

Reports from the Environmental Archaeology Unit, York 96/27, 11 pp.

Assessment of biological remains from excavations at Stockton West Moor and Rawcliffe Moor, York (site codes: YORYM 96.390 and 96.391)

by

John Carrott, Allan Hall, Michael Issitt, Deborah Jaques,
Harry Kenward and Frances Large

Summary

Sediment samples and hand-collected bone from excavations at two sites along the route of the Yorkshire Water pipeline, York, were submitted for an analysis of their bioarchaeological potential.

Some wood, charcoal, and charred seeds were present in several samples and traces of material preserved by anoxic waterlogging were noted. However, rootlets, clearly modern, were often abundant and at least some of the other material was probably or certainly of modern origin. Some of the charcoal was considered to be worthy of further recording and fills of a 'waterhole' feature at Stockton West Moor produced sufficient apparently ancient 'waterlogged' remains to deserve full study.

The vertebrate remains were very fragmented and poorly preserved; no further work is suggested beyond organisation of the archive.

Keywords: STOCKTON WEST MOOR; RAWCLIFFE MOOR; YORK; YORKSHIRE WATER PIPELINE; ASSESSMENT; SEDIMENT SAMPLES; PLANT REMAINS; INVERTEBRATE REMAINS; VERTEBRATE REMAINS; CHARRED GRAIN

Authors' address:

Palaeoecology Research Services
Environmental Archaeology Unit
University of York
Heslington
YO1 5DD

Telephone: (01904) 433846
Fax: (01904) 433850

Prepared for:

York Archaeological Trust
Cromwell House
11 Ogleforth
York
YO1 2JG

14th October 1996

Assessment of biological remains from excavations at Stockton West Moor and Rawcliffe Moor, York (site codes: YORYM 96.390 and 96.391)

Introduction

Material from excavations undertaken during the summer of 1996 by York Archaeological Trust at two sites (Stockton West Moor and Rawcliffe Moor) along the route of the Yorkshire Water pipeline, were submitted for an assessment of their bioarchaeological potential.

The material consisted of sediment samples collected from deposits at these sites and one box (39 x 30 x 12 cm) of hand-collected bone. Four bulk-sieve samples, five general biological analysis samples ('BS' and 'GBAs' *sensu* Dobney *et al.* 1992, respectively), and animal bone from eight contexts were submitted from Stockton West Moor. Eleven BS samples, nine GBA samples, and animal bone from 19 contexts were submitted from Rawcliffe Moor.

Methods

All of the submitted sediment samples, from both sites, were inspected in the laboratory and prioritised for further analysis. A description of their lithology was recorded using a standard *pro forma*. Four samples from Stockton West Moor and eleven from Rawcliffe Moor were chosen for further investigation. Extraction of macrofossil remains from the two selected GBA samples from Stockton West Moor followed procedures of Kenward *et al.* (1980; 1986). The residues from all processed samples were sorted for finds.

All the animal bone was examined; records

were made of preservation, quantities, and identifications, where appropriate.

Results

The sediment samples

The results of the investigations are presented in Tables 1 and 2. Many of the samples contained abundant rootlets, probably or certainly modern. Apart from this, biological remains other than (often unidentifiable) charcoal were rare. Some samples yielded charred 'seeds' including cereal grains. Material preserved by anoxic preservation was recovered from only a few samples and in some cases the remains, charred or waterlogged, were clearly modern, presumably having moved down through sediments as a result of biological activity or ploughing. Some of the charred material may have been redeposited, bearing in mind the nature of the deposits. Only the waterhole feature at Stockton West Moor gave more than a trace of invertebrates preserved by 'waterlogging' and although the assemblage was nondescript, processing of further material might produce a useful quantity of remains.

Bone

Stockton West Moor

The hand-collected bone consisted of small quantities of poorly preserved and apparently partly mineralised material. Much of this

material was also burnt. Most of the identifiable fragments were from teeth, including horse and cattle. The bulk-sieved contexts produced no bone.

Rawcliffe Moor

The hand-collected bone from this site was very fragmentary and in view of this quantification, using number of fragments or total weights, was not undertaken. The residues from the nine bulk-sieved contexts yielded very little bone; a total of 218 fragments, weighing approximately 53 g. Much of the material was burnt, and consisted of slivers of cattle and sheep-sized tooth enamel. Preservation was extremely poor, with most fragments being battered and rounded in appearance.

Statement of potential

Some samples produced charcoal which, if not residual, would permit some information about species utilisation to be obtained. The only other material from the sediment samples with potential for further analysis is that from the waterhole feature at Stockton West Moor (Context 1046); if all of the remaining sediment was processed it is likely that it would yield a small but interpretable assemblage of invertebrates. Further work would certainly be worthwhile on this context in order to extract any information regarding human activity at this site and to determine whether the cut was indeed a waterhole and, if so, if it was used by livestock.

There are no grounds to suggest that further work on the material from Rawcliffe Moor would give worthwhile assemblages of plant and invertebrate macrofossils.

The vertebrate material from both Stockton West Moor and Rawcliffe Moor was of extremely limited interpretative value, and holds very little potential for a contribution to the interpretation of the site as a whole. However, it may provide an additional, although small, insight into the interpretation of some of the individual deposits.

Recommendations

Apart from investigation of the fills of the 'waterhole' at Stockton West Moor (mentioned above), no further work on the sediment samples, from either of the sites, is recommended other than to make a proper record of the species composition of the charcoal from primary contexts and perhaps to look for differences in species composition between the different kinds of feature and areas of the site, though the problem of potential residuality means that this may not be a very rewarding exercise.

The fills of the waterhole should be processed in their entirety using 300µm mesh to extract as large an assemblage of invertebrates (and any plant remains) as possible in order to address questions concerning its use and the nature of its surroundings.

It is recommended that a basic archive of the vertebrate material from both of the sites be produced from the existing assessment records.

Retention and disposal

With the exception of Context 1046 the sediment samples from Stockton West Moor do not need to be retained for

bioarchaeological purposes, but all of the material from Rawcliffe Moor should be retained for the present. The animal bone from both sites should also be retained at least until the completion of the archive.

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

The authors are grateful to York Archaeological Trust for providing this material and to English Heritage for allowing AH and HK to contribute to the work. The study was funded by Yorkshire Water.

References

Dobney, K., Hall, A. R., Kenward, H. K. and Milles, A. (1992). A working classification of sample types for environmental archaeology. *Circaea, the Journal of the Association for Environmental Archaeology* 9 (for 1991), 24-6.

Kenward, H. K., Engleman, C., Robertson, A., and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* 3 (for 1985), 163-72.

Kenward, H. K., Hall, A. R. and Jones, A. K. G. (1980). A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. *Science and Archaeology* 22, 3-15.

Table 1. Results of assessment of plant and invertebrate macrofossils from deposits recovered from Stockton West Moor, York.

Context	Cut/feature	Sample	Sample type	Weight processed (kg)	Sediment description	Comments
1038	1034	4	GBA		Moist, mid grey, stiff (working plastic), sandy clay with patches of oxidation.	2 kg test sample processed. The tiny flot contained only a few scraps of plant detritus (including a single <i>Rubus</i> , perhaps raspberry, <i>R. idaeus</i>) seed, two contaminant Thrips and a very poorly preserved fragment of ?weevil cuticle (modern). The residue consisted mostly of sand with a few pieces of charcoal (to 6 mm) and some scraps of plant debris.
		3	BS		as above	This sample was kept on hold until the GBA (sample 4) from the same context had been processed. In view of the minimal remains recovered from the GBA this sample was considered unlikely to yield an interpretable assemblage of plant and/or invertebrate macrofossils. NFA
1046	fill of waterhole	8	GBA		Moist, very dark brown, humic sand with a trace of fine herbaceous detritus.	3 kg test sample processed. This sample yielded a small flot consisting mostly of modern root fragments. Invertebrate remains included many <i>Daphnia</i> ephippia (water flea resting eggs) and fragments of four species of Coleoptera (<i>Aphodius</i> sp., <i>Lathridius minutus</i> group, Curculionidae sp., and Staphylinidae sp.), an assemblage too small to be of interpretative value, other than the evidence from the ephippia for the presence of standing water. The residue was sand and plant debris with a few stones.
1078	1080	20	GBA		Moist, mid-dark greyish/brown to light brown, crumbly, slightly brittle and soft, slightly silty sand. Some oxidation internally.	Priority 2 sample. NFA
		21	BS		as above	Since one of the tubs from this sample was missing it could not be processed in its entirety and was subsequently returned to YAT.
1087	1089	19	GBA		Moist, mid grey/brown, crumbly, soft and just brittle, slightly silty sand with mm-scale burrows or root traces.	Priority 2 sample. NFA.

Context	Cut/feature	Sample	Sample type	Weight processed (kg)	Sediment description	Comments
1087	1089	18	BS		Dry-just moist, mid grey/brown, brittle and soft to unconsolidated, slightly silty sand with mm-cm scale patches of decayed humic matter and patches of iron pan. Pot was present as was a fragment of ?brick/tile (possibly contamination).	Washover by hand to 300 µm. The washover comprised trace amounts of modern roots with some flaky fragments which may be bark from woody roots, again likely to be modern. There were abundant seeds of fat-hen (<i>Chenopodium album</i>) with a few other weeds of cultivated land and other disturbed soils, together with at least two indicators of soils with impeded drainage (<i>Scirpus setaceus</i> and <i>Eleocharis palustris</i>); some of the weed seeds were, however, clearly modern and the assemblage is thus of very limited value. The residue was mostly composed of sand and stones with only small quantities of pottery, slag, coal, cinders, and charcoal (to 1 cm).
1095	1091	26	GBA		Moist, light-mid greyish/brown, very slightly silty sand. A small amount of humic material and abundant small lumps of gleyed clay were noted. Some ancient worm burrows filled with sand were also present.	Priority 2 sample. NFA.
		27	BS		Moist, light-mid greyish/brown (with a yellowish cast), unconsolidated, slightly silty sand. Some lumps of gleyed clay (with patches of orange oxidation) and patches of lighter-coloured sand were also noted.	Washover by hand to 300µm. The washover consisted of a few cm ³ of plant detritus, including uncharred and ?partly charred remains of arable weeds (seeds of fat-hen (<i>Chenopodium album</i>), corn-spurrey (<i>Spergula arvensis</i>) shepherd's-purse (<i>Capsella bursa-pastoris</i>), black-bindweed (<i>Bilderdykia convolvulus</i>), and pale persicaria (<i>Polygonum lapathifolium</i>), together with a fresh, modern grass caryopsis and fresh-looking pod segments of wild radish, <i>Raphanus raphanistrum</i> , some modern <i>Brassica</i> (?rape) and <i>Viola</i> seeds. Also present were some ?partly charred cereal chaff and culm node fragments . The residue was mostly sand with a few stones of 2-20 mm size. Pottery was present. Some flakes of ?wood, twigs (some mineralised), and charcoal (to 5 mm) were also noted. No invertebrate remains were recovered from the washover.

Table 2. Results of assessment of plant and invertebrate macrofossils from deposits recovered from Rawcliffe Moor, York. Unless otherwise stated washovers were through a 500 µm sieve. NFA - no further action taken.

Context	Sample	Sample type	Weight processed (kg)	Sediment description	Comments
2006	6	BS	57	Just moist, mid-dark grey, brittle and slightly indurated (working crumbly), silty sand with 20-60 mm size stones and charcoal present (to 10 mm). More clay was present locally and modern rootlets were abundant.	Washover to 300µm; it comprised a very little modern root material together with a small amount of abraded branch/trunk charcoal to 15 mm, including oak, ?willow and ?hazel. There were at least two charred cereal grains, one a very poorly preserved ?barley, one a well-preserved ?wheat. Approximately 40% of the residue consisted of charcoal (2-12 mm). Some stones, cinder and fragments of pottery were present. The only organic remains present were some modern roots, a few charred grains, fragments of bone and a soil concretion.
	16	GBA	-	as above	Priority 2 sample. NFA
2015	41	GBA	-	as below	Priority 2 sample. NFA
	44	BS	33	Moist, mid grey, plastic and stiff clay with orange patches locally and buff sand in places. The sediment had a generally gleyed appearance throughout. Some modern rootlets were present.	Stones formed the bulk of this residue, although charcoal (to 15 mm) was common and some cinder and modern roots were present. Only a few, very small, unidentifiable fragments of animal bone (one tiny fragment of which was burnt) were present.
2039	33	GBA	-	as below	Priority 2 sample. NFA
	34	BS	54	Just moist, mid grey, stiff to crumbly, ?humic, silty clay sand. Patches of oxidation were noted and modern rootlets were present.	About half of the residue consisted of lumps of mineralised sediment. Charcoal was the next most common component, and stones, slag and coal were present. A few fragments of bone were also recovered. The very small amount of abraded branch/trunk charcoal, up to 15 mm, included poorly-grown oak, and also alder; there was a single extremely poorly preserved charred ?cereal grain.

Context	Sample	Sample type	Weight processed (kg)	Sediment description	Comments
2088	129	BS	38	Moist, grey, stiff clay with some patches of very 'papery' organic matter and charcoal present.	Stones, sand and roots were abundant in this residue. The only organic remains recovered were a few fragments of charcoal to 10 mm, including poorly-grown oak, and animal bone.
	130	GBA	-	as above	Priority 2 sample. NFA
2097	164	BS	10	The sediment was dry to just moist, light-mid grey with a yellowish cast, indurated (working crumbly), slightly sandy clay. Local patches were darker or oxidised to orange. Charcoal and modern roots were present.	One tub only was processed. ?Mineralised sediment/concretions and charcoal were the chief components of the residue, the latter including an unidentified twig (to 15 mm) and some ?willow. Some stones, roots, and a few fragments of bone were also present. The washover contained modern roots, a trace of charcoal <5 mm and traces of fat-hen (<i>Chenopodium album</i>) seeds.
	105	BS	33	Just moist, mid grey to light grey/brown and orange, clay sand. Texture varied locally from plastic to crumbly to stiff and soft. Charcoal was present on the mm scale. Modern rootlets and evidence of invertebrate burrows were also noted.	Roots were the commonest component of the residue and cinder and ?mineralised sediment/concretions were present. Organic remains were represented by only a few pieces of charcoal (abraded branch/trunk wood to 15 mm, including ?oak and ?willow), and fragments of mammal bone.
2122	106	GBA	-	as above	Priority 2 sample. NFA
	115	BS	44	This sediment was noted by the excavator as coming from an "area of burnt/organic material in cut". It was a just moist, dark grey to mid grey, crumbly (working plastic), clay sand with a trace of oxidation and local patches of pale yellow/brown sand. A few modern rootlets were present and some infilled worm burrows were also noted.	1 tub saved as voucher. The residue was almost entirely composed of slag and charcoal (rather abraded branch/trunk charcoal to 20 mm), with a few roots. The washover comprised a small amount of modern roots, a trace of charcoal <5 mm and at least one modern grass caryopsis.

Context	Sample	Sample type	Weight processed (kg)	Sediment description	Comments
2134	122	BS	10.5	Just moist, mid grey/brown, indurated to stiff (working crumbly), slightly sandy clay. Locally patches of the sediment varied from orange/brown to buff to light grey/brown and mid grey/brown. Charcoal (to 5 mm) was present, modern roots were common and root holes were noted. The whole sediment had a very jumbled appearance, possibly resulting from modern tillage.	Washover to 300 µm, it contained a small amount of modern roots, and traces of knotgrass (<i>Polygonum aviculare</i>) seeds which might be of recent origin. ?Mineralised sediment/concretions were abundant in the residue and charcoal was common; the latter comprised abraded branch/trunk charcoal to 15 mm, inc ?willow. Some fragments of pottery and slag, and a few roots were present. Some fragments of burnt mammal bone were also noted.
	123	GBA	-	as above	Priority 2 sample. NFA
	161	GBA	-	as below	Priority 2 sample. NFA
2160	162	BS	49	Just moist, mid-dark grey/brown, slightly indurated to crumbly, slightly clay sand with light-mid brown patches locally and some lumps of mottled grey. Stones ranging in size from 2-60 mm were present, as was charcoal (to 10 mm). Modern rootlets were common.	Charcoal (1-20 mm) was abundant in the residue—it was abraded branch/trunk wood to 25 mm, and included oak, ?ash and possibly other taxa; ?mineralised sediment/concretions were common, and roots, pottery and slag were present. A fragment of charred hazel (<i>Corylus</i>) nutshell and two charred sloe (<i>Prunus spinosa</i>) fruitstone fragments and some mammal bone were also present.
	142	GBA	-	as below	Priority 2 sample. NFA
2173	144	BS	46	Dry to moist, mid brownish grey, stiff (working crumbly), clay sand. Patches of oxidation were noted at the 1 mm - 10 mm scale, and 2 - 6mm sized stones and charcoal were present. Modern rootlets were abundant and worm burrows were present.	The residue contained abundant charcoal (rather abraded branch/trunk wood to 20 mm, including ?willow, alder/hazel and oak) and ?mineralised sediment/concretions, together with two very abraded charred cereal grains identified only as wheat/barley. Stones and roots were common, charred grain, fragments of burnt mammal bone, and a fragment of an underside of a carabid beetle, were present. Fragments of pottery were also noted.

Context	Sample	Sample type	Weight processed (kg)	Sediment description	Comments
2214	180	GBA	-	as below	Priority 2 sample. NFA
	181	BS	45	Just moist, mid grey to light brown, orange/brown locally, crumbly clay. Charcoal (to 10-15 mm) was common throughout the sediment and modern rootlets were noted.	Charcoal was the main component of the residue: somewhat abraded branch/trunk wood to 25 mm, including poorly and well-grown oak and ?hazel. Stones, roots, and fragments of pottery and mammal bone were present.

Table 3. Time estimates for further work on material from Stockton West Moor and Rawcliffe Moor, York. Staff: RA - Research Assistant; RAb - Research Assistant (bone); RAi - Research Assistant (insects); RFi - Research Fellow (insects); RFp - Research Fellow (plants); Tech - Technician

Task	Staff	Time (hours)
General	Tech	2.21
GBA samples		
Process further material from waterhole feature for extraction of macrofossils	Tech	33.15
Sorting and detailed recording of further material	RAi	17.68
	RFi	8.72
	RFp	2.18
BS samples		
Process selected primary deposits for charcoal	Tech	33.15
Detailed recording of charred material from primary deposits	RFp	47.96
Data analysis and basic reporting		
Data analysis	RFi	13.08
	RFp	13.08
Production of technical (EAU) report (including archive tables)	RFi	8.72
	RFp	8.72
	RAi	15.47
	RAb	11.05