

Palaeoecology Research Services

**Evaluation of biological remains from excavations at
Tower Street, Kingston upon Hull
(site code: TOW2002)**

by

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Summary

An archaeological evaluation excavation was carried out by Humber Field Archaeology at Tower Street, Kingston upon Hull during September and October 2002. Eight sediment samples and one box of hand-collected bone were submitted to PRS for an evaluation of their bioarchaeological potential.

Six of the samples were selected for evaluation. Plant remains preserved by anoxic waterlogging were present in all of these samples and sometimes quite abundant. There was some evidence that layers thought to incorporate turflines did indeed preserve plant remains consistent with this interpretation. Debris from occupation were limited to small amounts of coal and cinders, a little charcoal and the rare fig seeds. One deposit (Context 1030) indicated brackish water influence and perhaps heavy weeding in a ?moat fill. With regard to charred plant material, only charcoal was observed. The subsample from Context 2046 gave rather poorly preserved but interpretatively useful insect remains though a much larger subsample would be required for further analysis.

Preservation of the vertebrate remains was generally quite good, although some of the material was somewhat battered in appearance. A range of species was identified, with the main domesticates (cattle, and caprovids) forming the bulk of the assemblage. Skeletal element representation for these species suggested that a mixture of butchery and household refuse was present, the latter only forming a minor component of the assemblage.

With the exception of the insect remains from Context 2046, for which a larger subsample would need to be processed, no further work is recommended for the current material. Further excavation at the site may yield other deposits with good preservation of remains, however, and this should be borne in mind in planning any further interventions.

KEYWORDS: TOWER STREET; KINGSTON UPON HULL; EVALUATION; 16TH TO 19TH CENTURY; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; VERTEBRATE REMAINS

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Introduction

An archaeological evaluation excavation was carried out by Humber Field Archaeology at Tower Street, Kingston upon Hull (NGR TA 1037 2875), between the 30th of September and the 11th of October 2002. The site encompassed the remains of the moat and rampart of the Citadel, a large artillery fort built in the late 17th century and demolished in the mid 19th century.

Material recovered from the excavated deposits suggested activity in the area from the early 16th century through to the early modern period.

Eight sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), and one box of hand-collected bone were submitted to PRS for an evaluation of their bioarchaeological potential.

Methods

The submitted sediment samples were inspected in the laboratory and six were selected for further investigation. The lithologies of the selected 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 flots and washovers resulting from processing were examined for plant and invertebrate macrofossils. The residues were examined for larger plant macrofossils and other biological and artefactual remains.

Insect preservation was recorded using the scale of Kenward and Large (1998).

For the vertebrate remains, data were recorded electronically directly into a series of tables

using a purpose-built input system and *Paradox* software. For each context (or sample) subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, semi-quantitative information was recorded concerning fragment size, dog gnawing, burning, butchery and fresh breakage where more than ten fragments were present.

Where possible, fragments were identified to species or species group using the PRS modern comparative reference collection. Total numbers of fragments by species were recorded, together with the numbers of 'A' bones, i.e. mandibular teeth and mandibles (for age-at-death analysis), and measurable fragments.

Results

Sediment samples

The results are presented in context number order. Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample numbers.

Context 1013 [late 17th–mid 19th century turf line]
Sample 20/T (2 kg sieved to 300 microns with washover; approximately 20 litres of unprocessed sediment remain)

Moist, mid grey-brown, brittle to crumbly (working more or less plastic), silty clay, with some ?fine herbaceous detritus and small (6 to 20 mm) stones.

There was a small washover of about 30 cm³ of fine plant detritus, mainly comprising very decayed weeds seeds (especially purple dead-nettles in *Lamium* Section *Lamiopsis*) and achenes of the hairy buttercup, *Ranunculus sardous* Crantz, a species of coastal grassland apparently much more common in the past

than today. Also present were earthworm (*Oligochaeta*) egg capsules. Overall the assemblage points to accumulation of decayed organic detritus perhaps in an area of disturbed grassland, and this is consistent with a turf line.

The tiny residue (dry weight 22 g) was of stones (to 12 mm), a little sand, and some fragments of brick/tile (mostly mm-size but with a few larger fragments to 20 mm).

Context 1028 [Mid 16th-late 17th century – organic silt]
Sample 8/T (2 kg sieved to 300 microns with paraffin flotation and washover; approximately 20 litres of unprocessed sediment remain)

Just moist, light grey-brown to mid grey-brown, stiff to crumbly and layered in places (working soft), slightly sandy, clay silt and fine herbaceous and woody detritus, with ?ancient rootlets, ?charcoal and small (6 to 20 mm) stones also present.

This subsample yielded a small flot with some grassy/strawy plant debris and a small number of (mostly fragmentary: E2.5-4.5, mode 3 weak; F3.0-5.5, mode 4 weak, following Kenward and Large 1998) insects and other invertebrates, including numerous *Daphnia* and several cladocerans of a second type, as well as traces of foraminiferan tests. Deposition was therefore presumably in fresh water, though with salt water flooding at some point. There were hints of foul matter from the beetles, but even a very large subsample would be unlikely to provide sufficient remains for a useful interpretation. The small washover of about 120 cm³ consisted of further strawy debris including some material that was clearly monocotyledonous rhizome (probably grass or sedge) with unidentified grass/cereal culm (aerial stem) fragments bearing characteristic large triangular buds. Most of the seeds and fruits present were annual weeds (mainly *Atriplex*) or probable short grassland plants (silverweed, *Potentilla anserina* L.) and buttercups (*Ranunculus* Section *Ranunculus*)—consistent with an origin in turf suffering disturbance. The small residue of about 150 cm³ was of herbaceous detritus and unwashed sediment: the plant debris were mostly roots, but there was some larger monocotyledonous leaf/stem material of a grassy/strawy character. Also present were modest numbers of earthworm egg capsules, some propagules from indicators of standing water, and a single fig (*Ficus carica* L.) seed, as well as traces of charcoal, coal, bone, brick/tile and cinders, none in fragments larger than 10 mm. Taken together, these suggest deposition of soil including some occupation waste into a body of water, though the range of identifiable taxa present is very restricted.

The tiny residue (dry weight 44 g) was of stones (to 10 mm) and sand, with a few pieces of coal (to 35 mm, but mostly much smaller) and some fragments of brick/tile and mortar (both to 25 mm). There were also six fragments of unidentified bone, one of which was burnt.

Context 1030 [?moat fill – late 17th-18th century]

Sample 22/T (1 kg sieved to 300 microns with washover; approximately 2 litres of unprocessed sediment remain)

Just moist, mid brown to mid grey-brown (light to mid grey internally), firm (working plastic), slightly silty clay, with medium-sized (20 to 60 mm) stones present and abundant freshwater ?swan mussel (*Anodonta cygnaea* (L.)) shells.

There was a small washover of about 20 cm³ of fine herbaceous detritus and some mineral sediment, with some very decayed pondweed (*Potamogeton*) fruits and also some fruits of another aquatic plant, tasselweed (*Ruppia*, probably *R. maritima* L.), a few scraps of beetle sclerite (probably the residue of a well-decayed assemblage), traces of coal, and a few freshwater hydrobiid snails (all ?*Bithynia leachi* (Sheppard), a species of slow-moving, heavily weeded waters). The presence of the *Ruppia* fruits suggests a brackish influence, perhaps not surprising so close to the tidal Rivers Hull and Humber. That the *Potamogeton* fruits were rather more poorly preserved than those of *Ruppia* may indicate inwash of the former with fresh water from upstream. Other material which may have been flushed into the deposit in this way, or deposited from occupation waste nearby, are the traces of seeds of fig, of conifer charcoal, and a few seeds of terrestrial weeds.

The very small residue (dry weight 74 g) was mostly of ?swan mussel valves with a few stones (to 40 mm), lumps of undisaggregated sediment (to 7 mm), and a little sand. The freshwater mussel valves were too poorly preserved to be confidently identified as swan mussel (*A. cygnaea*) though all appeared to lack hinge ‘teeth’ placing them in the *Anodonta*.

Context 2034 [Early 16th century or earlier – pre-Citadel flood deposit]

Sample 1/T (2 kg sieved to 300 microns with paraffin flotation and washover; approximately 20 litres of unprocessed sediment remain)

Just moist, mid grey-brown to mid brown, stiff to crumbly and brittle (more or less working plastic), slightly silty clay with very small (2 to 6 mm) stones and ?charcoal fragments present.

The tiny flot contained a few nematode (*Heterodera*) cysts, probably indicating inwash of soil, with foraminiferan tests, and some rootlets. The small washover of about 25 cm³ consisted of fine plant detritus, with some small fragments of coal, charcoal and snails. The latter including *Vallonia ?costata* (Müller) (a few further individuals of which were recovered from the residue), a species of open short-turfed grassland and, again, perhaps from inwashed soil. The few identifiable plant remains were of no interpretative value.

The tiny residue (dry weight 14 g) was of stones (to 15 mm), with a little coal (to 12 mm) and sand, and two fragments of bone (one of fish and one burnt fragment). The residue also gave single fragments of cockle (*Cerastoderma edule* (L.)) and mussel (*Mytilus edulis* L.) shell.

Context 2042 [pre-Citadel turf line]

Sample 2/T (2 kg sieved to 300 microns with paraffin flotation; approximately 15 litres of unprocessed sediment remain)

Just moist, mid grey-brown to mid to dark grey-brown, brittle and crumbly (working soft), clay silt, with some fine herbaceous detritus. Very small stones (to 6 mm) were also present.

There was a small flot of fine plant detritus with some insects, and fragments of fibrous dark brown rhizome, rather like that of cotton-grass, *Eriophorum vaginatum* L., but not definitely this plant (remains of *E. vaginatum* are rather frequently encountered in occupation deposits in medieval and post-medieval Hull where they are interpreted as having arrived with imported peat).

The modest-sized wet residue of about 350 cm³ was about 50% by volume plant detritus (mainly the same fibrous monocotyledonous material, with some rootlets) the rest being undisaggregated sediment (probably lightly baked silt, varying in colour from light grey brown to pinkish brown) and some brick/tile (to 15 mm).

The few identifiable plant remains in the residue and flot did not assist in understanding the nature of the deposit, though none was inconsistent with the interpretation of this deposit as a turf-line in an area of disturbance. The monocotyledonous rhizome fragments (assuming—as seems entirely reasonable—they are not cotton-grass) are certainly something which might be expected from a turf-line.

Context 2046 [Mid 16th-late 17th century – pre-Citadel pit or ditch fill]

Sample 7/T (2 kg sieved to 300 microns with paraffin flotation and washover; approximately 20 litres of unprocessed sediment remain)

Just moist, mid brown to mid grey-brown, stiff to brittle and crumbly (working more or less plastic) slightly silty clay and fine herbaceous detritus, with ?ancient rootlets, and ?charcoal also present.

The washover of about 50 cm³ was of rather fibrous fine plant detritus, including rootlets, with fragments of cinder and charcoal. The small flot contained only a few biological remains, among them small quantities of insects, most of which were very fragmented (E2.5-4.5, no mode; F2.5-5.0, no mode), and a few land snails (including two *Vallonia ?excentrica* Sterki). Deposition appears to have been in water, for there were moderate quantities of *Daphnia* and a second cladoceran as well as some aquatic and waterside beetles and bugs. The most notable characteristic of the assemblage was the presence of several *Aphodius* dung beetles, with at least three species represented. Despite the poor condition of these remains it is probably desirable to carry out a full analysis on a large subsample to test whether the deposit formed in an area of grazing land and to detect any saline influence.

The tiny residue (dry weight 29 g) was of stones (to 30 mm) and a little sand. Nine fragments of bone, one of which was a herring (*Clupea harengus* L.) vertebra, were also present.

Hand-collected vertebrate remains

A small assemblage of vertebrate remains, amounting to 183 fragments, was recovered from the excavations. Deposits from Trench 2, particularly Contexts 2028, 2030 and 2034, produced the largest concentrations of bones. Material from all contexts was recorded and the range of species identified. The total numbers of fragments, by period, are given in Table 1.

Vertebrate material recovered from these deposits was mostly well preserved. Bones from Context 2044 showed some variability of colour and, along with those from Contexts 2034 and 2043, were somewhat battered in appearance. Evidence of dog gnawing was noted throughout but was minimal in extent. Some fragments, particularly those identified as cattle showed butchery marks, mostly in the form of chops. This was particularly noticeable on bones from Contexts 2028, 2034 and 2043. One horse metapodial fragment from Context 2039 had been chopped on the distal articulation. This may represent the dismemberment of a carcass for easier disposal.

A sheep horncore, which had been chopped across the base, and presumably removed for retrieval of the horn

sheath, provided the only evidence for possible craft working activities. Additionally, a number of depressions, usually described as 'thumbprints' because of their shape, were noted on the horncore. The aetiology of this pathological condition is unknown but is probably related to nutritional deficiencies.

The main domesticates, cattle, caprovid, pig and horse were present within the assemblage, together with two fragments identified as dog. Bird remains were represented by single bones of chicken and raven (*Corvus corax* L.), the latter not usually recovered in large quantities from archaeological sites, but typically identified from medieval and post-medieval urban bone assemblages (e.g. Bond and O'Connor 1999).

An examination of the skeletal elements recovered from the deposits suggests the presence of a mix of refuse, including waste from both primary butchery and secondary carcass preparation. Kitchen and table refuse was present, but formed only a minor component of the assemblage.

Twenty-two of the bones were measurable and there were four mandibles with teeth *in situ*.

Discussion and statement of potential

Sediment samples

Plant remains preserved by anoxic waterlogging were present in all the samples and sometimes quite abundant (e.g. propagules in Contexts 1013, and herbaceous detritus in 1028 and 2042), though the vegetative material was not identifiable with confidence at this level of work (it might repay closer examination). There was some evidence that layers thought to incorporate turf lines did indeed preserve plant remains consistent with this interpretation. Debris from occupation were limited to small amounts of coal and cinders, a little charcoal, the rare fig seeds, occasional fragments of mortar and brick/tile, and a few fragments of bone and marine shell. One deposit (Context 1030) indicated brackish water influence and perhaps heavy weeding (from the snails) in a ?moat fill. With regard to charred plant material, only the charcoal was observed.

The plant remains (and to a lesser degree, the snails) from these deposits thus go some way

to supporting the archaeological interpretation but do not seem likely to offer very much more information as a consequence of processing further subsamples, or of revisiting those discussed here. For the insects, however, one sample (from Context 2046) is deemed to be of moderately high priority, with the potential to give some information about land-use and environment.

Hand-collected vertebrate remains

The vertebrate remains recovered from deposits at Tower Street were too few to be of much interpretative value, although it is more than likely that most of the fragments represented butchery refuse, with only a small component of kitchen and household waste. Although of somewhat battered appearance, the low occurrence of dog gnawing and the moderate degree of fragmentation suggests that the bones were fairly quickly incorporated into the deposits and were dumped specifically, perhaps to level the ground surface prior to construction work.

Recommendations

No further work is recommended on the current sediment samples other than, as noted above, for the insect remains from Context 2046. Further excavation at the site may yield other deposits with good preservation of remains, however, and this should be borne in mind in planning any further interventions.

The current vertebrate assemblage does not warrant further examination. Although the small size of the recovered bone assemblage precludes any further detailed recording and interpretation, it is clear that most of the material was moderately well preserved and from deposits which were tightly dated. In the event of further excavations at this site the possibility of recovering a larger and more interpretatively useful vertebrate assemblage should be considered.

Retention and disposal

All samples of deposits from this excavation, and fossils extracted from them, together with all of the hand-collected material, should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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References

Bond, J. M. and O'Connor, T. P. (1999). Bones from medieval deposits at 16-22 Coppergate and other sites in York. *The Archaeology of York* **15** (5), 299-429 + Plates XVI-XIX. York: Council for British Archaeology.

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. and Large, F. (1998). Recording the preservational condition of archaeological insect fossils. *Environmental Archaeology* **2**, 49-60.

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.

Kenward, H. K., Engleman, C., Robertson, A. and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3**, 163-172.

Table 1. Hand-collected vertebrate remains from Tower Street, Kingston upon Hull.

Species	Early 16 th or earlier	Mid 16 th – Late 17 th C	Late 17 th - Mid 19 th C	Mid 19 th C or later	Total
<i>Canis</i> f. domestic dog	1	1	-	-	2
<i>Equus</i> f. domestic horse	-	4	-	-	4
<i>Sus</i> f. domestic pig	1	4	-	-	5
<i>Bos</i> f. domestic cattle	5	19	4	1	29
Caprovid sheep/goat	7	21	3	-	31
<i>Gallus</i> f. domestic chicken	-	1	-	-	1
<i>Corvus corax</i> L. raven	1	-	-	-	1
Unidentified fish	-	-	-	1	1
Unidentified	22	80	5	2	109
Total	37	130	12	4	183