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**Evaluation of biological remains from excavations
south of Ganstead (site code: TSEP 901)**

by

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Summary

A series of sediment samples, two boxes of hand-collected bone, and a very small quantity of hand-collected shell from deposits revealed by excavations at a site south of Ganstead, were submitted for an evaluation of their bioarchaeological potential.

Two radiocarbon dates were obtained (of four attempted). Context 2003 returned a conventional radiocarbon age of 2140 +/- 40 BP and Context 2072 a conventional radiocarbon age of 2060 +/- 40 BP.

The sediment samples do not warrant much further analysis. No further work on the samples considered in this report is recommended though if there are unexamined deposits (of archaeological significance) similar to contexts 4030 and 4074 then these should perhaps be investigated.

The very few hand-collected shell remains were of no interpretative value and do not warrant further work.

Preservation of the bones was, on the whole, rather poor and some variability was noted within assemblages from individual contexts. This and the presence of very eroded human remains from Trench 2 suggested some reworking of deposits. The small size of the assemblage and the limited number of fragments of use for providing biometrical and age-at-death information restricts further analysis. However, in view of the date of the site, material from all tightly dated deposits should be recorded to archive level.

KEYWORDS: SOUTH OF GANSTEAD; EVALUATION; IRON AGE TO MEDIEVAL; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; SHELL; VERTEBRATE REMAINS; HUMAN REMAINS

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Introduction

An archaeological evaluation excavation was carried out by Humber Field Archaeology at a site south of Ganstead (NGR: XX), between 13 March and 30 April 2000, as part of a series of interventions along the line of the British Petroleum Teeside to Humber pipeline.

A series of sediment samples ('GBA'/'BS'/'SPOT' *sensu* Dobney *et al.* 1992), two boxes (each of approximately 16 litres) of hand-collected bone, and a very small quantity of hand-collected shell, were recovered from the deposits. Preliminary dating evidence (from recovered pottery) suggested a range of dates for the deposits from Iron Age to medieval.

All of the material was submitted to the EAU for an evaluation of its bioarchaeological potential.

Methods

Sediment samples

The sediment samples were inspected in the laboratory. Sixteen of the samples (from 11 contexts) were selected for investigation and their lithologies were recorded, using a standard *pro forma*, prior to processing, following the procedures of Kenward *et al.* (1980; 1986), for recovery of plant and invertebrate macrofossils. The washovers and residues were examined for plant remains. The washovers were also examined for invertebrate remains, and the residues were examined for other biological and artefactual remains.

One 'SPOT' sample (Sample 90, Context 2072) of charcoal was identified.

Material from four contexts (2003, 2072, 2076 and 4030) was submitted to Beta Analytic Inc. for radiocarbon dating.

Table 1 shows a list of the examined samples with notes on their treatment.

Hand-collected shell

Brief notes were made on the preservational condition of the shell and the remains identified to species where possible.

Vertebrate remains

For the vertebrate remains, data were recorded electronically directly into a series of tables using a purpose-built input system and *Paradox* software. For each context (or sample) containing more than ten fragments, subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, semi-quantitative information was recorded concerning fragment size, dog gnawing, burning, butchery and fresh breakage.

Where possible, fragments were identified to species or species group, using the reference collection at the Environmental Archaeology Unit, University of York. Fragments not identifiable to species were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), small mammal (rats, mice, voles etc), unidentified fish, unidentified bird, and completely unidentifiable.

Total numbers of fragments by species were

recorded, together with the number of measurable fragments and mandibles with teeth *in situ*. In addition to counts of fragments, total weights were recorded for all identified and unidentified categories.

Results

Sediment samples

The results are presented in context number order. Archaeological information, provided by the excavator, is presented in square brackets.

Context 2003 [Fill of shallow rectangular pit 2004]
Sample 32/T (2 kg sieved to 300 microns with washovers)

A small quantity of hand-collected bone from this context was submitted for radiocarbon dating. The dating returned a conventional radiocarbon age of 2140 +/- 40 BP.

Moist, mid to dark grey-brown, crumbly (working soft and slightly plastic), slightly sandy clay silt with stones (6 to 60 mm) present.

There was a large residue of about 350 cm³ of sand and gravel with some concreted sediment, perhaps iron pan; the tiny washover contained traces of fine (<2 mm) charcoal.

Samples 29-31 and 33-35 (Total of 30.4 kg sieved to 300 microns with washovers)

These samples were processed in an attempt to recover charred remains of use for radiocarbon dating of the deposit. Although small amounts of fine (<2 mm) charcoal were recovered from the samples no substantial charred remains were recovered and, consequently, a small part of the hand-collected bone assemblage was submitted for dating.

Context 2034 [Upper fill of ditch 2036]
Sample 61/T (5 kg sieved to 300 microns with washover)

Just moist, mid reddish grey-brown, crumbly (working very sticky and slightly plastic), slightly sandy, slightly silty clay with some flint gravel and charcoal present.

There was a large residue of about 1200 cm³ of sand and coarse concreted sediment, perhaps iron pan; the

small washover of a few cm³ was of charcoal and a very little charred herbaceous detritus.

Context 2044 [Primary fill of ditch 2023]
Sample 84/T (5 kg sieved to 300 microns with washover)

Moist, light orange-brown, sticky to crumbly (working soft then plastic), sandy, silty clay to clay silt. Stones (2 to 60 mm), including flint, were present in the sample.

There was a tiny washover of modern roots and fine (<2 mm) charcoal; the large residue of about 850 cm³ was mainly sand and gravel.

Context 2062 [Upper fill of ditch 2063, which delineates cobble surface (Context 2012 etc.)]
Sample 76/BS (10 kg sieved to 300 microns with washover)

Moist, light to mid grey to light to mid orange-brown (?oxidation), crumbly and slightly sticky (working plastic), sandy silty clay. Stones (2 to 20 mm), ?charcoal and large mammal bone were present in the sample.

The tiny washover consisted of a few cm³ of sand, gravel and concreted sediment with a little coal and bone; the rather large residue of about 1.2 litres was mostly sand with two large bone fragments representing a single cow pelvis.

Context 2069 [Secondary fill of ditch 2050]
Sample 71 (2 kg sieved to 300 microns with washover)

Moist, light to mid grey-brown (with some orange-brown ?oxidised patches), stiff (working slightly sticky and soft and somewhat plastic), sandy silty clay. Stones (2 to 20 mm) and freshwater molluscs (including planorbids) were present in the sample.

The very small washover consisted mainly of rather variably preserved planorbid snails (more than 25 individuals with the more complete remains all appearing to be of *Planorbis leucostoma* Millet) with many duckweed (*Lemna*) seeds and some other indicators of clean fresh water. The large residue was sand with chalk and other gravel (to 35 mm).

Context 2072 [Primary fill of ditch 2050]

Sample 90/SPOT

Part of this spot sample of hazel (*Corylus*) roundwood charcoal was submitted for radiocarbon dating. The dating returned a conventional radiocarbon age of 2060 +/- 40 BP.

Context 2076 [Fill of ditch 2083]

Sample 73 (5 kg sieved to 300 microns with washover)

A small quantity of hand-collected bone from this context was submitted for radiocarbon dating but the attempt was unsuccessful.

Moist, mid grey-brown (locally more grey and more orange-brown), sticky (working plastic), very sandy clay. Freshwater molluscs and fragments of ?rotted marl were present in the sample.

The large residue comprised clean quartz sand with some gravel; the very small washover contained freshwater snails and modern rootlets, seeds of elder (*Sambucus nigra* L.), rush (*Juncus* sp.) and duckweed seeds (plus traces of a few other taxa of no interpretative significance), a few insect fragments, some coal, and a little charcoal. Most of the seeds were rather decayed, though the *Lemna* were well preserved. The snails were fairly numerous with preservation ranging from almost complete shells to tiny fragments. All of the identifiable shells were of planorbids—the more intact remains being of *Planorbis planorbis* (L.), a species typically found in ditches and small ponds and preferring hard water. Other invertebrates were very poorly preserved, the insects in particular being represented mostly by tiny scraps of cuticle, extremely rotted and beyond recognition. The few remains which could be recognised even to family were of robust forms typical of highly decayed assemblages.

The material has no interpretative value, although it may be suspected that the deposit initially had anoxic waterlogging but was subsequently oxygenated.

Context 2121 [Fill of ditch 2122 (sealed below 2015)]

Sample 82 (3 kg sieved to 300 microns with washover)

Dry, mid to dark grey to light to mid orange-brown, crumbly (working somewhat soft), slightly sandy, slightly clay silt. Stones (2 to 60 mm), charcoal and small lumps (to 25 mm) of modern contaminant 'straw' were present in the sample.

The small washover consisted of a few cm³ of

modern roots and charcoal (to 10 mm); the large residue of about 500 cm³ was mainly sand and ?iron pan fragments with some gravel.

Context 4004 [Lower fill of rectangular pit feature 4005]

Sample 7/T (2 kg sieved to 300 microns with washover)

Moist, mid grey-brown, crumbly (working soft), slightly sandy clay silt with stones (2 to 20 mm), charcoal and fragments of shell present.

The large residue of about 375 cm³ consisted of sand and gravel with ?iron pan and a few fragments of snail shell. The small washover yielded a little charcoal (to 10 mm) and some more snail shell fragments.

Context 4030 [Upper fill of ditch 4031]

Sample 63/T (5 kg sieved to 300 microns with washover)

A small quantity of hand-collected bone from this context was submitted for radiocarbon dating but the attempt was unsuccessful.

Moist, mid to dark grey-brown, crumbly (working soft), slightly sandy clay silt with patches of yellow-brown sandy clay. Stones (2 to 60 mm) and ?pot fragments were present in the sample.

There was a very large residue of about 1150 cm³ of clean quartz sand with some gravel, including flint, and a trace of burnt bone. The small washover of about 20 cm³ consisted of coal, charcoal and sand with several different kinds of charred root/rhizome fragments and other possible indicators of burnt turves, and perhaps also burnt straw.

Context 4074 [Fill of ditch 4080]

Sample 65 (10 kg sieved to 300 microns with washover)

Moist, vari-coloured (a jumbled mix of light grey to light grey-brown to light to mid brown to mid grey to black), crumbly and slightly sticky (working soft and sticky), slightly sandy clay silt. Stones (2 to 60 mm) including chalk and ?rotted charcoal (mostly as smears) were present in the sample.

The washover comprised about 30 cm³ of sand and charcoal (to 15 mm) with a little bone, including amphibian and a few charred seeds which were mainly weeds but which included a few wetland taxa which may have been burnt in, for example, thatch.

The large residue of about 1800 cm³ was mostly sand with some coarse gravel and iron pan and two fragments (to 35 mm) of daub.

Hand-collected shell

A very small quantity of, mostly poorly preserved, hand-collected shell, comprising remains from five contexts (1009, 2066, 2076, 4003 and 4004), was recovered. With the exception of three freshwater snails (planorbids, but not identifiable to species) from Context 2066, the remains amounted to a few or single representatives of *Cepaea/Arianta* sp. and were of no interpretative value.

Hand-collected vertebrate remains

Trench 2

Vertebrate material from this trench was recovered from 31 deposits. Four phases of occupation were identified by the archaeologists, with pottery of Iron Age date being present in all features assigned to Phases 1-3. Some sherds of pot of Romano-British and medieval date were noted from later features. This trench was characterised by the presence of a number of ditches and slots, some associated with metal trackways, and some structural features

A total of 423 (3893.6 g) fragments of bone were present, of which 5 were measurable and 6 were mandibles with teeth *in situ*. Only five contexts yielded more than 20 fragments, 2003 (102 fragments), 2012 (29), 2015 (22), 2020 (37) and 2072 (60). The largest accumulations were recovered from Phases 2 and 3, with Context 2003 (fill of rectangular pit 2004) providing half of the remains from Phase 3.

Preservation was, generally, rather poor and, although material from some deposits was recorded as 'good', the larger assemblages (with the exception of bones from 2072) tended to be less well preserved. Many deposits contained fragments that were very battered in appearance or whose surfaces were eroded to varying degrees. Bones from Contexts 2012, 2015, and 2020 were particularly fragile and many had been damaged by fresh breakage. A number of very *abraded* human long bone fragments were identified from Context 2012. Most of the assemblage was quite fragmented and extensive fresh breakage damage was recorded on bones from a third of the contexts represented. Fragmentation resulting from damage caused in antiquity was also noted. In many cases evidence for dog gnawing and butchery marks could not be confidently determined because of the poor preservation of the bones.

The major domestic species were identified, including the remains of cattle, caprovids and pigs. Additionally, horse and human remains were present. Teeth were the most commonly occurring element, which probably reflects their tendency to preserve better in poor preservational conditions rather than indicate any specific disposal patterns. Human remains from Context 2012 included humerus, ulna and femur fragments representing small or young individuals. Articular epiphyses were either damaged or completely missing and this precluded any further interpretation.

Trench 4

Eight contexts within this trench produced bone, with most of the assemblage (92 fragments) being recovered from the two fills (Contexts 4003 and 4004) of a rectangular pit (Context 4005). In total the deposits yielded 124 fragments (1576.1 g), of which 34 were identified to species. As with Trench 2, numbers of measurable fragments and mandibles with teeth *in situ* were few (Table 3).

Variability of preservation, angularity and colour was observed within material from Context 4003, whilst material from Context 4004 was rather better preserved and of a less mixed appearance. Bones from Context 4030, the only other deposit to produce more than 20 fragments, were of a rather fragile nature and many showed evidence of fresh breakage.

A typical range of domesticates were identified, including cattle, caprovid and horse. Knife marks, perhaps indicating skinning, were identified on the shaft of a horse femur from Context 4004. In addition, a cervid antler tine fragment, probably representing a red deer, was recovered from Context 4003.

Discussion and statement of potential

Sediment samples

The present material probably does not warrant much further analysis, though if the contexts in which small amounts of charred plant material other than charcoal (4030, 4074) are archaeologically significant (and especially if they relate to buildings or other structures) it may be worth examining more samples from similar deposits if available.

Hand-collected shell

The very few recovered remains were of no interpretative value.

Hand-collected vertebrate remains

The vertebrate assemblage from this site is quite small and, overall, rather poorly preserved. The presence of human remains in Trench 2 and the variability of preservation in Trench 4 suggested some reworking of the deposits. Heavy fragmentation of the bones was noted throughout the assemblage and this has resulted in few identifiable bones and insufficient fragments for providing age-at-death and biometrical data.

Recommendations

No further work on the samples considered in this report is recommended though if there are unexamined deposits (of archaeological significance) similar to contexts 4030 and 4074 then these should perhaps be investigated.

No further work is recommended on the hand-collected shell.

Iron Age vertebrate assemblages are not well represented in the region, thus, it is important that material from all well-dated deposits should be recorded to archive level. This archive should contain basic species identifications, biometrical and age-at-death data.

Retention and disposal

The samples from contexts 4030 and 4074 (and any other similar deposits) should certainly be retained for the present.

All of the current material should be retained for the present.

Archive

All material is currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

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Table 1. List of examined sediment samples from excavations at a site south of Ganstead, with notes on their treatment.

Context	Sample	Notes
2003	32	2 kg sieved to 300 microns with washover
2003	29-31 and 33-35	Various weights (total 32.4 kg) sieved to 300 microns with washovers
2034	61	5 kg sieved to 300 microns with washover
2044	84	5 kg sieved to 300 microns with washover
2062	76	10 kg sieved to 300 microns with washover
2069	71	2 kg sieved to 300 microns with washover
2072	90	Spot sample of hazel (<i>Corylus</i>) roundwood charcoal
2076	73	5 kg sieved to 300 microns with washover
2121	82	3 kg sieved to 300 microns with washover
4004	7	2 kg sieved to 300 microns with washover
4030	63	5 kg sieved to 300 microns with washover
4074	65	10 kg sieved to 300 microns with washover

Table 2. Hand-collected vertebrate remains from deposits from Trench 2, from a site south of Ganstead (TSEP901). **Key:** No. frags = total number of fragments; No. meas = number of measurable fragments; No. mand = number of mandibles with teeth in situ.

Species		No. frags	No. meas	No. mand
<i>Equus</i> f. domestic	horse	15	1	-
<i>Sus</i> f. domestic	pig	5	-	-
<i>Bos</i> f. domestic	cow	25	3	3
Caprovid	sheep/goat	24	1	3
<i>Homo sapiens</i>	human	5	-	-
<i>Sub-total</i>		74	5	6
Unidentified		349	-	-
<i>Sub-total</i>		349	-	-
Total		423	5	6

Table 3. Hand-collected vertebrate remains from deposits from Trench 4, from a site south of Ganstead (TSEP901). **Key:** No. frags = total number of fragments; No. meas = number of measurable fragments; No. mand = number of mandibles with teeth in situ.

Species		No. frags	No. meas	No. mand
<i>Equus</i> f. domestic	horse	6	2	2
<i>Sus</i> f. domestic	pig	1	-	-
cf. <i>Cervus elaphus</i> L.	red deer	1	-	-
<i>Bos</i> f. domestic	cow	13	-	1
Caprovid	sheep/goat	2	1	-
<i>Sub-total</i>		23	1	3
Unidentified		101	-	-
<i>Sub-total</i>		101	-	-
Total		124	3	3