

Reports from the Environmental Archaeology Unit, York

**Assessment of biological remains from excavations at Carr Naze,
Filey, N. Yorkshire (YAT/Yorkshire Museum sitecode 93.5002)**

by

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Report 94/7

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Summary

Sediment samples and a small assemblage of hand-collected bone from excavations associated with the Roman signal station at Carr Naze, Filey, have been examined. The former were largely barren of useful plant and invertebrate remains other than marine mollusc shell.

The bones included small numbers of common domesticates with sheep and particularly pig predominant. Few fish remains were recovered and the remains of small mammals and possibly also wild birds present are likely to be intrusive. Though small, the assemblage is of a date and from a context of sufficient rarity for the material to be recorded in more detail; ideally, more material should be recovered using controlled systematic recovery procedures.

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Assessment of biological remains from excavations at Carr Naze, Filey, N. Yorkshire (YAT/Yorkshire Museum sitecode 93.5002)

General Introduction

During 1993, excavations were carried out under the direction of Dr Patrick Ottaway (York Archaeological Trust), at the Roman signal station at Carr Naze, Filey. Samples were taken to represent the deposits and there was a small corpus of hand-collected bone; nearly all the contexts sampled were associated with the signal station. In this report, the sediment samples are dealt with first, followed by a consideration of the vertebrate remains.

Sediment samples

Introduction and methods

A series of 21 general biological analysis (GBA, *sensu* Dobney *et al.* 1992) samples, 12 bulk-sieving (BS) samples and a single 'spot' sample were selected by the excavator for assessment.

After description of the sediments in the laboratory using a standard *pro forma*, the material was investigated as follows:

GBA samples: a 1 kg 'test' subsample was processed following methods outlined by Kenward *et al.* (1980; 1986), using a 'washover' to extract biological remains of low density, including charcoal. Residues were examined after drying.

BS samples: these were sieved in a semi-automated sieving tank using a 1 mm mesh for the residue and a 500 μ m sieve for the washover. These were oven-dried prior to examination.

The spot sample was thought by the excavator to be a concretion but proved to be some kind of natural rock, perhaps decayed basic igneous rock, and was returned without further analysis (but see comments under context 1038 in Appendix).

Results

The sediment descriptions and results of the analyses are given in the appendix.

Discussion, statement of potential and recommendations

Apart from a little charcoal, and traces of charred cereals in a single sample, there was effectively no recognisable ancient plant material in the samples examined. No interpretatively useful invertebrate remains were present.

The only potential of the macrofossil remains is in identifying possible fuel, though the material consisted of extremely small fragments, most of which could not reasonably be identified. The concentration of grains in sample 77 is too low to warrant further work unless a proper record is required for completeness.

Other than this, it is recommended that no further work be carried out on the macrofossil remains.

Examination of sediments by a competent pedologist/sedimentologist may cast more light on depositional processes for some contexts.

There appears to be no reason to retain any of the unprocessed sediment except for a selection of small 'voucher' samples to permit microfossil or other analysis should this be considered worthwhile in the future. It may, however, be useful to sieve remaining sediment samples for the recovery of artefacts and bone.

The nature of the igneous rock found in several samples from context 1038 may deserve more attention; it is unlikely to have come from the local drift since the clasts were very angular (unless this is a consequence of decay in the deposits during or since their formation). The source for such material is

not immediately apparent.

Bone

A small assemblage of animal bones (the contents of five standard-sized boxes) was recovered. Of a total of 201 contexts from the main excavation, 27 produced animal bones (16 out of 62 from Trench 1, five of 43 from Trench 2 and six of 96 from Trench 3). No bone was recovered from Trench 4 (at the eastern end of the site) nor from Trenches 5 and 6 (towards the east end of Carr Naze).

Only six contexts contained bone fragments in relatively large quantities (i.e. >40 fragments), these being 1038, 1048, 2027, 3030, 3032 and 3034. Not surprisingly, these are contexts interpreted archaeologically as 'occupation' or 'build-up' deposits. This dark-coloured occupation material was encountered in all three trenches in the main excavation area and, as well as animal bone, it also contained charcoal and pottery in reasonable quantities.

Hand collected assemblage

Bone from all contexts was rapidly scanned and, on the basis of this, bone groups from three (1038, 3034, 3042) were recorded in detail. A further 11 were sorted and scanned in more detail, when general notes were made for each.

Preservation of most of the assemblage was good and the broken edges of fragments were distinctly angular in appearance. Colour on the whole was variable, but most fragments were brown, with a few contexts yielding fawn-coloured specimens. Fragmentation of the material was average, with most fragments falling between 5 and 15 cm in largest dimension (only one context (1038) contained fragments >20 cm), and dog gnawing, although present, never reached frequencies of >10%. Butchery was noted in material from all contexts in moderate frequencies (between 10-20%) but at 20-50% in context 1038. Although bones were moderately fragmented, few fresh breaks were noted in the assemblage.

A wide range of elements for each of the major domesticates was represented in the larger assemblages, and with such small numbers it is impossible to detect any significant bias in body part representation.

Species most commonly represented included caprovid and pig (most abundant) followed by cattle and domestic fowl (Appendix, Table 1). In the other contexts, which were merely scanned, similar relative proportions for each species were encountered, with pig being noticeably well represented throughout.

Red deer remains were present in two additional contexts (3030 and 3037) and consisted of large antler fragments, all very eroded and poorly preserved, and a well preserved metacarpal fragment (from context 3030).

Additional bird species included: several fragments of Turdidae from contexts 2027 and 3030 (which, on the basis of colour and a generally greasy texture, may be intrusive); razorbill (*Alca torda* L.) coracoid and humerus from contexts 1023 and 2017); a woodcock (*Scolopax rusticola* L.) tarsometatarsus; a Columbidae coracoid; a very small duck humerus, probably teal (*Anas* cf. *crecca* L.) from context 2022; possible oystercatcher (cf. *Haematopus ostralegus* L.) tarsometatarsus with cut marks at the distal and proximal ends from context 2022; and a herring gull (*Larus argentatus* Pontoppidan) coracoid from context 2017.

Fish remains were, not surprisingly, very rare in the hand collected assemblage and consisted of several large gadid fragments identified as ?ling (*Molva* cf. *molva* (L.)) from context 3030.

Bone from BS samples

Proportions of bone in the residues from BS samples followed those for the hand-collected assemblage, with the occupation deposits being most productive. Little in the way of fish, small mammal or bird bones was present (Appendix, Table 2). Several vertebrae of spurdog (*Squalus acanthias* (L.)) were identified from sample 35, and there

were a few gadid and clupeid fragments from sample 40 (both context 1038). Small mammal and amphibian bones were found in low numbers in the majority of samples, those that were identified being water vole (*Neomys fodiens* (Pennant)) and field or bank vole (*Clethrionomys glareolus* (Schreb.)/*Microtus agrestis*. L.), (*Bufo bufo* L.) and frog (*Rana temporaria* L.).

Discussion

The assemblage from the site as a whole is very small and will provide only a tentative insight into the provisioning and diet of the signal station. There are also relatively small numbers of measurable fragments and mandibles with teeth which will limit the information available regarding different domestic breeds and age at death. The seabirds present in the assemblage are interesting, but (apart from the possible oystercatcher bone with evidence of butchery), are more likely to have been incorporated into the deposits during subsequent abandonment when the tower may have been used as a convenient nesting area. Also, most of these bones are from contexts directly disturbed by the 1857 excavation. The few fish remains may also be intrusive, possibly brought onto site by seabirds. The lack of fish remains is intriguing, especially in view of the proximity of the site to the sea, and does seem to suggest that they did not figure in the diet of soldiers at the site. Red deer remains may indicate the presence of heavily wooded areas in the vicinity, though the lack of any major meat-bearing bones of this species throws doubt on this suggestion.

Few Roman signal stations have ever been excavated, Filey being the only one in Britain using modern techniques and where environmental sampling has been undertaken. As a consequence we have few or no comparative data. The fact that this assemblage can be relatively tightly dated to the late 4th century renders it of even greater importance, since there are very few bone assemblages from the period of terminal Roman occupation in Britain. Most groups of this date are from urban contexts and probably none are from exclusively military

contexts. The study of this period has been highlighted as one of a number of high priority academic objectives by English Heritage (1991, 36) under the heading *Processes of change, the early medieval period (c.350-700 AD)*.

Recommendations

The reasons outlined above reinforce the potential importance of this vertebrate assemblage. Unfortunately, the limited nature of the excavation means that only a small sample is at present available for study. This would make interpretative analysis, based on detailed recording of the material, of limited value.

The 1993 excavations in Trenches 1, 2 and 3 have shown the presence of a dark occupation-type deposit within the entire courtyard area of the station—represented by contexts in which animal bone is relatively abundant and well preserved. Since the site is threatened with total destruction in the near future through coastal erosion, it is imperative that a further open-area excavation be undertaken to expose the rest of these occupation deposits, during which the systematic recovery of animal bone can be undertaken. This should provide a larger assemblage where the analysis of biometrical, age at death and body part representation data would be statistically meaningful.

Without additional material, study of this assemblage should be limited to production of an archive and an AML report. Species range, body part representation and biometrical data should be recorded. This would take no more than one week.

All bone material should be retained.

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Appendix: Results of the analyses of sediment samples

The results are presented in order of trench, context series, context and sample; all the samples taken are listed so that the volume of material not examined during this assessment can be judged. Samples not seen are marked †. Context types in brackets follow descriptions supplied by the excavator. Most of the test subsamples produced no invertebrates or at most traces of arthropod cuticle. Where more than a trace of invertebrate remains was present it is noted.

Trench 1

01.02.01

1057 [pre-station occupation with flints]

91 GBA

A rather varicoloured reddish grey-brown (with darker and lighter mottling), stiff (working plastic), slightly sandy clay with traces of stones 6-20 mm.

The very small washover was of modern rootlets with traces of charcoal to 1 mm and a single weevil head, *Apion* sp., bearing concretion of some kind. It was not possible to be sure that the weevil head was ancient rather than a relatively modern specimen which had become incorporated in panning. The residue was small and consisted of sand with a trace of gravel to 5 mm.

01.03.02

1052 [material over ?platform levelling]

64 GBA†

01.04.02

1045 [backfill of posthole 1047]

37 GBA†

01.04.04

1050 [construction/collapse/demolition deposit]

50 GBA†

67 GBA†

1053 [construction/collapse/demolition deposit]

70 GBA†

1054 [construction/collapse/demolition deposit]

78 GBA†

01.05.01

1021 [earliest occupation in Trench 1]

5 GBA†

1048 [earliest occupation in Trench 1]

46 GBA

Mid reddish grey-brown (greyer in places), crumbly (working plastic), slightly sandy clay with traces of stones 2-20 mm (including ?rotted lime stone), charcoal, mammal bone and marine mollusc shell.

There were moderate amounts of charcoal to 2 mm in the small washover, along with traces of coal to 2 mm, rotted mussel shell, rush seeds and modern rootlets; the small residue was mostly sand, with some undisaggregated clay pellets and a trace of bone to 10 mm and marine mollusc shell to 5 mm.

47 BS (27 kg)

Light/mid reddish-brown, stiff to crumbly (working plastic), slightly sandy clay, with traces of stones 6-20 mm, mammal bone and marine mollusc shell; a modern (germinating) seed also present.

The small residue was of stones (to 50 mm) and gravel with traces of mammal bone (some burnt), mortar, pottery, coal, shellfish and charcoal. There were two land snails, *Vallonia costata* and *Oxychilus alliarius*, both species of grassland habitats; an intrusive origin for them cannot be ruled out.

1051 [earliest occupation in Trench 1]

58 GBA

Mid reddish-brown, stiff to crumbly (working plastic), very slightly sandy clay with traces of stones 2-60 mm, and traces of charcoal, mammal bone, marine mollusc shell and ?mortar.

The very small washover contained modern root and rootlet fragments together with traces of charcoal to 2 mm, *Juncus* seeds (perhaps more than one species) and coal. In the small residue of sand and gravel (to 25 mm) there were traces of large mammal bone to 25 mm and of charcoal to 10 mm.

59 GBA†

62 GBA†

01.05.03

1020 [2nd phase of occupation]

4 GBA

Mid yellowish-grey-brown, brittle to crumbly (working plastic), slightly sandy clay silt with traces of stones (including rotted sandstone) 2-20 mm, and traces of charcoal, mammal bone and ?mortar.

The very small washover contained modern root fragments with moderate amounts of charcoal to 2 mm (including ?herbaceous material) and moderate numbers of *Cenococcum sclerotia* (this soil-living fungus is probably of no significance). The small residue was of sand with a little gravel to 10 mm and traces of bone to 20 mm and of charcoal to 10 mm.

1038 [2nd phase of occupation]

19 GBA†

20 GBA†

21 GBA†

22 GBA†

25 SPOT

This small sample consisted almost entirely of more or less angular, crystalline rock with a mottled coloration (red to grey to brown); it was very dense and appeared to be some kind of rotted igneous rock, perhaps a coarse-grained basic type such as a gabbro. Since it was recorded in other samples from this context only, it may be worth pursuing its identification through the offices of a competent petrologist.

26 GBA

Mid reddish grey-brown, crumbly (working plastic), slightly sandy clay with traces of stones 20-60 mm and several large stones >60 mm; also traces of mammal bone and marine mollusc shell.

The moderately large washover contained moderate amounts of charcoal to 3 mm, including fine twig fragments, together with a fragmentary charred sedge (*Carex*) nutlet, modern grass leaf/culm and spikelet fragments and fungal hyphae. A few oxidised fragments of beetle cuticle were noted, probably having entered post-depositionally. The small residue was of sand with gravel to 10 mm, but mostly comprised undisaggregated clay pellets. There were traces of marine mollusc shell to 10 mm, bone to 15 mm and mortar to 10 mm.

27 GBA†

34 BS (37 kg)

Mid yellowish-brown, brittle to crumbly (working plastic), slightly sandy silty clay with a little stone >60 mm, traces of mortar and marine mollusc shell and moderate amounts of charcoal; also some inclusions of paler patches of clay.

The very small residue was of gravel and stones (to 150 mm, including sandstone and oolite), with modest amounts of ?rotted gabbro (cf. sample 25) and traces of bone (some burnt), brick/tile, mortar, cinder, coal, charcoal, and shellfish.

35 BS (18 kg)

Mid yellowish-brown, brittle to crumbly (working plastic), slightly sandy silty clay with traces of mortar and marine mollusc shell and moderate amounts of charcoal; also some inclusions of paler patches of clay.

There was a large component of stone (to 150 mm, including a variety of lithologies) with a little gravel and some undisaggregated clay in this small residue. Also present were moderate amounts of bone, traces of ?rotted gabbro (cf. sample 25), mortar, pottery, shellfish and charcoal. Large mammal bone fragments were

relatively common, some of the smaller unidentifiable pieces appearing rounded and 'acid-etched', possibly signifying passage through the digestive system. In addition, small mammal (microtine), bird, fish (spurdog) and amphibian were also present.

40 BS (22 kg)

Mid yellowish-brown, brittle to crumbly (working plastic), slightly sandy silty clay with moderate amounts of bone, traces of mortar and marine mollusc shell and moderate amounts of charcoal; also some inclusions of paler patches of clay.

The small residue was mainly of gravel and stones (limestone, sandstone and chalk to 100 mm), with traces of bone, shellfish, charcoal, brick/tile, charcoal, coal, cinder and a ?iron object. (The ?rotted gabbro recorded in the other BS samples from this context was not seen here.) The bone included a few fish fragments from gadids and clupeids as well as several small mammal (microtine) elements. It was observed that the fragments of large mammal bone were less well preserved than most of the rest of the assemblage.

41 BS (23 kg)

Mid yellowish-brown, brittle to crumbly (working plastic), slightly sandy silty clay with traces of mortar, bone and marine mollusc shell and moderate amounts of charcoal; also some inclusions of paler patches of clay, a germinating modern seed and some ?modern root fragments.

The moderately large residue was of stone (to 120 mm, including some burnt clasts, and some identified as flint and quartz), with traces of bone (some burnt), mortar, pottery, coal, and iron object, shellfish and charcoal.

01.05.04

1041 [isolated occupation deposit]

31 GBA†

01.08.01

1030 [silt over cut 1061/surface 1039]

10 GBA

Very homogeneous mid reddish-brown, plastic to crumbly silty clay with traces of stones 2-6 mm.

There were modern rootlets and coal to 1 mm in the very small washover; the small residue was of sand with traces of gravel to 10 mm and of coal to 5 mm.

11 GBA†

1035 [silt over cut 1061/surface 1039]

14 GBA†

01.09.02

1036 [backfill of robbing trench 1040]

15 GBA

Mid reddish-brown, slightly crumbly to plastic, slightly stony, slightly sandy clay with traces of stones 2-60 mm and moderate amounts of mortar.

There were traces of rootlets, with coal and charcoal to 1 mm in the very small washover; the moderately large residue was of sand with moderate amounts of gravel to 40 mm, the largest fragment being a lump of mortar, and with traces of marine mollusc shell fragments.

16 BS (31 kg)

Mid reddish-brown, stiff (working plastic), very stony clay with moderate amounts of stone 2-60+ mm.

The moderately large residue consisted mainly of gravel and stone (to 150 mm), with much mortar and traces of brick/tile.

18 BS (30 kg)

Mid reddish-brown, stiff (working plastic), very stony clay with moderate amounts of stone 2-60+ mm.

The rather large residue was mostly of gravel and stone (to 200 mm, including limestone and sandstone), with some mortar and traces of bone, shellfish, and charcoal.

01.09.03

1034 [demolition-derived deposit, E half of trench]
13 GBA†

01.09.04

1016 [demolition-derived deposit, S side of Simpson's trench]
1 GBA†

1017 [demolition-derived dep, S side Simpson's trench]
2 GBA†

1019 [demolition-derived dep, S side Simpson's trench]
3 GBA†

01.10.01

1025 [silting over 1034]
7 GBA†

01.10.03

1027 [backfill in pit 1031]
8 GBA

Very homogeneous mid reddish-brown (with occasional

blackish patches but apparently no charcoal), crumbly clay sand.

The very small washover contained modern rootlets and *Heterodera* (soil-living nematode) cysts. The very small residue was of sand with traces of gravel to 5 mm. It was very similar in appearance to that from the subsample of sample 91 (context 1057).

1029 [backfill in pit 1031]
90 GBA†

01.10.04

1024 [?cut fill]
6 GBA†

*Trench 2***02.04.01**

2025 [occupation-derived deposits in courtyard]
39 GBA

Mid reddish grey-brown (with slightly greyer and browner mottling), plastic to crumbly (working plastic), very stony, slightly sandy clay with moderate amounts of stone (mostly mortar and rubble) 2-60 mm, and traces of charcoal.

Together with traces of charcoal to 2 mm, the very small washover only yielded modern rootlets, a seed embryo, grass spikelets and a very decayed *?Plantago* sp. seed. The small residue was of sand and gravel to 30 mm, including some mortar.

2027 [occupation-derived deposits in courtyard]
71 GBA†

72 BS (29 kg)

Mid pinkish grey-brown (with slight mottling at 10 mm scale) brittle to crumbly (working plastic) clay with traces of charcoal, bone and marine mollusc shell; also a modern seedling.

The small residue contained a little stone (including limestone to 100 mm) and moderate amounts of gravel; there were rather large amounts of bone with traces of brick/tile, mortar, pottery, coal, shellfish and charcoal.

73 GBA†

79 GBA

Mid reddish grey-brown, brittle to crumbly (working plastic), silty clay with traces of stones 2-60+ mm and of mammal bone and ?mortar.

The small washover was mostly of charcoal to 2 mm (much of apparently herbaceous material), with some modern rootlets. The small residue consisted largely of sand and undisaggregated clay pellets with a little gravel and stone to 40 mm, including some mortar; there were

also traces of bone to 10 mm and of charcoal to 5 mm.

80 GBA†
81 GBA†

02.05.02

2022 [fill of 2023, S side of 2018 (Simpson's cut)]
24 GBA†

02.05.03

2028 [?backfill of 2023 (robbing trench for tower walls)]
69 GBA†

02.05.04

2020 [accumulation in/over backfilled robbing trench
2023 (tower wall)]

17 GBA

Very homogeneous mid reddish-brown (?slightly gleyed), crumbly (working plastic), slightly sandy clay.

The very small washover consisted of moderate amounts of flaky brownish coal to 5 mm and traces of modern rootlets; the very small residue was of sand with gravel to 25 mm, including mortar, and a trace of coal to 2 mm.

Trench 3

03.04.01

3034 [occupation-derived accumulation in courtyard]
54 GBA

A mixture of dark grey crumbly clay silt and light/mid reddish grey-brown crumbly silty clay with moderate amounts of charcoal in the darker component and traces of stones 2-20 mm and of marine mollusc shell also present in the sample.

The moderately large washover contained a moderate amount of charcoal to 10 mm (including some fine twig fragments) and traces of very small bone fragments; there were also some modern rootlets. The small residue was of sand with gravel to 20 mm, and traces of marine mollusc shell and bone to 20 mm and a pot sherd (returned to the excavator).

55 GBA

Mid reddish grey-brown (with blackish mottling from charcoal), crumbly (working plastic) silty clay with traces of stones 2-20 mm, bird bone and ?mortar, and moderate amounts of charcoal.

The moderately large washover was mainly of charcoal to 10 mm (again, including small twig fragments), tiny bone fragments and modern rootlets. The small residue was of sand with a little gravel to 5 mm, including mortar, and with traces of burnt and unburnt bone to 15

mm, and charcoal to 10 mm.

56 GBA†
57 GBA†
63 BS (36 kg)

Mid pinkish-brown to mid/dark grey-brown, stiff to crumbly (working plastic) clay with traces of stone 20-60 mm, moderate amounts of charcoal and traces of pottery, bone and marine mollusc shell.

In the small residue there was a preponderance of gravel with some stone (including limestone to 130 mm) and rather a large component of bone; also present were mortar, brick/tile, an iron nail, a glass bead, and traces of coal, shellfish, and charcoal. The bone was mostly from large mammals; however, both microtine fragments (including a water vole tibia) and elements of toad were recovered.

3042 [occupation-derived accumulation in courtyard]

75 GBA†
76 BS (36 kg)

Mid pinkish-brown to mid/dark grey-brown, stiff to crumbly (working plastic) clay with moderate amounts of charcoal and traces of bone and marine mollusc shell.

The small residue was of gravel and bone, with a trace of pottery and shellfish.

77 BS (37 kg)

Mid pinkish-brown to mid/dark grey-brown, stiff to crumbly (working plastic) clay with moderate amounts of charcoal and traces of bone and marine mollusc shell and many fine ?rootlet channels throughout.

Gravel and stone (to 50 mm, with varied lithology) made up the bulk of the small residue; there were also moderate amounts of bone with traces of slag, brick/tile, mortar, pottery, shellfish (including echinoderm shell), charcoal and charred cereal grains (perhaps including wheat and/or barley). Amongst the smaller fragments of bone were several unidentifiable bone phalanges, fragments of clupeid vertebrae and frog.

03.07.01

3030 [gradual accumulation in courtyard area]

42 GBA

Light/mid reddish grey-brown, crumbly (working plastic), moderately stony, slightly sandy clay with traces of stones 2-60+ mm and ?charcoal.

The very small residue contained rootlets, (?toad-)rush seeds and charcoal to 3 mm. In the small residue of sand with gravel there were several large stones (to 50 mm), some mortar and a trace of fish bone.

43 GBA†

03.07.02

3040 [gradual accumulation over site E of courtyard wall]
66 GBA

Very homogeneous light/mid reddish-brown, stiff to crumbly (working slightly plastic) clay sand.

There were traces of rootlets, fungal hyphae, and coal and charcoal (both to 2 mm) in the very small washover. There were also two foraminiferan shells. The very small residue was of sand with a trace of gravel to 5 mm and of coal to 2 mm.

03.08.01

3027 [rubbly deposit in area of courtyard, ?demolition of wall]
28 GBA†
29 GBA†

03.08.02

3020 [mound E of courtyard wall]
61 GBA

Mid reddish-brown, stiff to crumbly (working plastic), slightly sandy silty clay with traces of stones 2-60 mm and moderate amounts of mortar.

The very small washover contained coal, pre-Quaternary megaspores (from the coal), a fragment of terrestrial mollusc shell and modern rootlets and fungal hyphae. There was also a mite carapace. The small residue was of sand and gravel with stones to 35 mm, some mortar and a trace of bone.

3035 [mound E of courtyard wall; ?gradual accumulation]
60 GBA†

03.08.04

3016 [clean deposit E of mound in 3.8.2]
12 GBA†

03.09.01

3025 [gradual accumulation over W part of trench]
23 GBA

Mid red-brown (slightly greyer in places), crumbly to plastic, slightly sandy clay (sandier in places) with traces of stones 2-6 mm and ?mortar.

In the very small washover there were traces of modern rootlets with a very few rush (*Juncus*) seeds, perhaps toad-rush, *J. bufonius*. The very small residue comprised sand with a little gravel to 5 mm and traces of mortar and coal to 2 mm.

03.12.01

3045 [like 3034/3042 but ?disturbed by 1857 excavations]
86 GBA†

87 BS (37 kg)

Mid brown, brittle to crumbly (working plastic) clay with ?paler `ash' inclusions and traces of charcoal and marine mollusc shell.

The small residue was mostly marine shell and gravel, with a little stone (to 110 mm); the shellfish included echinoderm test. Also present were bone, mortar, pottery, coal and charcoal.

03.12.03

3039 [backfill of 3013, the 1857 trench]
65 GBA†

3041 [backfill of 3013, the 1857 trench]
74 GBA†

Trench 4**04.00.00**

4001 [upper 1 m of trench]
83 GBA†

4002 [next 0.5 m below 4001]
84 GBA

Very homogeneous mid reddish-brown (with blue-grey streaks in ?root traces), plastic to crumbly (working plastic), but locally crumbly and unconsolidated, sandy clay with locally pure fine sand.

The small washover included moderate amounts of coal to 5 mm, with pre-Quaternary megaspores (from the coal), charcoal and *Juncus* seeds all in trace amounts. The very small residue was of sand and gravel to 10 mm.

4004 [next 0.5 m below 4003]
88 GBA

Mid reddish-brown (locally blue-grey, perhaps slightly gleyed), crumbly (working plastic), slightly sandy silty clay with traces of stones 2-60 mm (including rotted limestone or mortar).

There were traces of coal, pre-Quaternary megaspores and charcoal to 1 mm in the tiny washover; the small residue was of sand with stones to 50 mm.

4005 [?natural]
89 GBA†

Trench 5 (sampled from a series of arbitrary spits)

05.00.00

5002

30 GBA†

5003

36 GBA†

5004

44 GBA†

5005

45 GBA†

5006

49 GBA†

5007

51 GBA

Very homogeneous mid reddish-brown, slightly crumbly (working plastic), sandy clay.

There was a little coal to 2 mm, together (?toad-)rush seeds and modern rootlets in the very small washover; the residue was also very small and consisted of sand with traces of gravel and coal to 5 mm.

Trench 6 (sampled from a series of arbitrary spits)

06.00.00

6001

32 GBA†

6002

38 GBA†

6003

48 GBA

Very homogeneous mid reddish-brown, crumbly (working plastic), slightly sandy clay.

The small washover contained moderate amounts of modern rootlet material with traces of coal and charcoal to 2 mm. The very small residue was of sand with traces of gravel to 5 mm and of coal and brick/tile.

Table 1. Bones: numbers and weights of fragments, numbers of measurable bones and numbers of mandibles with teeth from contexts 1038, 1034 and 3042

Species	Total fragments	Total weight	No. measurable bones	No. mandibles with teeth
Cattle	67	3733	12	-
Sheep/goat	84	1455	41	5
Pig	84	1515	16	6
Cervid	1	36	-	-
Fowl	29	61	19	-
Goose	3	26.5	-	-
Duck	7	12	4	-
Bird?	3	3	-	-
Fish	1	0.5	-	-
Sub total	279	6842	92	11
Unidentifiable	636	6316	-	-
Total	915	13,158	92	11

Table 2. Detailed record of four bone-rich BS residues. Key: LM—Large mammal; MM—Medium sized mammal; SM—Small mammal; Amphib.—Amphibian; P—present (i.e. <10% of total assemblage); C—common (10-50%); A—abundant (>50%). Letters in parentheses, for large mammals, (F)—few measurable bones (i.e. <10%); for birds and fish, (L)—low diversity (i.e. one species present); (M)—moderate (2-4 species); and (H)—high (>4 species) (diversity scale is relative to material from this site only).

Context type	Context no	Sample no	LM	MM	SM	Bird	Fish	Amphib	Shellfish
Occpn	1038	040	C (F)	-	P(L)	P(L)	P(L)	-	P
Occpn	3034	063	C(F)	-	P(M)	-	-	P	P
Occpn	3042	077	C(-)	-	-	P(L)	P(L)	P	P
Occpn	1038	035	C(L)	-	P(L)	P(L)	P(L)	P	P