Palaeoecology Research Services

Assessment of biological remains from excavations at the site of the former Vaux Brewery, Sunderland, Tyne and Wear (site code: VXB03)

PRS **2004/21**

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by

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Summary

Four sediment samples recovered from mid Bronze Age/early Iron Age deposits encountered during excavations at the site of the former Vaux Brewery, Sunderland, Tyne and Wear, were submitted for an assessment of their bioarchaeological potential.

Ancient biological remains recovered from the samples were largely restricted to small quantities of charred plant remains and, in one case, a small assemblage of unidentified burnt animal bone fragments. These remains were too few and too poorly preserved to be of any great interpretative value. However, a fragment of charred hazel nutshell recovered from Context 15 was submitted for radiocarbon dating by accelerator mass spectrometry. The returned 2-sigma calibrated AMS date of 2480-2280 BC (Beta - 190680) was a little earlier than that indicated by the majority of the artefactual evidence from this deposit (mid Bronze Age pottery) and perhaps suggests some earlier human activity.

No further archaeobotanical or zooarchaeological work on this material is justified, but the possibility that other deposits with good preservation of charred plant remains may be present at this site should be borne in mind during any further development.

KEYWORDS: FORMER VAUX BREWERY; SUNDERLAND; TYNE AND WEAR; ASSESSMENT; LATE NEOLITHIC/EARLY BRONZE AGE; MID BRONZE AGE; EARLY IRON AGE; PLANT REMAINS; CHARRED PLANT REMAINS; VERTEBRATE REMAINS

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27 April 2004

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Introduction

An archaeological excavation was carried out by Pre-Construct Archaeology Ltd (Northern Office) at the site of the former Vaux Brewery, Sunderland, Tyne and Wear (centred on NGR NZ 394 573), between the 5th and the 19th of December 2003.

Seven trenches were excavated (an eighth is to be excavated at a later date) and encountered deposits of mostly mid Bronze Age to early Iron Age date, together with evidence of early modern (19th and 20th century) disturbance. Most of the features encountered were ditches, postholes or pits. A relatively large assemblage of mid Bronze Age domestic pottery was recovered perhaps indicating that the main period of human prehistoric activity was during the 2nd millennium BC. A small component of the flint assemblage suggested that human activity at the site may have begun much earlier, in the Mesolithic, however. There was also some later ceramic material of the late Bronze Age/early Iron Age.

Four bulk sediment samples ('GBA'/'BS' *sensu* Dobney *et al*. 1992) were submitted to Palaeoecology Research Services Limited (PRS), County Durham, for an evaluation of their bioarchaeological potential.

Methods

The sediment samples were inspected and their lithologies were recorded, using a standard *pro forma*, prior to processing. For each of the samples, a subsample was processed broadly using the techniques of Kenward *et al*. (1980; 1986).

The washovers resulting from processing were examined for plant and invertebrate macrofossils. The residues were examined for larger plant macrofossils and other biological and artefactual remains.

Where possible, bone fragments from the samples were identified to species or species group, using the reference collection at PRS. Fragments not identifiable to species were described as the 'unidentified' fraction. Within this fraction fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), unidentified fish, and totally unidentifiable.

Approximately 25 mg of charred hazel nutshell from Sample 1 (Context 15) was submitted to Beta Analytic Inc. (Miami, Florida) for dating by Accelerator Mass Spectrometry (AMS).

Results

The results are presented in context number order. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample number. No invertebrate remains were recovered from the samples.

Context 13 [overlying the eastern edge of ditch 16; contained mid Bronze Age pottery and worked flint]
Sample 4/T (3 kg sieved to 300 microns with washover; approximately 14 litres of unprocessed sediment remain)

Just moist, mid brown to mid grey-brown, brittle to crumbly (working more or less plastic), slightly silty clay, with some charcoal flecks present.

The tiny washover (~5 ml) was of fine charcoal, coal and cinder (all to 5 mm), with a little sand. A single fish

vertebra fragment was recorded, probably from a small gadid.

There was a very small residue (dry weight 0.29 kg) of sand, with a few stones.

Context 15 [primary fill of ditch 16; contained mid Bronze Age, 2nd millennium BC, and later pottery and worked flints]
Sample 1/T (3 kg sieved to 300 microns with washover; approximately 14 litres of unprocessed sediment remain)

Moist, light to mid grey-brown (mottled lighter and darker on a mm-scale), with an orange-brown cast in places, crumbly (working plastic), slightly silty clay. Charcoal was common to abundant and burnt animal bone was present.

This subsample yielded a small washover of about 40 ml of rather angular charcoal (to 25 mm in maximum dimension). The larger fragments were not readily identified, but seemed to be hazel (*Corylus avellana* L.) by a process of elimination of other taxa. There were also some fragments of oak (*Quercus*). A single small fragment (weighing ~25 mg) of charred hazel nutshell was also noted (this was submitted for dating by AMS). Other remains included traces of charred bark and bone (both up to 5 mm).

The residue was very small (dry weight 0.3 kg) and mostly of sand, with some stones and small amounts of charcoal (4 g), pot (12 g) and very fragmented burnt bone. The last formed a small assemblage totalling 44 fragments. All of the bone fragments were white, less than 15 mm in any dimension, and showed evidence of fresh breakage. None could be identified to species, but some were shaft fragments, probably from large and medium-sized mammals. One flint (4 g) recovered from the sample appeared to have been worked and might be a scraper.

The charred hazel nutshell returned a 2-sigma calibrated AMS date of 2480-2280 BC (Beta - 190680).

Context 21 [single fill of butt-ended linear ditch 22; no artefacts recovered]
Sample 3/T (3 kg sieved to 300 microns with washover; approximately 14 litres of unprocessed sediment remain)

Just moist, light to mid grey-brown, brittle to crumbly (working more or less plastic), slightly sandy slightly silty clay. Stones (2 to 6 mm) and flecks of charcoal were present.

The tiny washover (of a few ml) was mostly fine charcoal and coal (both to 4 mm) and cinder (to 8 mm), with some sand grains.

There was a small residue (dry weight 0.60 kg) of sand and stones, with a trace of pot (<1 g).

Context 75 [primary fill of substantial sub-oval ?pit 74; contained mid Bronze Age pottery and three worked flints]
Sample 2/T (3 kg sieved to 300 microns with washover; approximately 14 litres of unprocessed sediment remain)

Just moist, light to mid grey-brown (mottled more brown and more grey on a mm-scale,), brittle to crumbly (working plastic), slightly sandy slightly silty clay. Stones (2 to 20 mm) and flecks of charcoal were present.

The tiny washover (~5 ml) was mostly fine charcoal (some larger fragments to 8 mm but primarily flecks of 1-2 mm) and coal (to 3 mm), with some cinder (to 3 mm) and a little sand.

The residue was very small (dry weight 0.40 kg) and of sand and stones, with a trace of charcoal (<1 g).

Discussion and statement of potential

Ancient biological remains recovered from the samples were largely restricted to small quantities of charred plant remains and, in one case (Sample 1, Context 15), a small assemblage of unidentified burnt bone fragments. These remains were too few and too poorly preserved to be of any great interpretative value.

Almost all of the charred plant material was wood charcoal which was, in most cases, not identifiable to species (the exception again being some of the fragments from Context 15). Although each of the subsamples gave sufficient charred remains for radiocarbon to be attempted (at least via AMS) in most cases the material was not considered suitable for submission. In general, the charcoal fragments were too small and too poorly preserved for wood species identification to be made. Furthermore, it was not possible to determine if the material derived from twigs (or other

growth likely to be contemporary with charring) or from branches or trunks of great age. The fact that wood from charred branches/trunks could give an artificially early radiocarbon date (perhaps by several hundred years for, for example, oak heartwood), thus introducing a potentially large unknown error, precluded the use of this material.

This problem does not arise for the fragment of charred hazel nutshell recovered from Context 15 which was submitted for dating. The returned 2-sigma calibrated AMS date of 2480-2280 BC (Beta - 190680) was a little earlier than that indicated by the majority of the artefactual evidence from this deposit (mid Bronze Age pottery) and perhaps suggests some earlier (late Neolithic/early Bronze Age) human activity.

Recommendations

No further archaeobotanical or zooarchaeological work on this material is justified, but the possibility that other deposits with good preservation of charred plant remains may be present at this site should be borne in mind during any further development.

Retention and disposal

All of the remaining sediment, together with the remains extracted from the processed subsamples, should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services Limited (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

Acknowledgements

The authors are grateful to Robin Taylor-Wilson and Jenny Proctor, of Pre-Construct Archaeology Ltd (Northern Office), for providing the material and the archaeological information.

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