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**Evaluation of biological remains from excavations at Tower Street, Hull  
(site code: HCT95)**

by

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**Summary**

*Eight samples of sediment and one small box of bone of 17th century to modern date were submitted for an evaluation of their potential for bioarchaeological analysis.*

*Plant remains from this site were too few in number to be of interpretative value.*

*Small numbers of insect remains were present; at least some of the deposits would give archaeologically useful assemblages if large subsamples were processed. Records included the grain pest *Sitophilus oryzae*, believed to be a late introduction to Britain; this is probably the only archaeological record for NW Europe.*

*Remains of vertebrates and molluscs were rare and of no clear interpretative value*

*If the deposits are threatened they should be carefully sampled for a selective program of analysis of plant and invertebrate macrofossils; closer dating would be desirable for further work, however.*

**Keywords:** Hull; Tower Street; biological analyses; plant remains; invertebrate remains; animal bone; animal hair; ?felt

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## Evaluation of biological remains from excavations at Tower Street, Hull (site code: HCT95)

### Introduction

Samples of sediment and animal bone of 17th Century to modern date from excavations by Humberside Archaeology Unit at Tower Street, Hull were submitted for an evaluation of their potential for bioarchaeological analysis.

### Methods

Nine samples of sediment ('GBAs' *sensu* Dobney *et al.* 1992) representing five contexts and one box of hand-collected animal bone (37 x 14 x 14 cm) were submitted. The samples were inspected in the laboratory and their lithology recorded using a standard *pro forma*. Subsamples of 1 kg were taken from four selected samples for extraction of macrofossil remains, following procedures of Kenward *et al.* (1980; 1986). Plant macrofossils were examined from the 'flots' and from the residues resulting from processing. The flots were also examined for invertebrate remains. The remaining sediment from one of the samples (Context 208, Sample 20801) was sieved to 500 µm, primarily to recover small artefacts, these to be returned to the excavator. One of the samples (Context 227, Sample 22701) was examined for the eggs of parasitic nematodes using the 'squash' technique of Dainton (1992).

### Results

The results of the investigations of the sediment samples are presented in phase and context number order. Context information

provided by the excavator is presented in brackets. Notes on the hand-collected animal bones (ten fragments representing seven identifiable bones) are presented after the sediment samples within each phase.

*Phase 1* (A. D. 1541 to 1680)

#### **Context 261** [?Ditch fill]

Sample 26101 - lower part of context

Moist, stiff (working sticky), light to mid brown clay with humic patches and streaks and patches of pale grey clay (overall giving a gleyed appearance). Very small and small stones (2 to 20 mm), coarse organic detritus and a ?modern ant were present in the sample.

No further analysis of this sample was undertaken, for the material appeared unlikely to give useful remains.

Sample 26102 - upper part of context

As Sample 26101 (above) but more gleyed and less humic.

No further analysis of this sample was undertaken.

*Phases 2 to 4* (A. D. 1680 to 1865)

#### **Context 239** [Fill of brick drain]

Sample 23901 - lower part of context

Moist, mid to dark grey-brown, plastic and sticky, slightly organic clay with fragments of mortar/plaster and brick/tile and land-snails present. The deposit appears to have been water-lain on the basis of its lithology.

The fairly small flot contained numerous but poorly preserved and often fragmentary insect remains. The implications of these could not be discerned without

the investment of a very substantial amount of time in identification and probably the processing of a further substantial subsample. The remains which could be identified within the constraints of the present exercise subjectively indicated natural or semi-natural habitats, probably together with some human influence. A few weed 'seeds' of no interpretative significance were present, including *Urtica dioica* L. (stinging nettle), a fragment of *Conium maculatum* L. (hemlock) and *Lamium* section *Lamiopsis*. A single land-snail was also noted (*Cochlicopa lubrica* (Müller)).

The very small residue was mostly mortar/plaster (to 10 mm) and soil concretions (worm casts) with some fragments of shell and a few pieces of coal (to 3 mm) and six land-snails - one *Discus rotundatus* (Müller), two *Vallonia* sp. and three *Cochlicopa lubrica*.

#### Sample 23902 - upper part of context

Moist, mid greyish brown, plastic stiff and sticky, slightly sandy clay with mortar/plaster common and brick/tile and land-snails present.

No further analysis of this sample was undertaken.

#### Bone

Four fragments of bone were recovered from Context 239 - a sheep/goat scapula, a juvenile cow femoral distal epiphysis, a juvenile cow-sized shaft fragment and a juvenile ?corvid ulna.

#### Phase 3 (A. D. 1690 to 1810)

**Context 208** [?Occupation deposit/?flood deposit. *Reason for sampling?*: Hand-collected finds suggest 19th C. date. Confirmation from sieved finds sought.]

#### Sample 20801 - lower part of context

Moist, mid grey-brown, brittle and sticky (working soft and sticky), moderately stony/gritty silty clay (stones 2 to 60 mm were common - mostly chalk) with mortar/plaster, brick/tile, pot and an iron object present.

The small flot was mostly rootlets and very decayed plant detritus (to 2 mm) with some coal (to 2 mm). The identifiable plant and invertebrate remains

comprised *Plantago major* L. (plantain) and *Chenopodium* sp. There were few insect remains, and those present had little interpretative significance. Fragments of *Oryzaeophilus ?surinamensis* (Linnaeus) and *?Typhaea stercorea* (Linnaeus) indicate a strong human influence. A useful assemblage might be recovered from this context if a very large subsample were processed. The insects do not provide dating evidence for this layer.

The small residue was sand, gravel and cinder with some fragments of slate and a few fragments of shell.

The modest residue from sieving of excess sediment (1.2 kg from 9.5 kg) was mostly stones (to 30 mm), gravel and sand with some cinder, soil concretions, brick/tile, glass, five land-snails (*D. rotundatus*) and unidentified shell fragments.

#### Sample 20802 - middle part of context

Moist, mid to dark grey, brittle (working crumbly), sandy clay silt with localised brownish mottling (to 10 mm) and ?mortar/plaster, brick/tile and glass present.

No further analysis of this sample was undertaken.

#### Sample 20803 - upper part of context

Moist, dark grey-brown, crumbly (working plastic and sticky), sandy clay silt with lighter and darker patches and blue-grey patches. Small and medium-sized stones (6 to 60 mm), brick/tile, glass (bottle) and marine molluscs were present in the sample.

No further analysis of this sample was undertaken.

**Context 225** [Occupation layer. *Reason for sampling?*: Hand-collected finds suggest 18th C. date. Confirmation from sieved finds sought.]

#### Sample 22501 - 2 tubs

Moist, mid to dark grey, brittle crumbly and unconsolidated (working crumbly), silt with abundant iron decay products, sand and small stones (6 to 20 mm). Medium-sized stones (20 to 60 mm), glass, coal, plant debris and ?mammal hair were also present in the sample.

The very small flot comprised a few plant remains - *Rumex* sp., *Bilderdykia*, *Atriplex* sp. (orache), *Ranunculus* section *Ranunculus*, *Cerastium* sp. (chickweed), *Cannabis sativa* L. (hemp) - and small numbers of insects and other invertebrates. The beetles included species which are strongly associated with human occupation but no detailed interpretation could be made. There were remains of a grain weevil, *Sitophilus* sp., which was not the species usually encountered in archaeological deposits (*S. granarius* (Linnaeus)), but probably was *S. oryzae* (L.), suggesting a late date for the deposit (see below).

The modest residue was mostly gravel, iron decay products and sand with some metal slag, coal (to 20 mm) and a few unidentified plant fibres and stones (to 28 mm).

**Context 227** [Occupation layer/deposit/dump. Reason for sampling?: Hand-collected finds suggest 18th C. date. Confirmation from sieved finds sought.]

Sample 22701 - 3 tubs

Moist, dark grey-brown, crumbly, sandy silt. Small and medium-sized stones (6 to 60 mm), coal, hair, a squared timber (approximately 250 by 20 by 10 mm) coated with iron pyrites, and pieces of ?felt (see below) were present, glass was common and cinder with iron salts deposited on it was abundant in the sample.

Black fibrous material examined (from tub 1 of 3) was matted animal hair, probably wool, some of the fibres of which were bright blue indicating dyeing with indigo or woad. This material was probably felt.

The flot consisted of traces of 'glassy' slag, a small amount of plant detritus and a few identifiable invertebrate and plant remains. The latter were *Agrostemma githago* L. (corn cockle), *Ranunculus* section *Ranunculus*, *Brassica* sp. and *C. sativa*. Small numbers of insect remains, mainly beetles, were noted. Five of the recorded species are strongly associated with human occupation and might occur together in stored grain; a likely means of entry to this deposit would be the disposal of stable manure from horses whose diet included infested grain, although the plant remains offer no confirmatory evidence. *S. granarius*, the grain weevil, was represented by a single elytron, but there were also

assorted remains of a second *Sitophilus* species, identified as *S. oryzae* (see below). This species was probably not introduced to the British Isles until quite recently, perhaps as late as the 19th C..

The moderate residue was gravel, sand, cinder and coal (to 20 mm) with some wood (to 35 mm), fine plant stalks and a few stones (to 22 mm).

#### Bone

A single dog-gnawed sheep/goat humerus was recovered from Context 11.

#### Phase 5 (A. D. 1865 to present)

#### Bone

Context 246 yielded a single sheep/goat third molar and Context 217 (for which phasing is uncertain) a sawn and ?burnt cow-sized rib.

### Discussion and statement of potential

The insect remains in some of the contexts analyzed were sufficient in number and quality of preservation to show at least modest potential for further useful investigations.

The records of *Sitophilus* species require further consideration. *S. granarius* is very frequently recorded from archaeological deposits of Roman and post-Norman conquest date, usually in company with other pests of stored grain. Two of the subsamples from the present site yielded remains which were quite obviously not *S. granarius*, having round punctures on the pronotum and the elytral striae relatively narrow. In addition, the elytra were not fused and the remains of hind wings were present (*S. granarius* is wingless). Two other *Sitophilus* species are frequently imported to Britain (Aitken 1975): *S. oryzae* and *S. zeamais* Motschulsky. One of the abdomens from Tower Street (from Context

227) contained female genital sclerites and could be identified as *S. oryzae* on the shape of the 'Y-shaped sclerite' (cf. figures given by Halstead (1963)). These may be the first specimens recorded from archaeological deposits in Britain.

Despite its name, *S. oryzae* is principally associated with wheat. In northern latitudes it is strictly confined to stored cereals. It is likely to have originated in tropical or sub-tropical conditions and to have been brought to Europe quite late; as a working hypothesis it is suggested that it arrived in the 19th Century as a result of the expansion of world trade, but a somewhat earlier introduction is possible. This is open to testing through archaeological investigations, which can elucidate the effects of trade in introducing aliens on one hand, and, on the other, provide evidence *from* records of aliens of trade into particular sites. These are good reasons for carrying out proper excavation and analysis of post-medieval deposits.

The plant remains, snails and bones from this site were too few in number to be of interpretative value.

### Recommendations

Deposits which are reasonably closely dated (within 50 years or so) should not be destroyed without proper excavation and sampling for biological remains. Funding should allow adequate amounts of carefully selected material to be processed and analyzed.

The remaining sediment from relevant contexts should be processed to recover and preserve the felt and other artefacts which may allow more precise dating of the deposits.

If reasonably secure dating of Contexts 225 and 227 is possible, the records of *S. oryzae* should be published after further investigation of the samples from those contexts.

### Retention and disposal

This material should be retained for the present.

### Archive

All extracted fossils from the test subsamples, and the residues, flot and washover, are currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

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