ANALYSIS OF CHARCOAL FROM BOURNVILLE LANE/WOODBROOKE ROAD, BIRMINGHAM

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1. Summary

Analysis of environmental samples from an excavation prior to redevelopment at Bournville Lane/Woodbrooke Road, Birmingham was undertaken on behalf of Warwickshire Museum Field Services. Samples from two pits were selected for assessment: one containing Grooved ware pottery of late Neolithic date and a second containing heat-shattered stone and presumed to also be prehistoric in date. Charcoal from oak and ash (which are particularly good wood burning species) dominated the late Neolithic pit with occasional fragments of hazel and pear/apple/whitebeam/hawthorn. Alder or hazel charcoal was dominant in the prehistoric pit, with smaller quantities of oak, pear/apple/whitebeam/hawthorn, birch, lime and possible ash. A single fragment of a hazel nutshell was also found in the late Neolithic pit.

2. Introduction and archaeological background

An analysis of charcoal from Bournville Lane/Woodbrooke Road, Birmingham. was undertaken on behalf of Warwickshire Museum Field Services.

The site was located along the line of a Severn Trent water pipe which ran between Bournville Lane and Woodbrooke Road to the south, and the boating pond, Griffins Brook and Valley Parkway to the north. Two processed samples from truncated pit-type features were provided. Both pits were close to a burnt mound recorded by Mike Hodder (Ian Greig pers comm). Pit 9 (fill 10), which contained heat cracked stones and lots of charcoal but no pottery or other finds, is presumably prehistoric. The other (pit 11, fill 12) contained 28 sherds of later Neolithic Grooved ware pottery (i.e. earlier than the burnt mound).

2.1 Project parameters

The environmental project conforms to relevant sections of the *Standard and guidance for archaeological excavation* (IFA 2001); and *Environmental Archaeology: a guide to the theory and practice of methods, from sampling and recovery to post-excavation* (English Heritage 2002).

2.2 Aims

The aims of the analysis were to identify suitable material for radiocarbon dating, and to provide information on the local environment and exploitation of the local woodland for firewood.

3. Methods

3.1 Fieldwork and sampling policy

Samples were taken by the excavator from deposits considered to be of high potential for the recovery of environmental remains. Samples from the following contexts were processed by sieving over a 500 micron mesh:

- Pit 9 (fill 10) containing heat-cracked stones. Approximately 5% of the context (5 litres) was taken and processed as described above.

- Pit 11 (fill 12) containing sherds of late Neolithic Grooved ware pottery. The entire fill (100% or 10 litres) was taken and processed as described above.

3.1.1 Processing and analysis

Flots and residues were provided from samples processed by Warwickshire Museum Field Services. During assessment (Clapham 2008), residues were scanned by eye and flots scanned using a low power MEIJI stereo light microscope. The abundance of each category of environmental remains was estimated, but as only charcoal appeared to be suitable for analysis, fragments over 4mm in size were selected from both residues and flots for species identification. Nomenclature for the plant remains follows the *New Flora of the British Isles*, 2nd edition (Stace 1997).

The cell structure of all the charcoal samples was examined in three planes under a high power MEIJI lightfield/darkfield illuminating microscope. Identifications were carried out using reference texts (Schweingruber 1978, Hather 2000) and reference slides housed at the Worcestershire Historic Environment and Archaeology Service. Short-lived taxa were also selected for radiocarbon dating in order to provide a more precise date for this deposit.

4. Results

The number of identifiable fragments was limited as the majority of the charcoal was poorly preserved, being very friable and liable to crumbling when broken in order to produce a clean surface for identification. Clay had also penetrated the structure of the charcoal in many cases, obscuring features required for an accurate identification. Alder and hazel were particularly difficult to separate as the diagnostic sclariform plates in the vessels had degenerated in most of the fragments identified. The results are shown in Table 1.

4.1 Pit 9, sample 10

This sample was dominated by poorly preserved alder or hazel (*Alnus/Corylus* sp) charcoal, although four fragments were identifiable as alder (*Alnus* sp). These were found in association with oak (*Quercus* sp), pear/apple/whitebeam/hawthorn (Maloideae sp), birch (*Betula* sp), lime (*Tilia* sp) and possible ash (cf *Fraxinus excelsior*). Fragments of birch and Maloideae charcoal were selected for radiocarbon dating.

4.2 Pit 11, sample 12

Oak (*Quercus* sp) charcoal dominated this assemblage, with ash (*Fraxinus excelsior*) also being moderately abundant. A number of fragments of ash showed limited growth of late wood suggesting that it had grown during dry summers before being cut. Small quantities of hazel (*Corylus avellana*) and pear/apple/whitebeam/hawthorn (Maloideae sp) charcoal and a single fragment of charred hazelnut shell were also identified. The hazelnut shell and either the hazel or Maloideae charcoal are recommended for radiocarbon dating.

5. Discussion

The two samples were dominated by charcoal from tree species commonly found in temperate woodlands. The dominant taxa identified were oak and ash in pit 11, and alder or hazel in pit 9, with smaller quantities of Maloideae, birch and lime also present. It is most likely that the wood was used as a fuel but what activity was being carried out is difficult to determine. The burnt stone in Pit 9 may suggest cooking or that burnt stone originates from a burnt mound nearby which may be the remains of a sweat lodge. There is, however, no stratigraphic evidence to link pit 9 with the nearby burnt mound and no supporting evidence for cooking in the form of associated food waste. A single fragment of a hazelnut shell was however, recovered from

pit 11. This is likely to derive from roasted nuts which are often found as a component of the Neolithic diet (Moffett *et al* 1989).

Oak, ash and birch are particularly good fuel woods, with birch providing good charcoal, (Taylor 1981) but it is likely that the other species would have been used where readily available. Hazel and lime are trees may have been coppiced at this time to provide a steady supply of fuel wood, but the preservation of the charcoal from this site is too poor to determine whether coppiced wood (regular-sized roundwood) was present.

The ash charcoal in the late Neolithic pit (11), which shows limited late wood growth indicates that there were dry summers at the time of growth and hence provides some indication of environmental conditions. It is also more common on base-rich, damp soils.

As pit 9 may contain material from an adjacent burnt mound, the charcoal could be compared to that recovered from burnt mounds locally. Comparable sites can be found, for example, in the Birmingham area and at Clifton Quarry in Worcestershire. At the latter site, a pit containing late Neolithic Grooved ware pottery was also identified in close proximity. Situated close to the Bournville Lane site and at the edge of the same watercourse (Griffins Brook) was a burnt mound at Cob Lane (Hodder 2004). Charcoal from this site was dominated by alder with alder buckthorn and willow. At Collet's Brook and Langley Brook near Sutton Coldfield and Clifton Quarry, Worcestershire, charcoal associated with burnt mounds (or in the last case, a pit associated with a burnt mound) was made up of similar species as those found at Bournville Lane, such as birch, pear/apple/whitebeam/hawthorn (Maloideae), ash, oak and hazel (Gale 2008a, Gale 2008b and Clapham 2008 respectively), but as at Cob Lane, these were dominated by alder. Only occasional fragments of alder were identified from Bournville Lane from the pit containing heat-shattered stones, but on account of the poor preservation, this species was difficult to separate from hazel and hence the extent of its presence in the assemblage is uncertain. Alder, being a common tree in woodland carr vegetation besides rivers and streams, appears to have been collected from the immediate environment at Cob Lane, the Sutton Coldfield sites and at Clifton Quarry and is a likely source of wood in this environment. However, it remains unclear how important a resource it was at Bournville Lane.

There was also some similarity in the charcoal from a pit containing Grooved ware pottery from Clifton Quarry and that from Bournville Lane in that oak, hazel and pear/apple/whitebeam/hawthorn species were identified. Nevertheless at Clifton Quarry, the pit assemblage was unusual in that the dominant charcoal (pear/apple/whitebeam/hawthorn) was associated with not only abundant charred crab apple remains (the two materials possibly deriving from the same tree source) but also with remarkably abundant barley grains.

Although the identifiable charcoal from the two pits forms a small dataset, the results contribute towards information on features which are rare in the region.

6. Acknowledgements

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