

*Reports from the Environmental Archaeology Unit, York 2001/29, 8 pp.*

## **Evaluation of biological remains from 16 Baxtergate, Hedon, East Riding of Yorkshire (site code: BAH2001)**

by

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### **Summary**

*A series of samples bulk-sieved on site (submitted as dried washovers and residues), two samples of raw sediment, a small quantity of hand-collected shell, and two boxes of hand-collected bone recovered from deposits of 12<sup>th</sup> century to modern date, revealed by excavations at 16 Baxtergate, Hedon, were submitted for an evaluation of their bioarchaeological potential.*

*Plant and invertebrate remains were mostly sparse in these deposits, though Context 1003 produced interpretatively useful (if mixed) assemblages. The few charred cereals in other samples are probably too sparse to be useful.*

*The hand-collected shell assemblage was too small to be of any interpretative value.*

*The vertebrate assemblage was too small to be of any great interpretative value but its overall appearance was primarily of domestic waste.*

*It may be worth making a proper analysis for the archive of plant and invertebrate material from Context 1003, and given the sequence of deposits, a comparison of at least material from top- and lowermost parts of the context might be made. No further work is recommended on the hand-collected shell. A full metrical archive of the current Phase I vertebrate remains should be prepared.*

*In view of the paucity of bioarchaeological evidence from Hedon any development which threatens these deposits should include a programme of sampling for plant, insect and vertebrate remains accompanied by assessment of samples and hand-collected material in the first instance.*

**KEYWORDS:** 16 BAXTERGATE; HEDON; EAST RIDING OF YORKSHIRE; EVALUATION; LATE 12<sup>TH</sup> CENTURY TO MODERN; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; SHELL; OYSTER; VERTEBRATE REMAINS

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30 April 2001

## Evaluation of biological remains from 16 Baxtergate, Hedon, East Riding of Yorkshire (site code: BAH2001)

### Introduction

An archaeological evaluation excavation was carried out by Humber Field Archaeology (HFA) at 16 Baxtergate, Hedon, East Riding of Yorkshire, in January 2001.

A series of samples was processed by bulk sieving prior to delivery to the EAU and the residues and washovers were submitted for an evaluation of their content of biological remains. Two samples of raw sediment, a small quantity of hand-collected shell, and one box (of approximately 15 litres) of hand-collected bone were also submitted.

Preliminary study dated most of the deposits to the medieval period with a few post-medieval and later contexts. Five phases were identified as follows: Phase 1 – pits with associated property boundary and open watercourse (late 12<sup>th</sup>-13<sup>th</sup> century); Phase 2 – abandonment of property division, back-filling of the watercourse and its appropriation as a building platform (13<sup>th</sup> century); Phase 3 – occupation horizon with pits (15<sup>th</sup>-16<sup>th</sup> century); Phase 4 – construction of culvert and pit (18<sup>th</sup>-19<sup>th</sup> century); Phase 5 – garden soil and modern service trenches (20<sup>th</sup> century).

### Methods

#### *Samples*

All of the submitted material was examined in the laboratory. The lithologies of the two raw sediment samples 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 flot, washovers and residues from the samples were examined for plant and invertebrate remains. The residues were sorted for bone and shell.

#### *Hand-collected shell*

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

#### *Hand-collected vertebrate remains*

Data for the vertebrate remains were recorded electronically directly into a series of tables using a purpose-built input system and *Paradox* software. For each context (or sample) subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, where more than ten fragments were present, 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 1 (assumed to be caprovid, pig or small cervid); medium-sized mammal 2 (dog- cat- or hare-sized);

unidentified bird; unidentified fish and completely unidentifiable.

## Results

### Samples

Archaeological information provided by the excavator is given in square brackets. Sediment descriptions are given for the two laboratory processed sample.

The results for individual samples are presented in context number order. In addition, residues and washovers from these and various other contexts have been examined briefly for plant remains. Those from samples 2006, 2008 and 2028 were characterised by the presence of concretions which are probably faecal (*Trichuris* eggs were detected in a fragment of concretion from the sample from 2006), whilst the washovers from these have some elder and blackberry seeds. Altogether, the presence of very decayed faecal material is suspected for the fills of these three pits. The concreted silt repeatedly seen in other samples is not thought to be faecal in origin but a function of other chemical processes.

#### Context 1003 [organic silt in channel 1024]

Sample 19/BS (8.4 kg processed prior to submission)

Bones were well preserved and generally dark brown in colour, weighing 9.8 g in total. About half of the 18 unidentified mammal fragments were either calcined or charred, along with a medium-sized mammal phalanx. Pig remains were also present. Fish, weighing 1.1 g was represented by large gadid cf. cod (*Gadus morhua* L.), herring (*Clupea harengus* L.), large pleuronectid and twelve other fragments, three of which had been calcined. Two fragments of unidentified shell (to 8 mm) were also noted.

Sample 20/BS (8.6 kg processed prior to submission)

Weighing 6.4 g, there were thirty well preserved fragments of unidentified mammal bone, generally dark brown in colour, with one fragment calcined. Identified were bird and medium-sized mammal 1 and 2. There were 20 fragments of fish weighing 1.2 g, which included herring, eel (*Anguilla anguilla* (L.)) and mullet (Mugilidae).

Sample 24/BS (8.7 kg processed prior to submission)

Weighing 1 g, the bone was well preserved, but variable in colour, ranging from white through to black. There were ten very small fragments of unidentified mammal bone, half of which were either calcined or charred, and a single cow deciduous incisor. In addition there was a single song thrush (*Turdus philomelos* Brehm) distal tarso-metatarsus.

Sample 26/BS (7.7 kg processed prior to submission)

There was 12.3 g of well preserved bone that varied in colour between fawn and dark brown. As well as a single butchered caprovid cervical vertebra, there were two fragments of fish bone and five pieces of unidentified mammal, one of which had been calcined and another charred. Seven tiny fragments (to 8 mm) of ?mussel shell were also noted.

Sample 27/BS (9.7 kg processed prior to submission)

The bones were generally dark gingery brown in colour and were well preserved (total weight 42.2 g). Amongst approximately fifty unidentified mammal bones, there were fragments of pig skull, caprovid vertebrae, and medium-sized mammal 1 ribs and shafts. Bird was represented by single butchered furculum. Twenty fragments of fish bone weighed 3.6 g, included large gadid and herring. One ?burnt left oyster (*Ostrea edulis* L.) valve and ten small fragments (to 10 mm, including one of cockle (*Cerastoderma edule* (L.)) were also noted.

Sample 28/T (sample from the lowest part of the fill. 3 kg sieved to 300 microns with paraffin flotation)

Moist, mid brown (internally mid grey to very dark grey in parts), stiff, brittle and slightly sticky to crumbly (working soft and slightly plastic), silty clay to clay silt with coarse herbaceous detritus. Stones (2

to 6 and 60+ mm, including chalk), pot, and wood (to 15 mm) were present in the sample.

This subsample yielded a very large residue of about 950 cm<sup>3</sup> of which about 300 cm<sup>3</sup> was of very decayed wood (to 15 mm in maximum dimension) and other plant detritus, including some fragments of well-humified peat (probably fen peat), the rest being sand and grit, with some coarse chalk gravel (to 40 mm), bone, and a little shell and pottery. The plant material was often black-stained (with iron sulphide), and preservation very good. The plant macrofossil assemblage was rich and floristically diverse with taxa likely to have arrived in hay, straw, as weeds growing locally, as food waste (probably not from faeces), or from wetland, including saltmarsh. Some remains of the same plants were recovered from the tiny flot.

The flot contained moderate quantities of invertebrate remains. Aquatics were rather well represented, and included several ostracods, together with beetles (several *Ochthebius* sp., *Helophorus* sp. and some hydropterines) and a corixid bug. A few taxa probably originated by water (*Lesteva* and *Bembidion* spp.). There were a few plant feeders which may have lived in weedy waste ground (e.g. *Sitona* sp., *Apion* sp., *Chaetocnema concinna* (Marsham) and *Ceutorhynchus* sp.), though such insects seem often to have been imported in hay and entered deposits via stable manure at other sites. Decomposers were present in small numbers and ranged from species associated with dung or other foul matter (three *Aphodius* species, and *Oxytelus sculptus* Gravenhorst) to those from dryer material such as floor litter or hay (?*Crataraea suturalis* (Mannerheim), *Cryptophagus scutellatus* Newman), with generalist taxa in between (e.g. *Cercyon analis* (Paykull), *Clambus* sp.).

Overall, the invertebrate remains suggest that this material was probably either deposited in water or contained water introduced directly as waste or indirectly in animal faeces. There were hints of foul matter such as stable manure, but nothing to suggest that large quantities of this material were present. Indeed, much of the insect fauna may have originated as background fauna.

Bulk-sieved samples of material from the same channel fill context yielded essentially similar material with perhaps a higher content of uncharred plant material from the lower and middle parts of the sequence.

The exact nature of the material cannot be established (it was probably a mixture of occupation debris) but may well have included stable manure. Full recording of this fauna and flora together with material from a second subsample of similar size would probably clarify interpretation.

Sample 30/BS (10.0 kg processed prior to submission)

The well preserved fragments of bone were generally dark brown in colour, with one or two pieces calcined, and weighed 145.1 g in total. Identified taxa included cow, caprovid, pig and cat. There was a single measurable chicken femur, and fragments of bird, amphibian and medium-sized mammal 1 along with approximately 150 pieces of unidentified mammal bone. There were approximately 60 fragments of fish, weighing 11 g. The following taxa were represented: large gadid (including otoliths), conger eel (*Conger conger* (L.)), eel, herring, large and small pleuronectids, sole (*Solea vulgaris* Quensel), and thin-lipped grey mullet (*Mugil capito* Cuvier). One fairly well preserved ?burnt right oyster valve and a few fragments of unidentified shell (to 12 mm) were also noted.

Sample 31/BS (10.2 kg processed prior to submission)

Bones were well preserved and dark brown in colour, with one or two calcined, totalling 56.6 g in weight. Represented were cow, caprovid, pig and canid, as well as small, medium-sized and large mammals, the latter with butchery marks. There were approximately 100 fragments of fish bone with occasional scales, weighing 5.2 g and including herring, ray (*Raja* sp.), stickleback (*Gasterosteus* sp.), large gadid, haddock (*Melanogrammus aeglefinus* (L.)), and eel. A single cockle valve (and a few other fragments of marine shell), two small ?crab claws, and a freshwater snail—*Theodoxus fluviatilis* (L.)—were also noted.

**Context 2006** [pit fill]

Sample 1/BS (13.4 kg processed prior to submission)

The washover consisted of a few cm<sup>3</sup> of organic material, including small numbers of charred bread/club wheat (*Triticum 'aestivo-compactum'*) grains and traces of barley (*Hordeum*), with some blackberry (*Rubus fruticosus* agg.) and rush (*Juncus* sp.) seeds, a few unidentified snails, and a little charcoal. The small residue was of concreted silt with some charcoal and bone.

**Context 2008** [pit fill]

Sample 14/BS (13.4 kg processed prior to submission)

The recovered bones were mostly fawn in colour and well preserved. There were approximately 100 unidentified mammal fragments, some of which had been calcined and charred, along with a piece of large mammal tibia and a vertebra of an amphibian. There were approximately 30 fragments of fish bone and scales, including large gadid, herring and eel and weighing 2.4 g.

**Context 2014** [pit fill]

Sample 34/BS (10.9 kg processed prior to submission)

Fragments of bone were well preserved and gingery fawn in colour, weighing 11.3 g in total. As well as approximately 100 unidentified mammal fragments, there were the podials and second and third phalanges of a caprovid. Also represented were amphibian and bird, including the distal end of an ulna of a turdid sized bird. There were approximately 100 fragments of fish bones and scales, weighing 2.5 g and included sole, large gadid, herring and eel.

**Context 2019** [pit fill]

Sample 32/T (3 kg sieved to 300 microns with washover)

Moist, mid reddish-brown to mid grey-brown, stiff (working more or less plastic), silty clay. Stones (2 to 20 mm, including chalk) and modern contaminant rootlets and seedlings were present in the sample.

There was a small washover of about 30 cm<sup>3</sup>, of which about two-thirds consisted of modern rootlets, the rest charred material: mainly oak (*Quercus*) charcoal (to 10 mm). The moderate-sized residue of about 300 cm<sup>3</sup> comprised reddened (burnt) soil, sand and gravel.

**Context 2028** [pit fill]

Sample 39/BS (10.4 kg processed prior to submission)

Weighing 28.8 g in total, the bones were well preserved, and ranged from fawn to dark brown in colour. In addition to approximately 200 fragments of unidentified mammal bone, there was a single measurable caprovid tibia and third phalanx. Medium-sized mammal was represented by carpals, tarsals, rib and long-bone shaft fragments, while bird and amphibian bones were also present. Approximately 100 fish bones and scales weighed 4.8 g. Taxa included large and small pleuronectids, sole, stickleback, eel, herring, large gadid and small salmonid.

**Context 2031** [ditch fill]

Sample 49/BS (9.1 kg processed prior to submission)

With a total weight of 0.4 g there were eight very small fragments of unidentified mammal bone, ranging in colour from calcined white through fawn to dark brown, and a single fragment of fish bone. One fragment of an unidentified land snail was also noted.

*Hand-collected shell*

A very small quantity of hand-collected shell, almost all of oyster (4 left, 5 right and one indeterminate side valves, and some smaller fragments), was recovered from eight contexts. A single small common whelk (*Buccinum undatum* L.) was also recovered from Context 2021. Preservation of the shell was rather variable from poor to fairly good and two of the oyster valves were ?burnt. No damage consistent with the oysters having been opened by humans was noted but two of the valves showed some fresh breakage (presumably caused during excavation).

*Hand-collected vertebrate remains*

Seventeen contexts from two excavation trenches gave hand-collected bone. Of these, fourteen contexts were phased and, when evaluated, yielded a total of 275 fragments of bone. Eight contexts from Trench 2, ascribed to Phase 1 (late 12<sup>th</sup>-13<sup>th</sup> century),

accounted for the vast majority of the recorded material, from which a limited range of taxa was identified.

The assemblages are discussed by phase and summary information regarding remains able to provide biometrical data is presented in Table 1.

### **Phase 1 (late 12<sup>th</sup>-13<sup>th</sup> century)**

There were nine bone-bearing contexts from this phase, eight of which were recovered from pit fills in Trench 2. Preservation was described as 'good' or occasionally 'excellent', and angularity was universally recorded as 'spiky'. Colouration was generally observed in shades of pale ginger, although the eighteen fragments from Context 1003, an organic silt layer, were dark brown. Fragmentation in this latter context was also slightly less than from the Trench 2 pitfills, where the majority of material measured less than 5 cm in maximum dimension. Bones affected by dog gnawing, burning, and fresh breakages were observed in most contexts, but did not reach significant numbers. The proportion of bones with butchery marks remained fairly constant between contexts at 10-20%.

Of the 260 fragments assigned to Phase 1, 75 were identified to species, and included cow, caprovid, pig, horse, goose, domestic fowl, cod and large gadid. Caprovid was the most strongly represented domesticate, followed by pig then cow. While there were only two mandibles to which ages or sexes could be ascribed, there was a fairly high proportion of measurable bones, totalling 25 fragments. There was an interesting pathological caprovid tibia from Context 2008. This bone appeared to have been broken, and had then become internally infected (osteomyelitis). However, by the time the animal had died, both the infection, evidenced by a partly filled pus sinus, and the breakage, indicated by a slight angulation of the bone, had completely healed.

### **Phase 2 (13<sup>th</sup> century)**

Three contexts (two from Trench 1) yielded a total of five fragments, two of which were identified as caprovid (one measurable), and a third as cow. Preservation was described as 'good', and colouration tended towards fawn. Angularity varied between contexts, but was more frequently recorded as 'rounded' than in Phase 1.

### **Phase 3 (15<sup>th</sup>-16<sup>th</sup> century)**

Two contexts from Trench 1 contained ten fragments. Three of these fragments were identified as caprovid, of which two were measurable. The bones were well preserved and fawn in colour, while angularity was generally described as 'spiky', with one or two 'rounded' fragments.

## **Discussion and statement of potential**

Plant and invertebrate remains were mostly sparse in these deposits, though Context 1003 produced interpretatively useful (if mixed) assemblages. The few charred cereals in other samples are probably too sparse to be useful.

The hand-collected shell assemblage was too small to be of any interpretative value.

The bone assemblage was rather small to draw any firm conclusions. The overall appearance of the assemblage was of domestic waste, with relatively small proportions of the lower meat bearing elements. The high fragmentation when combined with the general 'spikiness' of the bone and low proportions of dog gnawing, may suggest that much of the bone underwent secondary culinary processing, such as reboiling for stock, and was thereafter rapidly incorporated into the deposits. That pig bones were better represented than those of cattle is unusual for medieval urban assemblages, and thus of interest, although the small assemblage size must be borne in mind. There are no wild animal species and few bird bones that might imply high status depositors, so the proportion of pig bones may relate to the small-scale husbandry of these beasts within the town. The high proportion of measurable

fragments suggests that, in the event of more extensive excavation, a larger assemblage from 16 Baxtergate could yield valuable metrical information.

## Recommendations

It may be worth making a proper analysis for the archive of plant and invertebrate material from Context 1003, and given the sequence of deposits, a comparison of at least material from top- and lowermost parts of the context might be made. No further work is likely to be productive for the remaining contexts, though (in view of the paucity of bioarchaeological evidence from Hedon) any development which threatens these deposits should include a programme of sampling for plant, insect and vertebrate remains accompanied by assessment of samples and hand-collected material in the first instance.

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

A full metrical archive of the current Phase 1 vertebrate remains should also be prepared—there are insufficient remains from Phases 2 and 3 for a similar exercise for these assemblages to be worthwhile at present. This would enable the data, although of limited use in isolation, to make a valuable contribution to regional studies and comparisons.

## Retention and disposal

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.

## Acknowledgements

The authors are grateful to Ken Steedman and Barrie McKenna of HFA for providing the material and the archaeological information, and to English Heritage for allowing AH and HK to contribute to this report.

## References

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Table 1. 16 Baxtergate, Hedon: summary information for hand-collected vertebrate remains.

<b>Taxon</b>	<b>Measurable</b>	<b>Unfused</b>	<b>Mandibles</b>	<b>Total fragments</b>
<i>Equus</i> f. domestic horse				1
<i>Sus</i> f. domestic pig	2	5	1	16
<i>Bos</i> f. domestic cow	2	1		9
Caprovid sheep/goat	16	5	1	42
<i>Branta</i> sp. goose	3			4
<i>Gallus</i> f. domestic fowl	5			6
<i>Gadus morhua</i> L. cod				1
<i>Gadus</i> sp. large gadid				1
Unidentified bird				5
Unidentified fish				7
Medium-sized mammal 1				109
Large mammal				74
<b>Grand Total</b>	<b>28</b>	<b>11</b>	<b>2</b>	<b>275</b>