

Charcoal and Wood Work Group meeting

Minutes

4 October 2015

Environment Department, University of York

Attendees: Steve Allen (York Archaeological Trust, York), Lucy Allott (ASE: UCL), Sheahan Bestel (University of Exeter), Gill Campbell (Historic England), Danielle de Carle (now Leicester University), Sharon Carson (YAT, Glasgow), Dana Challinor (Oxford University & freelance), Colin Courtney Mustaphi (University of York), Lynne Gardiner (NAA), Maria Gehrels (University of York), Zoë Hazell (Historic England), Delphine Joly, Hywel Lewis (University of Bradford), Lisa Lodwick (University of Reading), Julia Meen (Oxford Archaeology), Jen Miller (YAT, Glasgow), Janet Oke (University of Exeter), Richard Payne (University of York), Liz Pearson (Worcestershire Archaeology), Jackeline Roberston (AOC), Shinya Shoda (University of York), Lauren Shotter (University of Edinburgh), Jill Thompson (University of Bradford), Robyn Veal (Cambridge University) and Angela Vitolo (ASE: UCL).

Apologies: Eleni Asouti (University of Liverpool), Hayley McParland (University of York) and Lisa-Marie Shillito (University of York).

MORNING SESSION

The morning included a series of presentations and subsequent discussions covering different applications of charcoal analysis in palaeoenvironmental and archaeological contexts, as well as short summaries of recent conferences/sessions relevant to the wood/charcoal research community.

Presentations

1) **Colin Courtney Mustaphi** gave an overview of the research potentials of microcharcoal (150-500µm) recovered during palaeoecological investigations (such as sediment coring) for reconstructing past burning events and their characteristics. In particular, microcharcoal remains can be used to reconstruct fire frequency (through time series analysis), type (eg intensity, ground/crown fires), fuel sources (eg grassland/woodland), and for inferences on biomass abundance and taphonomic processes. He demonstrated the application of these techniques through his work on lake records from SW Canada (Courtney Mustaphi and Pisaric, 2014), for which an identification key characterising charcoal on the basis of fragment morphology had been produced.

He also drew attention to the PAGES (PAst Global changES) Global Palaeofire Working Group <http://www.gpwg.org/> and its resources: the GCD (Global Charcoal Database) and Paleofire R-package.

2) **Zoë Hazell** presented results on the small archaeological investigations and subsequent charcoal analysis of charcoal burning platforms in Barbon, Cumbria, as part of Historic England's *National Archaeological Identification Survey* project. See Hazell *et al* (2015) for more detail.

Discussions followed on the many characteristics that can be recorded for individual charcoal fragments [eg Marguerie and Hunot, 2007; Ludemann, 2006], although depending on the number of fragments analysed, this can be very time consuming, and some sort of compromise is often inevitable.

3) **Gill Campbell** gave a talk based on her presentation at the EAA 2015 conference, but focussing on pine's early prehistory in Wiltshire. In particular, she critiqued the evidence concerning the age of the postholes in Stonehenge's [former] car park; that are often referred to as being contemporaneous "Mesolithic" features, based on radiocarbon ages derived from pine charcoal within them, despite the ages being c1000 years apart, and the charcoal itself likely to be older, reworked material.

Conference summaries

Zoë Hazell outlined, with examples, some of the main themes covered at *anthraco2015: 6th International Anthracology Meeting: local to global significance of charcoal science*, held at the University of Freiburg, Freiburg, Germany, 30 August to 6 September 2015. As well as the oral and poster presentations, there were multiple fieldtrips, including visits to an active charcoal kiln and to sites of former charcoal production.

More details can be found in the conference documentation at:

<http://www.anthraco.uni-freiburg.de/abstract> - Abstract volume

<http://www.anthraco.uni-freiburg.de/6iam-sil-ex-guide-www.pdf/view> - Schauinsland excursion field guide

<http://www.anthraco.uni-freiburg.de/6iam-exguide-zb4e-gr.pdf/view> - Zweribach region tour guide

The conference was well attended with research presented from all five continents. The next conference will be held, as usual, in four years' time (2019), but the location is yet to be decided. The conference proceedings are to be published in *Quaternary International* (with submitted papers being subject to the usual peer review process).

Also, keep an eye out in 2016 for the publication of the proceedings from the meeting *Charbonnage, Charbonniers and Charbonnières: Etat des connaissances et perspectives de recherche*, held in Limoges, France, 12 to 13 September 2013, organised by GEOLAB UMR 6042 CNRS and LA3M UMR 7298 CNRS.

Gill Campbell outlined Session LV22 'Scientific techniques to examine human interaction with woodlands' (convenors: L O'Donnell and S Timpany) of the 21st annual meeting of the *European Association of Archaeologists* held in Glasgow, UK, from 2 to 5 September 2015.

The session details can be found on pages 177-178 of the conference programme at:

<http://eaaglasgow2015.com/wp-content/uploads/2015/08/EAA-GLASGOW-FULL-PROGRAMME.pdf>

and the individual abstracts within:

<http://eaaglasgow2015.com/wp-content/uploads/2015/07/EAA-Glasgow-Abstract-Book.pdf>

There followed keen discussion on the work presented by Vermeeren *et al* (2015) on the 'Utilisation of Woodlands in the Past: Can we prove management in archaeological wood assemblages?', furthering that of Out *et al* (2013).

Other announcements:

- The *Yorkshire Palaeoecology Group* has been set up by Richard Payne (University of York); there will be two meetings per year. Please contact Richard for more details.
- A day of seminars on Japanese archaeobotany is being planned for January 2016. Please contact Shinya Shoda for more details.
- The *Association for Environmental Archaeology* annual conference of September 2016 is to be held in Rome. Please contact Robyn Veal for more details.
- 'Field Diary' is a new initiative by the REAL project to share fieldwork experiences to which everyone is welcome to contribute, see:

<http://www.real-project.eu/wp-content/uploads/2015/07/Field-Diary-issue-1.pdf>

AFTERNOON SESSION

The afternoon took the form of a practical session led by Steve Allen (York Archaeological Trust). He emphasised the importance of recording waterlogged wood remains as soon as possible after recovery, and worked through the characteristics outlined on the YAT post-excavation wood recording sheet [a copy of which is reproduced on page 13 of Brunning and Watson (2010)]. Also see Allen (1994) for more details. Steve outlined the different recording methods available: visual, silicon rubber moulds and laser scanning.

Steve explained, with live demonstration, the concept of a tool's unique 'tool signature'; that it can be preserved on worked wood and wood chips (although it will change over time as the blade blunts and again as it is sharpened), and how it can be possible to identify that the same tool has been used on different pieces of wood (eg see Sands, 1997). It may even be possible to reconstruct a blade's width by reconstructing overlapping strike patterns. A discussion on the survival of tool

signatures on charcoal followed, concluding that while it is possible to recognise these, the fragmentation of the material inhibits reconstruction of blade types.

In terms of recording waterlogged wood, photographing often produces disappointing results due to the reflective wet surface. Aside from visual recording, using silicon rubber moulds, laser scanning and micro-CT scanning are alternative recording methods. Jackeline Robertson of AOC said that her colleagues have had great success with a very high-precision system, capable of scanning resolutions of better than 0.1mm, using a Faro platinum arm. [Some examples from Black Loch of Myrton in the SW of Scotland are available on request, including demonstrating how it was possible to take measurements of the tool marks using the scanned image].

The afternoon also provided the opportunity for participants to compare and share thoughts on their own charred material.

THANKS

A great turnout! Thanks to everyone for attending. Thank you to Dana, Colin, Maria and Lauren for arranging the day and to Colin, Gill, Zoe and Steve for their contributions.

Additional information and useful references

Allen, SJ 1994 *The Illustration of Wooden Artefacts*. York: AAI&S Technical Paper No. 11

Brunning, R and Watson, J 2010 *Waterlogged Wood: Guidelines on the recording, sampling, conservation and curation of waterlogged wood* Historic England <https://content.historicengland.org.uk/images-books/publications/waterlogged-wood/waterlogged-wood.pdf>

Campbell, G and Marshall, P 2015 'Evergreens in Wiltshire: A[n] early prehistory', in (ed) L Campbell *EAA Glasgow 2015: Abstracts of the oral and poster presentations*, 477

Courtney Mustaphi, CJ and Pisaric MFJ 2014 A classification for macroscopic charcoal morphologies found in Holocene lacustrine sediments. *Progress in Physical Geography* 38: 734-754. doi:10.1177/0309133314548886

Hazell, Z, Crosby, V and Marshall, P 2015 Archaeological excavation and wood charcoal analysis of charcoal burning platforms, Cumbria, UK, in *Congress Guide; abstract volume*, 66.

Ludemann, T. 2006 Anthracological analysis of recent charcoal-burning in the Black Forest, SW Germany. In A. Dufraisse (ed.) *Charcoal analysis: new analytical tools and methods for archaeology*, 61-70. London

Marguerie, D and Hunot, J-Y 2007 Charcoal analysis and dendrology: data from archaeological sites in north-western France. *Journal of Archaeological Science* 34, 1417-33

Out, W, Vermeeren, C and Hänninen, K 2013 Branch age and diameter: useful criteria for recognising woodland management in the present and past? *Journal of Archaeological Science*, 40(11), 4083-4097

Sands, R 1997 *Prehistoric Woodworking: The Analysis and Interpretation of Bronze and Iron Age Toolmarks* Archetype Books

Vermeeren, C, Hänninen, K, Holm Larsen, J and Out, W 2015 Utilisation of Woodlands in the Past: Can we prove management in archaeological wood assemblages? in (ed) L Campbell *EAA Glasgow 2015: Abstracts of the oral and poster presentations*, 434-435

Minutes by Z Hazell and D Challinor, October 2015

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