

Reports from the Environmental Archaeology Unit, York 99/19, 6 pp.

**Assessment of biological remains from Site 169, West Lilling, North
Yorkshire (site code BPTSEP169)**

by

Cluny Johnstone, John Carrott, Allan Hall, Harry Kenward,
Frances Large and Darren Worthy

Summary

Two sediment samples and a single box of bone were submitted for assessment of their bioarchaeological potential. Sample 1 (Context 5005) contained a small amount of charred cereal grains and charcoal. The plant and invertebrate remains from Context 2025 (Sample 2) were consistent with the archaeological interpretation of a ditch fill, but also indicated the potential for exploring aspects of human occupation in the vicinity. The recovery of bioarchaeological remains is very rare from a site of this type in the northern part of the Vale of York, so that further analysis of these samples, and investigation of any others from the excavations, should be undertaken.

The small vertebrate assemblage (61 fragments in total) was rather poorly preserved and contained the remains of domestic mammals (horse, pig and cattle) and a single bird fragment. No further work is recommended on this material.

KEYWORDS: BP PIPELINE SITE 169; WEST LILLING; NORTH YORKSHIRE; ROMANO-BRITISH; VERTEBRATE REMAINS; PLANT REMAINS; INVERTEBRATE REMAINS; ASSESSMENT.

Authors' address:

Palaeoecology Research Services
Environmental Archaeology Unit
Department of Biology
University of York
PO Box 373
York YO10 5YW

Prepared for:

On-Site Archaeology
25a Milton Street
York
YO1 3EP

Telephone: (01904) 434487/434475/434486
Fax: (01904) 433850

21 April 1999

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Introduction

An evaluation excavation was undertaken by On-Site Archaeology, during February 1999, at Site 169 on the proposed route of BP Chemicals Ltd Teeside to Saltend ethylene pipeline. Site 169 is situated near the village of West Lilling in North Yorkshire (NGR: SE 640 644). Two sediment samples and a single box of bone (approx. 10 litres) were presented for assessment. Vertebrate remains were recovered from 12 contexts, all associated with a probable 4th Century AD Romano-British villa. The samples were taken from ditches possibly predating this structure.

Methods

Sediment samples

The material was initially inspected in the laboratory and described using a standard *pro forma*. A 1 kg 'voucher' of each sample was removed prior to the rest of the sediment being sieved to 300µm, the washover also being sieved to 300µm. Subsequently, the <4mm fraction of the residue from Sample 2 (Context 2025) was processed for the recovery of invertebrate remains following procedures of Kenward *et al.* (1980; 1986), the resulting flot being treated as if it had been a 'test' subsample (labelled and recorded as '/T').

All invertebrate macrofossils were recorded semi-quantitatively using the scale described by Kenward *et al.* (1986) and Kenward (1992). Records were made on a paper *pro forma* for later transfer to a computer

database (using *Paradox* software) for analysis and long-term storage.

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 containing more than three 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), bird and completely unidentifiable.

Measurements for mammals were taken (where appropriate) according to the system of von den Driesch (1976), with additional measurements following those outlined by Dobney *et al.* (forthcoming).

Total numbers of fragments by species were recorded, together with the number of measurable fragments and isolated teeth yielding ageing or sexing information. As well as counts of fragments, total weights

were recorded for all identifiable and unidentifiable categories.

Results

Sediment samples

Table 1 gives a list of the samples, the action taken and the retention/disposal requirements.

Trench 2, Context 2025, Sample 2/BS

Moist, dark grey-brown, crumbly (working sticky then unconsolidated), slightly sandy silty clay with fine and coarse woody and herbaceous detritus. Patches of light brown sand were present within the matrix. Wood fragments were common and twigs with bark were present.

The small washover of about 100 cm³ was of fine herbaceous detritus with large numbers (though low concentrations, given the large subsample size) of well preserved seeds, the herbaceous detritus including many small fragments of monocotyledonous epidermis, the rest mostly brown fine roots with large cells.

The small residue of about 750 cm³ included some narrow rods (to 150 x 15 mm) tentatively identified as *Prunus* (perhaps blackthorn, *P. spinosa* L.) with woody and herbaceous detritus quite rich in well preserved seeds. Human occupation is indicated by the presence of a few charred cereal grains (some of them extremely well preserved wheat caryopses) and a variety of weeds, and probably also by the presence of small heathland and grassland components mixed into an assemblage predominantly indicative of an intermittently wet ditch or the drying margins of a pond. Indeed, the mixture of taxa was in some ways more reminiscent of an assemblage from an urban occupation deposit than a rural one.

The large subsamples (8 kg) yielded a modest sized group of invertebrate remains, including around 50 adult beetles. These represented approximately 35 taxa, so the assemblage was diverse (i.e. mixed and derived from a range of habitats, probably from a fairly wide area). There were several individuals of a *Helophorus* species, and single individuals of five

other water beetles were present, together with numerous *Daphnia ephippia* (water flea resting eggs). These suggest that the deposit was formed in water, probably not permanent.

Plant feeders were moderately common, the nine taxa probably all being derived from short herbaceous vegetation, including two indicating nettles (*Urtica* sp.). Three species of dung beetles (two *Aphodius* and a *Geotrupes*, probably totalling several individuals) suggest the possibility that there was grazing land.

There were no species strongly associated with human occupation, although there was a group of beetles associated with decaying matter which would not be likely to be found *together* in natural litter. It seems unlikely that this interpretation could be greatly improved by further work, in view of the large size of the subsample already examined., but full recording of the assemblage is desirable if the dating is reasonably secure.

Trench 5, Context 5005, Sample 1/BS

Moist, dark grey-brown (mottled with dark grey, light yellow-brown and orange), crumbly (working unconsolidated), sandy silt with a possible ash component. Stones to 6 mm were present together with charcoal and ?ancient root traces.

The minute washover of a few cm³ consisted of fine charcoal with some poorly preserved charred cereal grains, and the very small residue of about 400 cm³ yielded further cereal grains together with some charcoal (to 40 mm in maximum dimension) and rounded fragments of brick/tile, with rather a lot of charred ?heather (cf. *Calluna vulgaris* (L.) Hull) root/twig fragments (to 20 mm) and a few small fragments of unidentified charred root or rhizome. The cereals were bread/club wheat (*Triticum aestivo-compactum*), with single grains of barley (*Hordeum* sp.) and oats (*Avena* sp.). In all there were perhaps no more than about 10 cereal grains from this large subsample.

Vertebrate remains

Vertebrate remains were recorded from all 12 contexts submitted for assessment. Preservation records were made for material from seven of these

contexts.

Overall preservation was described as poor, except for Context 2016 which was recorded as good. Angularity (appearance of broken surfaces) was mostly noted as battered or rounded. Colour was recorded as variable, although it was generally consistent within contexts.

The degree of fragmentation of the bones was moderate, most fragments being between 5 and 20 cm in largest dimension. Dog gnawing and butchery were evident on 10 - 20 % of fragments from some contexts. Evidence of fresh breakage was observed on fragments in all contexts except 2016. Burnt fragments were noted in Contexts 4009 and 5001.

A total of 61 fragments (weighing 1435 g) were recovered, of which 17 (weighing 767 g) were identifiable to species (Table 2). The species present were cattle (13 fragments), pig (1) and horse (3). A single bird fragment (not identifiable to species) was noted in Context 4003. Two loose teeth (giving ageing information) and four measurable bones (all cattle) were noted and the measurements are given in Table 3.

A preponderance of teeth was noted, which can be attributed to taphonomic rather than depositional factors as teeth generally survive better in conditions of poor bone preservation.

Discussion and statement of potential

Sediment samples

The recovery of bioarchaeological remains is very rare from a site of this type in the northern part of the Vale of York, so the presence of moderate quantities of plant remains and appreciable numbers of invertebrate remains preserved by anoxic waterlogging is noteworthy. In this case the biological remains from Context 2025 were consistent with the archaeological interpretation of a ditch fill, but also indicated the potential for exploring aspects of human occupation in the vicinity.

Vertebrate remains

The small size of the assemblage and poor preservation of the fragments precludes any further analysis of the vertebrate remains. Therefore, the assemblage is of little interpretative or zooarchaeological value.

The poor state of vertebrate preservation suggests that if further excavation were to take place, a moderate-sized bone assemblage might be recovered but would probably be poorly preserved and hence of little use in site interpretation or zooarchaeological work. However, a basic archive should be made of any further vertebrate material recovered.

Recommendations

Given the location of the site in an area with almost no palaeoenvironmental evidence, further analysis of these samples, and investigation of any others from the excavations should be undertaken, providing the deposits can be dated sufficiently accurately. If further excavation is undertaken an extensive sampling programme should be implemented and provision made for the subsequent analysis and publication of the material.

No further work is recommended on the current vertebrate assemblage. If further excavation recovers a larger quantity of bone, which can be tightly dated, a basic archive should be produced.

Retention and disposal

These samples and any residues derived from them should be retained in the short term in

case further work can be undertaken; in the longer term, they should be stored as part of the site archive if further work is carried out and the results prove to be of value.

The vertebrate remains need not be kept.

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.

Acknowledgements

We are grateful to Nick Pearson of On-Site Archaeology for supplying the material and archaeological information and to English Heritage for allowing AH and HK to work on this material.

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Table 1. List of samples from Site 169, West Lilling, North Yorkshire.

Context	Sample	Action taken	Retention/disposal
2025	2/BS	8 kg sieved to 300 µm and the washover sieved to 300 µm. Paraffin flotation on the fraction of the residue <4mm.	Should be retained.
5005	1/BS	7 kg sieved to 300 µm and the washover sieved to 300 µm	Should be retained.

Table 2. Vertebrate remains from Site 169, West Lilling, North Yorkshire.

Taxa		No. measurable	No. teeth	Total no. fragments	Weight (g)
Horse	<i>Equus</i> f. domestic	-	-	3	206.5
Pig	<i>Sus</i> f. domestic	-	-	1	11.0
Cow	<i>Bos</i> f. domestic	4	2	13	549.8
Subtotal		4	2	17	767.3
Bird		-	-	1	1.0
Large mammal		-	-	37	654.4
Medium-sized mammal		-	-	2	7.7
Unidentified		-	-	4	4.7
Subtotal		-	-	44	667.8
Total		4	2	61	1435.1

Table 3. Measurements of vertebrate remains from Site 169, West Lilling, North Yorkshire.

Context	Date	Species	Element	Side	Measurements
2002	?4th C AD	Cow	Metacarpal	l	Bp=51.22 Dp=29.86
2016	?4th C AD	Cow	Tibia	l	Bd=65.39 Dd=48.17
2016	?4th C AD	Cow	Calcaneum	r	GL=138.17 DS=42.69 C=29.80 C+D=52.35
4009	?4th C AD	Cow	Metatarsal	r	Bp=40.57 Dp=38.61

