It has been proposed that, if chironomid assemblages were analysed specifically for archaeological reconstructions, they could be potent indicators of human activity; notably, indication of potential response and adaptation of humans in reaction to environmental change. A Late Holocene chironomid analysis is undertaken on a lake sediment core from the Black Loch of Myrton (BLM), a former lake on the Machars peninsula, Dumfries and Galloway, South-west Scotland. The Black Loch of Myrton crannog is unique in location, however, the form of the settlement is typical of the earlier Iron Age in south-west Scotland. It therefore has the potential to increase the understanding of how early Iron Age roundhouses were built, occupied, re-built and abandoned. A chironomid-inferred mean July air temperature transfer function from a Norwegian calibration set was applied to the chironomid percentage data, to produce a Late Holocene temperature record for the time of the construction and occupation of the BLM crannog. It was difficult to draw any objective conclusions or reliable figures from the CI-T, with the exception, perhaps, of the mean temperature of 14.09°C calculated for the whole sequence; it appears that some of the changes interpreted as temperature-inferred, may reflect changes due to other environmental processes. A Principle Components Analysis (PCA) was applied to the dataset and highlights the high level of homogeneity in the data, and revealed that multiple variables accounted for small percentages of the total statistical variance, with human-induced eutrophication and temperature identified as the prominent causes of change. However, these two variables, combined, only accounted for just over a quarter of the observed changes in the dataset. In conclusion, two periods of possible human activity surrounding the crannog are proposed, most notably at ca.1800-1600BC, and latterly and less conspicuously, at ca.400BC. Ultimately, the key observations, and limitations, that resulted from this assay highlight the need for a multi-proxy investigation to more effectively understand the causes and effects of change at this site, and to complement and validate these results. This is the first Late Holocene chironomid-inferred temperature reconstruction undertaken for the south-west of Scotland, and one of only a few applied to the archaeological study of a crannog. A currently unpublished multi-proxy archaeological investigation into the history of the Black Loch of Myrton will encompass the data presented in this report.

Postgraduate: Eleanor Green, MSc Bioarchaeology, University of York

Give a dog a bone: Investigating the potential of studying prehistoric dogs via the ancient DNA analysis of canid coprolites from Bridge River, British Columbia, Canada

Despite domestic dog (*Canis lupus familiaris*) being the only domesticated animal on pre-contact Canada, little is known about their genetic histories, provisioning or microbiomes. Canid remains have been excavated from many sites in the Lillooet region, notably Bridge River and Keatley Creek. The coprolites analysed during this study were from Bridge River and had been morphologically identified as dog coprolites. In this study, the coprolites (n = 12) and a single bone were genetically identified as *Canis lupus familiaris* via Sanger sequencing of mitochondrial D-loop DNA and next-generation DNA sequencing. The proportion of endogenous DNA retrieved from the coprolite samples was low in all samples ranging from 0.093 - 3.802%, whilst the canid bone was much higher at 74.5%, suggesting that the canid DNA survives better in bone than coprolites which are less stable.

Zooarchaeologists have identified salmon as an important dietary resource in the region, although it is unclear which species of Salmonidae were being exploited. Analysis of dietary reads, generated from DNA extracted from the coprolites, shows that *Oncorhynchus nerka* (Sockeye salmon) was the staple protein source at the winter settlement site of Bridge River. Surprisingly, the dogs seem to have been eating an omnivorous diet as a large number of dietary reads also correspond to the *Leymus* genus.

Microbial analysis (One Codex) suggested that, whilst six of the ten most abundant microbial species were soil-derived, an authentic signature of the dog's gut microbiome can still be recovered. Gut-derived microbial species were identified in nine coprolites, furthermore two identified species, *Allobaculum stercoricanis* and *Clostridium colicanis*, are specific to canine faeces. The authentication of dietary and microbial reads warrant further investigation using more accurate pipelines such as MALT for the dietary and MetaPhlan for the microbial reads.

Congratulations to the winners and to all those who were nominated!

Submissions for the John Evans Dissertation Prize are accepted year-round, though dissertations must be submitted by 31st July for consideration in that year's prize – dissertations submitted after this date will be automatically included in the following year's competition. For more information, or to submit an undergraduate or postgraduate dissertation please contact the AEA John Evans Prize Administrator, Jen Harland (Jen.Harland@uhi.ac.uk).

AEA Grants 2018

We are happy to announce the winners of this year's AEA Research Grants. Titles and summaries of winning projects can be found below:

Katherine Alexander (University of Kentucky)

Deer management strategies and a possible explanation for the increase in Prehistoric human maize consumption in the Eastern Woodlands of the United States.

After the initial introduction of maize in the prehistoric US Eastern Woodlands, its subsequent adoption as a human dietary staple lags by several centuries. Although found throughout this time, based mainly on pollen records, previous isotopic studies have found limited evidence of its consumption by people, and its presence in archaeobotanical assemblages is sparse and often from non-food, possibly ceremonial contexts. At this time, deer were an important dietary resource. If deer were feeding on maize, this may indicate a shift in hunting strategies from stalking to garden baiting, which has implications for decreased mobility and greater investment in garden crops, perhaps contributing to the eventual dependence on maize as a human dietary staple. To investigate this possibility in the Ohio River Valley, deer bone collagen from archaeological sites spanning this time will be isotopically characterized. Consumer tissues incorporate the stable isotope ratios of dietary resources in a systematic and predictable manner. Plants are characterized by distinct isotopic signatures based on whether they utilize either the C3 or C4 photosynthetic pathway, and subsequently, the carbon stable isotopic composition of herbivore tissues will reflect whether dietary carbon is predominantly derived from C3 or C4 plants. Because maize would be the only C4 plant contributing to deer diet in this region, any significant increases in $\delta^{13}\text{C}$ bone collagen values are likely indicative of maize consumption.

Lucile Cr  t   (Bournemouth University)

Multiproxy study of ancient antelopes' diet to investigate past vegetation changes in the Omo-Turkana basin (3.5-1.6 Myr)

The Omo-Turkana basin (Kenya/ Ethiopia) is a key reference region for African hominin sites, and a detailed record of vertebrate evolutionary patterns (Bobe, and Eck, 2001; Behrensmeyer, 2006; Bobe, 2011). Several important questions about hominins and their habitats can be answered using fossils

preserved here, as well as insights into global climate and regional environmental processes that drove our evolution. For example, how did this region support such a rich diversity of hominins between 3.5-1.6 Ma? How did vegetation changes affect the faunal community and the hominins' behaviour?

We employ a novel technique to reconstruct prevailing vegetation conditions through time. We examine the dietary evidence of the fossil impala (genus *Aepyceros*) and springbok (genus *Antidorcas*) teeth, through stable isotopes, mesowear and microwear evidence. We assume that as abundant, successful, mixed-feeders, these antelopes varied their diets according to prevailing vegetation conditions. We will test our paleo-environment reconstructions against previous studies (e.g. Behrensmeyer et al., 1997; Bobe & Eck, 2001).

A key part of this project is to assess the links between modern antelope diets and vegetation cover of the present landscapes, which we will quantify via Remote Sensing techniques. Then, we can compare modern mixed-feeding antelope diets to those identified in Omo-Turkana and assess the differences between these modern and ancient herbivores diets and habitats.

Oph  lie Lebrasseur (University of Oxford)

An archaeological and genetics approach to the cultural history of chickens in Argentina

The introduction of chickens to South America has solicited much debate. The most popular theory implies a European introduction by the Spanish in the late 15th century while a second theory sees a pre-Columbian introduction by the Polynesians on the western coast of the continent. Once introduced, chickens became essential to the development of native societies; their roles in dietary practices, religion, medicine and entertainment have shaped these societies' cultural heritage and economic development. Today, poultry production is an important part of the continent's economy and trade exports. However, the integration of chickens within South American societies and their social, cultural and environmental impact has never been investigated. This knowledge is crucial to address questions of

cultural heritage, conservation, environmental ethics and poultry-borne diseases.

To address these past human-chicken interactions on the Latin American continent and assess their impact on modern local societies and their environments, investigation of past material culture and zooarchaeological and biomolecular analyses on archaeological chicken assemblages are needed. Unfortunately, these are rare; we have only successfully recovered such material from various locations across Argentina, with the exception of previously published bones from El Arenal-1 in Chile.

Due to the limited availability of the material, my project aims to research these human-chicken-environmental relationships in Argentina through time by recording relevant material culture in local museums, and establishing the roles of chickens through zooarchaeological analyses (i.e. flock profiles including age-at-death, pathologies, butchery marks, metrics etc). I also aim to establish the genetic makeup of chickens in ancient populations and compare it to modern local breeds and broiler populations. This will establish ancient genetic diversity on the continent and determine possible significant population selection pressure for specific phenotypic and behavioural traits.

Łukasz Pospieszny (Polish Academy of Sciences)

The role of halophytes as a source of bioavailable strontium: a case study from Kuyavia, Poland

The aim of this pilot project is to measure the strontium isotopes composition ($87\text{Sr}/86\text{Sr}$) and concentration in modern halophyte species from their natural habitats. In the Polish Lowland shallow-seated Permian salt diapirs constitute sources of surface brines with low (non-radiogenic) Sr isotope ratios ($87\text{Sr}/86\text{Sr}$ 0.709-0.707), contrary to prevalent highly radiogenic Quaternary glaciogenic sediments ($87\text{Sr}/86\text{Sr}$ 0.720-0.760), derived from the Precambrian to Palaeozoic basement of Scandinavia. In the well-studied region of Kuyavia (Polish: Kujawy), the $87\text{Sr}/86\text{Sr}$ range for local humans and animals has been estimated to 0.711-0.713 based on a relatively large number of measurements of tooth enamel. However, humans tend to have systematically lower values than local fauna. Moreover, there are single cases of ruminants with very low $87\text{Sr}/86\text{Sr}$ signatures (<0.711) which could normally be assigned as non-local. Our hypothesis is that this is caused by consumption of halophytes by these animals, and the signal could be transferred to humans. Yet, inland salt meadows (Glauco-Puccinellietalia) have not been a subject of isotopic studies and the available data for plants from

Poland includes trees only. We propose to collect 10 samples of halophytes (*Spergularia salina*, *Aster tripolium*, *Juncus gerardi*, *Glaux maritima*, *Triglochin maritimum*) from 5 well-known habitats in Kuyavia, an area with high number of $87\text{Sr}/86\text{Sr}$ measured archaeological humans and fauna, as well as modern sediments, tree leaves, and ground and surface waters. Strontium concentrations will be measured to screen out samples affected by modern anthropogenic contaminants (>150 ppm). The project will improve our understanding of $87\text{Sr}/86\text{Sr}$ sources and variability in postglacial environments. The results will be used for building and publishing more reliable human and animal mobility reconstructions, and designing future large-scale investigations.

Lena Strid (Lund University)

A study of medieval bone pens

This project proposes to expand the current information held on bone pens in British museums (n:37+). This type of artefact is closely related to the spread of literacy in the Middle Ages, but have been little studied. In fact, object length, skeletal element and (often, but not always) species are usually the only information that exist. The bone pens are always made from the radius, where the distal end has been chopped off to create the point for the ink. Most bones are from goose, or "bird", and a single find is from hare.

Experience has shown that quills taken from the left wing are more suitable for right-handed scribes, and vice versa. By studying the pens with the aim at increasing the number of sided bone pens, and noting the side aspect of the distal cut which creates the point for the ink, I will investigate this hypothesis that siding is also important for bone pens.

I will also create a comparative record of the features the bone pens were found in, correlating them with the property inhabitants' socio-economic level, where applicable, as well as with the phasing of the feature. This makes it possible to discern any preferences towards bone pens – were they primarily used by poorer people, whereas people with more money used quills?

Due to time restrictions, this cannot be an exhaustive catalogue. Instead I will focus my visits to those museums with several pens and from which the previously published information can be expanded.

The results will be presented at the ICAZ Bird Working Group's conference in Sheffield this year.

#ScientistsandSamples

Have you got a stunning photo of a scientist and a sample? It could be something as simple as sampling in action, processing and sorting a sample or analysing a sample; or it could be a more imaginative take on the title. We want to see people as well as the samples/sampling. When you've chosen your photo/s, then submit them to the Association for Environmental Archaeology photo competition at <http://envarch.net/photo-competition-scientistsandsamples/>.

The top 12 photos will be chosen by the Association for Environmental Archaeology (AEA) committee, these will then go out to a public vote, with the winner being announced at the 39th Association for Environmental Archaeology Conference hosted at Moesgaard Museum (MOMU) and Aarhus University 'Moesgaard Campus' in Denmark on 29th November to 1st December 2018. The competition is only open to members of the AEA. Full entry instructions can be found on the website.

Prizes: 1st Prize - £50; 2nd Prize - £30 and 3rd Prize - £20.

Competition deadline: 1st October 2018

Good luck!

The AEA Committee



2018 Managing Committee Elections:

First call for nominations

Elections for new committee members will be held during the AGM at the autumn conference in Aarhus (29th November-1st December 2018).

This year we are seeking nominations for **Secretary** (a four year term), three **Ordinary Members** (each a four year term) and one **Student Representative** (a two year term).

General Committee Information

Serving on the Committee is an opportunity to help shape the future direction and priorities of the Association, and to promote environmental archaeology to an international audience. The Committee usually meet four times a year, including one teleconference meeting. Meetings are timed to correspond with Association conferences when possible. There is funding available to assist with travel to meetings and we use teleconferencing to allow members to participate where travel is prohibitively expensive.

The main items of business at meetings include the organisation of conferences and events, *Environmental Archaeology journal matters, responses to new policy documents and frameworks that impact upon environmental archaeology and its practitioners, as well as issues relating to the Newsletter, website, social media, membership, finances and new initiatives.*

We welcome nominees from all countries, but please note that meetings are conducted in English.

Further information on the available roles

The role of Secretary (one position available, four year term)

The Secretary assists the Chair in coordination of the Association's activities and serves as a general point of contact between the Association's membership and its Managing Committee, while other Committee members administer specific aspects such as membership or publicity communications. An important task undertaken by the Secretary is to minute Managing Committee meetings and Annual General Meetings. If you have a suggestion of a member of the environmental archaeology community who you think would excel in this role, or would like to find out more about it yourself please contact the current Secretary Fay Worley (envarch@envarch.net), or current Chair Gill Campbell (Gill.Campbell@HistoricEngand.org.uk) for further details.

The role of Ordinary Member (three positions available, four year term)

The committee includes 12 elected Ordinary Members who contribute to the management and promotion of the Association through active participation in committee meetings and additional tasks as required. Ordinary committee members may take on additional specific responsibilities (such as Conference Officer, Publicity Officer, Web Officer, Prize Administrator etc.) during their term of office. Ordinary Members may also sit on review panels for prize and grant decisions. A list of current committee members can be found on the website <http://envarch.net/committee/>.

The role of Student Representative (one position available, two year term)

The committee includes two Student Representatives, with one new Student Representative elected each year, and their term of office lasting two years. The post is open to both undergraduates and postgraduate students and is an excellent opportunity to get involved with the environmental archaeology community.

The Student Representatives are responsible for promoting the AEA within the undergraduate and postgraduate communities, and also encourage the establishment of student-led meetings/seminars. During their first year of office, the newly elected Student Representative will 'shadow' the senior Student Representative, and contribute to the content and administration of the student blog . During their second year, the Student Representative will be part of the Newsletter editorial team. Student Representatives also contribute to the administration of grants and prizes.

How to nominate a candidate or stand for election yourself!

To stand for election you must be a paid-up or honorary AEA member. Please apply through the website. You will need to provide a personal statement and the names and email address of two AEA members who have agreed to nominate and second you. They will be asked to confirm your nomination by email. Your personal statement and the names of your nominators will be circulated to AEA members, including through the Newsletter.

Nominations can be received at any time up to the AGM, but we would like to encourage members to submit nominations by July 20th 2018, so that we can share candidates' statements in the August Newsletter.

Please contact the Secretary, Fay Worley (for contact details see <http://envarch.net/committee/>) with any queries or for more information.



Members of the current AEA committee engaged in a meeting.

The General Data Protection Regulation (GDPR)

Many of you will already be aware that updated Data Protection laws come into force on May 25th. Details on the new GDPR can be found here: <https://www.eugdpr.org/>

Along with all other organisations that collect and distribute personal data, the AEA has been busy making changes to our administration and data curation procedures to ensure that we comply with the new regulations.

By now, all AEA members should have received a general email outlining the main changes to data protection laws and how they affect the AEA, the steps we need to take to comply... and what we need from YOU – the membership!

Depending on how you pay for your membership, all AEA members will soon receive an email or emails asking you to give specific consent to our continued use of your data – whether that is to confirm permission to share your data with our journal publishers, to retain your email on our jiscmail lists, or even to just keep storing your details in our database.

Please take a moment to respond to these emails – they're vital for the Association to continue to operate, and for you to retain the benefits of membership!

Many thanks,

Jo (Membership Secretary)

AEA Membership Awards

The association offers three membership awards for individuals, institutions and voluntary groups who would otherwise not be able to afford to join the AEA. We are able to fund these through the generosity of our honorary members. The holders receive full membership of the AEA for 3 years, including hard copies the journal.

Nominations for the individual and institutional awards are now open. Please send your nominations to the AEA Chair Gill.Campbell@HistoricEngland.org.uk or post a suggestion on our Facebook page. The closing date for nominations is 31st July. The shortlist will be decided on by the managing committee and published in the August newsletter, with AEA members deciding on the final winners by voting through social media or via email. The winners will be announced at the AGM and in the November newsletter.

The society membership award (2017-2020) is currently held by South Somerset Archaeological Research Group <http://envarch.net/prizes/society-membership-prize/>. The individual award is held by Dr Premathilake Rathnasiri, Sri Lanka (2015-2018) and the institutional award by the Library, Postgraduate Institute of Archaeology, University of Kelaniya, Sri Lanka (2015-2018).

Environmental Archaeology Volume 23 – Posting Update

Many thanks to all our members for your patience while waiting for this year's very delayed copies of Environmental Archaeology to be posted out. We're pleased to report that postage issues are officially resolved, with most members now having received their copies of Vol 23.1 and 23.2. However, a few members have reported that they are still waiting for copies, or have received one issue but not the other. If you're still experiencing problems, please do email membership (membership@envarch.net) and we'll make sure that we follow it up.

Jo McKenzie (Membership Secretary)

AEA Member Offer – 20% Course Discounts

The AEA is delighted to announce that current AEA members are now eligible for a 20% discount on any of the courses hosted by Transmitting Science (<https://www.transmittingscience.org/funding/organizations-with-discount/>).

Based in Barcelona, Transmitting Science manage specialised courses and workshops in the life sciences, covering a wide range of research methods and aimed at postgraduate students, postdoctoral researchers and academics. Their course list can be viewed here: <https://www.transmittingscience.org/courses/> and offers a wide range of topics within archaeology, palaeontology, ecology, biogeography, statistical analyses and much more.

Interested? Simply indicate on the registration form that you are a current AEA member and are eligible for your 20% discount. And keep an eye on our Facebook and Twitter pages for details of upcoming courses!



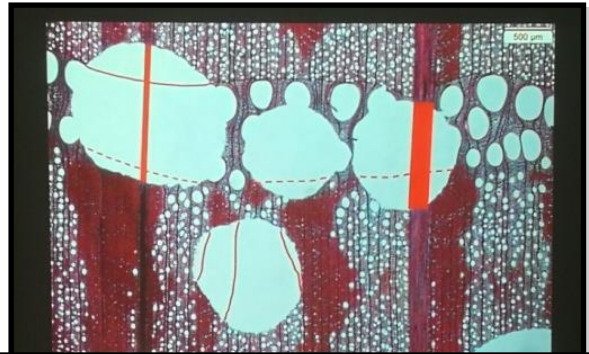



Musings from Social Media



 **Hayley McParland**
@Hayley_McP Following

Today's joy at the #archaeobotany and #charcoal workgroup: Bean Weevil. @Envarch #aeapests



 **Ruth Pelling**
@struth28 Following

What lies beneath - powder-post beetle larvae galleries through early and late wood growth. Alan Crivellaro @Envarch #AEapests

#elmdecline is #FakeNews

 **Lisa Lodwick**
@LisaLodwick Following

Now Dan Young @Quest_UoR is talking about the late Holocene decline of Sphagnum austinii in Irish peatlands



We're now living in the Anthropocene (the age of people), but how will future archaeologists look back & define the start? A set of experts are arguing for different biomarkers. Listen to @Envarch's Chair @GillCampbell10's Introduction & vote! [soundcloud.com/envarch/sets/b ...](https://soundcloud.com/envarch/sets/b...) #scienceweek

- 39% Wheat
- 34% Broiler Chickens
- 16% Dung Fungi
- 11% Dung Beetle

 **Matt M-Williams**
@Matt_MWilliams Follow

Sampling for pollen well underway at #Amanzi in the final week of fieldwork this season @Ozarchaeomaglab @speleofriends





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

The AEA

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

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

Key Dates

ICAZ - 8-11 June 2018

The Prehistoric Society Europa Conference—
Coastal Archaeology in Prehistory — 22-23 June 2018

IWAA - 26-29 June 2018

AEA Committee Nominations encouraged by

July 20th 2018

2018 John Evans Dissertation Prize competition.
Closing date for submitting candidates: 31st July 2018, [http://
envarch.net/john-evans-prize/](http://envarch.net/john-evans-prize/)

Celebrating our Woodland Heritage -1

6-18 November 2018

AEA Autumn Conference, Aarhus, Denmark

Thursday 29th November 2018 – Saturday 1st December 2018

Notes from the Newsletter Editors

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

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

newsletter@envarch.net

Next deadline: 20th July 2018

Rob Batchelor, Danielle de Carle, Rhiannon Philp
and Daisy Spencer