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Assessment of biological remains from Liberty Lane, Hull, East Yorkshire (Site code: LLH99)

by

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Summary

A single box of hand-collected bone and five sediment samples from deposits dated to the medieval and post-medieval periods were submitted to the EAU for assessment. The small size of the bone assemblage precludes detailed interpretation and some of the material may have been redeposited. Vertebrate remains, especially fish, recovered from the sediment samples were well preserved and have the potential to shed light on the economy of Hull during these periods.

Interpretable assemblages of plants and insects were recovered from all of the Phase 2 material and from Context 3050 from Phase 4. The garderobe probably contained dumped material and floor sweepings in addition to faecal material, and the fill from the wicker-lined pit was also rather similar. Stable manure is indicated for the ditch fill and material of mixed origins was contained in the backfill deposit.

It is recommended that any remaining sediment from Contexts 1031 and 3063 be processed for the recovery of fish remains and an archive made of the other vertebrate remains. With the exception of that from context 2074 all of the sediment samples merit further examination.

KEYWORDS: LIBERTY LANE; HULL; EAST YORKSHIRE; ASSESSMENT; MEDIEVAL; POST-MEDIEVAL; VERTEBRATE REMAINS; BONE; PLANT REMAINS; INVERTEBRATE REMAINS; INSECTS; WICKER; PIT; GARDEROBE; DITCH

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Introduction

An archaeological excavation was carried out by Humber Archaeology Partnership at Liberty Lane, Hull, East Yorkshire (Grid Reference: TA 1015 2865) during August and September 1999. A single box of hand-collected bone (approximately 16.5 litres) and five sediment samples taken for general biological analysis ('GBA' *sensu* Dobney *et al.* 1992) were submitted to the EAU for assessment. The samples and most of the vertebrate remains were from deposits dated to the medieval and post-medieval periods.

Methods

The sediment samples were inspected in the laboratory and descriptions of their lithologies recorded using a standard *pro forma*. Subsamples of 3 kg were taken from two of the samples, and, of 2 kg from three samples; all were processed following the procedures of Kenward *et al.* (1980; 1986) for recovery of plant and invertebrate macrofossils. Table 1 presents a list of the samples with notes on their treatment.

The 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 transferal to a computer database (using Paradox software) for analysis and long-term storage.

For the hand-collected vertebrate remains, data were recorded electronically into a series of tables using a purpose-built input system and Paradox software. For each context containing more than ten fragments, subjective records were made of the state of preservation, colour of 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 1 (assumed to be caprovid, pig or small cervid); medium-sized mammal 2 (from an animal of similar size to dog, cat or hare); unidentified, bird; unidentified fish; and completely unidentified.

Total numbers of fragments by species were recorded together with the numbers of 'A' bones, i.e. measurable bones, unfused and juvenile fragments, and mandibles with teeth yielding ageing or sexing information (Dobney *et al.* forthcoming). In addition to counts of fragments, total weights were recorded for all identified and unidentified categories.

Vertebrate remains from sediment samples were recorded into the electronic database described above, using the same criteria.

Results

Sediment samples

The sample results are presented in phase then context number order. The excavators descriptions of the sediments are presented in square brackets.

Phase 2 (Early 14th century)

Context 1031, Sample 20/T1 [Garderobe fill]

Laboratory description*: Moist, varicoloured from fawn through to shades of grey and brown with some orange lumps. Jumbled, with a 'biscuity' texture (partly concreted/indurated), slightly clay, slightly silty sand with grey silt as a minor component. Mammal bone and ?cinder were also present.*

The very large residue of about 1200 cm^3 consisted mostly of mortar (lumps to 50 mm), dark brown concretions (to 45 mm), and sand. That the concretions represented faecal material can be inferred from the plant remains present, which included moderate numbers of seeds of fig (*Ficus carica* L.) and fruitstones of sloe (*Prunus spinosa* L.) with fish and other bone. There were also traces of poorly preserved wheat/rye (*Triticum/Secale*) 'bran' and seeds of apple (*Malus sylvestris* Miller), strawberry (*Fragaria* cf. *vesca* L.) and grape (*Vitis vinifera* L.), and a single seed fragment of coriander (*Coriandrum sativum* L.), a typical assemblage for the period and context type.

The very large (approximately 60 ml) flot contained many invertebrate remains, including puparia from several species of Diptera. The largest component of the beetle assemblage consisted of 'house fauna' (including species such as *Ptinus fur* (Linnaeus), *Anobium punctatum* (Degeer), *Xylodromus concinnus* (Marsham) and *Tipnus unicolor* (Piller & Mitterpacher)), and there were rather few foul decomposers (*Omalium rivulare* (Paykull), *Anotylus rugosus* (Fabricius), *Anotylus sculpturatus* group (Gravenhorst)). These, together with large numbers of the grain pest *Oryzaephilus surinamensis* (Linnaeus), form a group typical of a later medieval house somewhat cleaner than, for example, an Anglo-Scandinavian abode such as those at Coppergate, York (Kenward and Hall 1995). The origins of some of the other taxa is not clear but some individuals, such as *Lesteva longoelytrata* (Goeze) and *Platystethus* sp., could have been imported with water or may simply represent background fauna.

A total of 101 bone fragments (weighing 27 g) was recovered from this sample. Species present included goose (*Anser* sp.), pig, eel (*Anguilla anguilla* (L.)), sand eel (*Ammodytes* sp.), Pleuronectid (flatfish), herring (*Clupea harengus* L.) and mackerel (*Scomber scombrus* L.). Two goose fragments were measurable. The pig fragments may be part of the juvenile individual encountered in the hand-collected material from this context. A few of the fish vertebrae appeared 'squashed', probably from having been eaten.

The shell of a common whelk, *Buccinum undatum* (Linnaeus), was also recovered from this sample.

Context 1136, Sample 31/T1 [Primary fill of wicker-lined pit]

Laboratory description: *Waterlogged, mid brown (with an olive cast) to light grey (internally in places) to black (rotted organic matter), sticky (working soft), slightly sandy clay silt. Mammal bone was present and very rotted ?wood was common.*

About half the volume of the large residue

of about 600 cm^3 comprised chunks of wood (to 100 mm), some clearly worked and one apparently like a tally stick with cross-marks. Some fragments bore a tarry concretion which may well have been a concretion of faecal material, since there was again evidence for such material having been present in the deposit: moderate numbers of seeds of fig and fragments of wheat/rye bran, with traces of strawberry, apple, fennel (*Foeniculum vulgare* L.) and ?dill (*Anethum graveolens* L.). The moderate numbers of leaves of the moss *Sphagnum* might indicate material used for sanitary purposes. The remainder of the residue comprised sand, mortar and brick/tile, with traces of a range of weed and grassland taxa, including hints of saltmarsh plants (perhaps not surprising at a site so close to the river estuary).

The flot (approximately 10 ml) consisted mostly of bran but a moderate-sized invertebrate assemblage was recovered and included many Diptera (both adults and immatures). The beetle assemblage was hard to interpret but consisted of species compatible with house debris or stored hay/stable manure. The many individuals of *Tipnus unicolor* (Piller & Mitterpacher) suggest origins in a long-lived building, while the individual *Sitona* sp. could have been imported with cut vegetation.

Context 3063, Sample 17/T1 [Trench 3. Primary fill of ditch]

Laboratory description: *Moist, dark grey/brown, layered, fibrous and compressed (working crumbly), fine and coarse woody and herbaceous detritus. Also present as a minor component was a light grey, soft (working soft and plastic) clay silt/silty clay. 'Straw' was common to abundant and ?bird bone was present.*

There was a very large residue of about 1400 cm^3, consisting almost exclusively of rather well preserved herbaceous detritus with a few twig fragments. Overall, the material gave the appearance of a mixture of straw - with perhaps vines of pea (there were some quite large legume pod fragments and fragments of tendril) - with a variety of grassland plants, and some cornfield and disturbed ground weeds. There was some concretion in places (fragments up to 30 mm) and the whole deposit probably represents stable manure.

The large (approximately 15 ml) flot consisted of much plant material and many invertebrates. Both adults and immatures of Coleoptera were represented and many Diptera (including Muscidae) puparia were also noted. As with the evidence from the plant remains the insect assemblage recovered from this sample almost exclusively indicates stable manure.

A total of nine bone fragments (weighing 1.1 g) was recovered from this sample. Herring and Pleuronectid were the only identifiable taxa. The remaining fragments were unidentified fish and mammal.

Phase 4 (Post medieval structures and demolition of Phase 3 structures. 16th - 18th century)

Context 2074, Sample 28/T1 [Trench 2. Fill of culvert]

Laboratory description: *The sediment consisted of three layers. The lowest component was light to mid brown (in places more orange or lighter brown), crumbly, slightly sandy, slightly clay silt. The middle component was dark grey/brown, firm (working soft), silt and the upper component was mid grey/brown, firm (working soft), silt. White flecks were also present. Many modern rootlets and voids (?burrows or root channels) were also noted in the lowest component.*

The very small residue of less than 100 cm^3 consisted of sand with some rootlets of uncertain antiquity. There were traces of the opercula ('lids') of the freshwater snail *Bithynia tentaculata* (Linnaeus) and a fragment of marine mollusc shell.

A few rootlets, some charcoal (to 1 cm), several earthworm egg capsules and two beetles (*Xylodromus concinnus* (Marsham) and Staphylindae sp.) were all that was present in the small flot (approximately 5 ml).

Context 3050, Sample 19/T1 [Trench 3. Barrel well backfilled with 15th-17th century material]

Laboratory description: *Waterlogged, mid-dark grey/brown to mid brown to dark grey, sticky, slightly sandy, clay silt. Charcoal and ?bird bone were also present.*

The moderately large residue of about 350 cm^3 comprised an abundance of coal (to 20 mm) with angular chalk (to 65 mm), wood fragments (to 40 mm, some ?worked) and sand, the organic component perhaps making up about 30% by volume. There was good preservation of identifiable plant remains but a low concentration. The taxa present basically represented wetland from marsh to wet meadow, and there were some weeds. Most might have arrived in, for example, stable manure (although such an origin was not supported by the insect remains).

The flot (approximately 15 ml) was mostly plant debris with some seeds and charcoal (to 4 mm) and a very well-preserved, moderately large beetle assemblage. The dominant component comprised a classic 'house fauna' consistent with a medieval domestic dwelling. The remainder of the assemblage probably represents background fauna. The contrasting nature of the insect and plant remains suggests different origins and probably indicates some mixing of materials.

Hand-collected vertebrate remains

Vertebrate material was recovered from a total of 39 contexts and bone from 26 of these was recorded; they were dated to the medieval and post-medieval periods. Material from the remaining 13 contexts (either undated or dated to the 19th Century) was scanned, additional species and preservational state being noted.

A total of 225 fragments (weighing 2481 g) was examined, of which 77 (weighing 1292 g) were identified to species (Table 2). Within the total of 77 identifiable fragments from this assemblage 23 (including five mandibles) had the potential to yield ageing and sexing information. In addition, 20 measurable bones were recovered. Table 3 gives the numbers of fragments by phase.

Detailed preservation records were made for material from seven contexts. Overall preservation was variable (ranging from 'good' to 'poor'), as was 'angularity' (mostly described as 'spiky' or 'battered'). Colour was also noted as variable, ranging from beige to dark brown. All three factors were variable both within and between contexts, although colour was less variable within contexts.

The degree of fragmentation was moderate, more than half of the fragments, in all contexts, being between 5 and 20 cm in the largest dimension. Overall, more than 10% of fragments were affected by fresh breakage, with a similar proportion displaying evidence of butchery. Burnt

fragments were noted from two contexts, whilst dog gnawing was only recorded from a single context.

Domestic species included cattle, caprovid, pig, horse, cat and chicken. Two rabbit (*Oryctolagus cuniculus* (L.)) bones were recovered from Contexts 1006 and 3050. Cattle, caprovid and pig fragments were almost equally numerous, closely followed by chicken bones. All other species were represented by a few fragments each. The unidentified fraction was dominated by large- and medium-sized mammal fragments, again in almost equal quantities.

The four fragments of goose bone were similar in size to the larger individuals of greylag in the EAU reference collection. These bones could therefore represent either wild or domestic individuals. The more complete of the two duck fragments was significantly larger than the mallard specimens in the EAU reference collection, and almost certainly represents a domestic individual. Additionally a sternum was recorded from Context 2075 which was similar in size and morphology to members of the finch (Fringillidae) and sparrow (Ploceidae) families but could not be identified more closely.

The scanned material consisted of approximately 90 fragments from 13 contexts, only two of which (2038 and 2044) contained more than ten fragments. The preservation was similar to that of the material recorded in detail.

Discussion

The small size of the bone assemblage precludes detailed interpretation but the range of species represented, together with the proportions of skeletal elements, suggest a mixture of domestic refuse and primary butchery waste. The incidence of dog gnawing was low, indicating fairly rapid incorporation into the deposits, but the mixed preservation within the contexts suggests that some of the material could have been redeposited. However, the vertebrate remains recovered from the sediment samples were well preserved in comparison to the hand-collected material.

The fill of the garderobe (Context 1031) was of particular note as it contained the incomplete skeleton of a juvenile pig, amongst other fragments, indicating that the garderobe was used for refuse disposal as well as its primary function. In addition, numerous fish remains, some with evidence of having been eaten, were also recovered from this context (Sample 20). The quantity of bone (particularly fish) recovered from Sample 20, indicates that a significant assemblage would be recovered from a greater volume of sediment. Sample 17 (Context 3063) also yielded fish bone, but in smaller amounts than than Context 1031.

The samples from the Phase 2 deposits yielded moderately large insect and plant assemblages. There was evidence of food remains and some suggestion of dumping, possibly house floor sweepings, in the fill of the garderobe (Context 1031). Interpretation of the insects from the primary fill of a wicker-lined pit (Context 1136) is not so clear. Some of the fauna may have originated in cut vegetation (possibly hay), while other components could have developed within a building. The plant remains indicate the presence of faecal material, with some hints of taxa from disturbed and grassy habitats. The rarity of foul decomposer insects from these samples indicates that both the garderobe and the pit were well protected by being enclosed within the building.

Evidence of stable manure is strongly represented by the plant and insect remains recovered from Context 3063, the primary fill of a ditch.

Phase 4 is represented here by only two samples; Sample 28 (Context 2074) was virtually barren, while Sample 19 (Context 3050) from the barrel well contained remains of mixed origins, which is not surprising from a backfill deposit.

Statement of potential

The small quantity of hand-collected vertebrate material from this site limits the potential for further work but the reasonably tight dating would render it of use in synthetic projects. The bone recovered from the samples however, certainly has the potential to shed light on certain aspects of the economy of Hull in the medieval and post-medieval periods, in particular the consumption of fish within the town.

Larger subsamples (5 kg) from the Phase 2 material would certainly yield insect assemblages of greater interpretable value and further work on Sample 31 could clarify the origin of the material in the wicker-lined pit (Context 1136). Of the two samples examined from the Phase 4 material only Sample 19 (Context 3050) contained plant and insect remains with indications of origins in rather mixed materials. Examination of a larger subsample might clarify how this deposit formed and give information about the sources of the waste.

Recommendations

The poorly-dated scanned bone is of no interpretative value and therefore requires no further work. The more securely dated material (although 19th century) and the hand-collected bone should be fully recorded to archive level. This archive should contain basic species identifications, records of measurements and age-at-death data from teeth and epiphyseal fusion.

Any remaining sediment from Contexts 1031 and 3063 should be processed for the recovery of fish remains. In addition, all samples from contexts not processed for this assessment should be investigated for the presence of fish remains and processed accordingly. Full analysis of the vertebrate remains recovered from the samples should be undertaken and discussed (together with the hand-collected material) in its local and regional context.

With the exception of Context 2074 all of the sediment samples examined for this assessment merit further examination though they are very typical of the kinds of deposits seen before from this part of the city.

Retention and disposal

All of the bone, samples, residues and flots should be retained, under appropriate conditions, pending future investigation.

Archive

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

It is recommended by the EH-funded staff of the EAU that long-term storage of bioarchaeological remains should be in the

local receiving museum.

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Table 1. List of the sediment samples from Liberty Lane, Hull and notes on their treatment. NFA - no further action undertaken.

Context no.	**Sample no.**	**Sample type**	**Notes**
1031	20	GBA	3 kg sieved to 300 µm with 2 paraffinations. Voucher remaining material.
1136	31	GBA	2 kg sieved to 300 µm with 2 paraffinations. Voucher remaining material.
2074	28	GBA	2 kg sieved to 300 µm with 2 paraffinations. Voucher remaining material.
3050	19	GBA	3 kg sieved to 300 µm with 2 paraffinations. Voucher remaining material.
3063	17	GBA	2 kg sieved to 300 µm with 2 paraffinations. Voucher remaining material.

Table 2. Total numbers (by species) and weights of: vertebrate fragments, measurable and subadult bones, mandibles and isolated teeth yielding ageing and sexing information, from Liberty Lane, Hull. Key: Total frags = total number of fragments; No. meas = number of measurable fragments; No. mand = number of mandibles with teeth in situ*; No. unfused = number of unfused fragments; No. juv = number of juvenile fragments.*

Species		**No. meas**	**No. unfused**	**No. juv**	**No. mands**	**Total no. frags**	**Weight (g)**
Rabbit	*Oryctolagus cuniculus* (L.)	1	-	-	-	2	5.9
Cat	*Felis* f. domestic	-	3	-	-	3	8.9
Pig	*Sus* f. domestic	1	2	3	3	14	122.9
Horse	*Equus* f. domestic	-	-	-	-	1	75.6
Cattle	*Bos* f. domestic	3	1	3	1	16	821.2
Sheep	*Ovis* f. domestic	3	-	-	-	5	88
Sheep/goat	Caprovid	2	1	-	1	10	110.2
		-	-	-	-		
Goose	*Anser* sp.	1	-	-	-	4	20.6
Duck	*Anas* sp.	2	-	-	-	2	8.8
Chicken	*Gallus* f. domestic	7	-	1	-	12	19.3
?chicken	cf. *Gallus* f. domestic	-	-	4	-	4	4.7
?finch/ sparrow family	cf. Fringillidae/Ploceidae	-	-	-	-	1	0.1
Gadid	Gadidae	-	-	-	-	2	5.8
Amphibian		-	-	-	-	1	0.1
Subtotal		***20***	***7***	***11***	***5***	***77***	***1292.1***
Bird		-	-	-	-	13	13.1
Fish		-	-	-	-	7	5.6
Large mammal		-	-	-	-	57	950.6
Medium-sized mammal 1		-	-	-	-	61	197.2
Medium-sized mammal 2		-	-	-	-	1	1.9
Unidentified		-	-	-	-	9	20.7
Subtotal		***-***	***-***	***-***	***-***	***148***	***1189.1***
Total		**20**	**7**	**11**	**5**	**225**	**2481.2**

Table 3. Numbers of vertebrate fragments, by phase, from Liberty Lane, Hull.

Species		**Phase 1**	**Phase 2**	**Phase 3**	**Phase 4**	**Phase 5**	**Total no. frags**
Rabbit	*Oryctolagus cuniculus* (L.)	-	-	1	1	-	2
Cat	*Felis* f. domestic	-	-	2	1	-	3
Pig	*Sus* f. domestic	1	7	3	-	3	14
Horse	*Equus* f. domestic	-	-	1	-	-	1
Cattle	*Bos* f. domestic	1	5	5	2	2	16
Sheep	*Ovis* f. domestic	-	3	2	-	-	5
Sheep/goat	Caprovid	-	4	4	1	1	10
Goose	*Anser* sp.	-	2	1	-	1	4
Duck	*Anas* sp.	-	1	-	-	1	2
Chicken	*Gallus* f. domestic	-	4	3	2	3	12
?chicken	cf. *Gallus* f. domestic	-	4	-	-	-	4
?finch/ sparrow family	cf. Fringillidae/Ploceidae	-	-	1	-	-	1
Gadid	Gadidae	-	-	2	-	-	2
Amphibian		-	-	1	-	-	1
Subtotal		***2***	***30***	***27***	***7***	***11***	***77***
Bird		4	7	1	-	1	13
Fish		-	-	7	-	-	7
Large mammal		-	16	26	4	11	57
Medium-sized mammal 1		1	24	29	2	5	61
Medium-sized mammal 2		-	-	1	-	-	1
Unidentified		-	2	7	-	-	9
Subtotal		***5***	***49***	***71***	***6***	***17***	***148***
Total		**7**	**79**	**98**	**13**	**28**	**225**