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Assessment of invertebrate remains from excavations at Thorney Street, Westminster (site code: TNY01)

by

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Summary

Eight sediment samples from deposits sampled by coring at Thorney Street, Westminster, were submitted for an assessment of their content of macro-invertebrate remains.

Certain of the deposits represented were clearly quite rich in insect and other macro-invertebrate remains, and gave clear evidence of aquatic deposition where there was some mud and swamp vegetation. Others gave few remains, sometimes offering indications of terrestrial conditions, perhaps with a human influence. Some samples contained remains which appeared to have been fragmented during the coring process.

Should open section excavation of the site allow samples of around 5-10 kg to be collected from these deposits (at five or ten centimetre intervals) a useful study could be made. However, it is not recommended that further work is carried out on the existing samples.

KEYWORDS: THORNEY STREET; WESTMINSTER; ASSESSMENT; INVERTEBRATE REMAINS; BEETLES; AQUATIC DEPOSITION

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Introduction

An archaeological excavation was carried out by Museum of London Archaeology Service (MoLAS) at Thorney Street, Westminster (NGR TQ 3015 7880) on the 5th and 6th of April 2001?. Eight sediment samples ('GBA'/'BS' *sensu* Dobney *et al*. 1992) taken from borehole 1 (and starting at a depth of 2 metres below ground level, 1.65 metres OD) were submitted for an assessment of their content of macro-invertebrate remains.

Methods

The sediment samples were inspected in the laboratory and their lithologies recorded using a standard *pro forma*. All of the samples were processed, following the procedures of Kenward *et al*. (1980; 1986), for recovery of plant and invertebrate macrofossils.

The flots were examined for invertebrate remains, using 'assessment recording' (sensu Kenward 1992).

The preservational condition of the invertebrate remains was recorded using the scheme of Kenward and Large (1998). In summary, preservation is recorded as chemical erosion (E) and fragmentation (F), in each case on a scale from 0.5 (superb) to 5.5 (extremely decayed or fragmented).

Results

The results are presented in context number order. Information giving the stratigraphic position of the contexts (as depth below ground level), provided by the excavator, is presented in square brackets.

Context 5 [3.00-3.20 metres below ground level]
Sample IN1 (1.2 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Mottled Dark Greenish Grey 5GY4/1 to light greenish grey 5GY7/1 silty clay. Occasional iron concretions (as nodules following fine root voids) especially towards top of context. Very rare plant remains (twiggy). Occasional snails. Occasional white, bleached, slightly drier or coarser possibly carbonate enriched patches. Very occasional grit-sized gravel.

Laboratory description: Moist, light blue-grey oxidising to light to mid brown, stiff (working plastic), clay with some modern contaminant mould.

The flot consisted of a trace of plant debris, including a few seeds and ?rootlets. There were no recognisable invertebrate remains.

Context 6 [3.20-3.45 metres below ground level]
Sample IN2 (1.1 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Soft smooth and compact 2.5Y5/2 Greyish Brown silty clay. Frequent reedy plant fragments, especially towards base. Becomes slightly browner downwards.

Laboratory description: Moist, mid grey-brown (with a purplish tinge), stiff (working plastic), clay with some fine ?roots (probably ancient).

The flot was of moderate size, consisting of course and fine plant detritus with some seeds. Only a single insect could be identified (the beetle *Stenus* sp.); there were also a few unidentifiable scraps of arthropod cuticle.

Context 9 [3.70-3.90 metres below ground level]
Sample IN3 (1.2 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Dark Grey 2.5Y4/1 humic silty clay with frequent reedy and twiggy plant fragments. Smooth and compact. Occasional grey clasts or lenses. (Possibly more peaty than [7]).

Laboratory description: Moist, mid to dark brown, soft (working plastic), amorphous organic sediment with traces of plant detritus.

The flot was fairly small and consisted mainly of coarse herbaceous detritus. There were some

immature insects (probably larvae of aquatic forms), and a small number of beetles. Preservation varied, with a tendency to a considerable degree of fragmentation as well as some well-decayed fossils (E 1.5-4.0, mode 3.0, weak; F 2.0-5.0, mode 3.0, weak).

The beetles represented a range of habitats. Two *Helophorus* species and *Ochthebius* and *Hydraena* spp. indicated aquatic deposition, and waterside habitats were represented by ?*Lesteva* sp. and one of the semi-aquatic *Cercyon* species. Terrestrial habitats included dung (*Aphodius* ?*prodromus* Brahm), dead wood (*Anobium punctatum* (Degeer)), and probably litter (*Enicmus* sp. and various others which are typical of fallen plant debris). The last two taxa may be indicative of a human influence, but both are common enough in natural habitats too.

The number of remains was too small for a detailed interpretation, and a subsample of at least 5 kg would be needed for further work.

Context 11 [4.10-4.42 metres below ground level] Sample IN4 (1.5 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Peat. Very Dark Brown 10YR3/2.

Laboratory description: Moist, dark brown (black internally), soft (working just plastic), amorphous organic sediment with some herbaceous detritus and some twigs/roots.

The flot was mainly woody plant detritus, with some very fragmented beetles and bugs and modest numbers of insect immatures. Preservation was recorded as follows: E 2.0-3.5, mode 2.4, weak; F 2.0-4.5, mode 3.0, weak.

Deposition was probably aquatic (*Hydraena*, *Ochthebius* and ?*Laccobius* species being recorded). The remaining fauna may have exploited swamp vegetation.

There were insufficient remains for detailed interpretation and they were too fragmentary to be identified easily.

Context 12 [4.42-4.64 metres below ground level] Sample IN5 (1.0 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Dark Greyish Brown 2.5Y4/2 soft, silty clay. Occasional plant remains with haphazard orientation. Occasional large humic filled root channels with mortar and CBM inclusions.

Laboratory description: A moist mixture of dark grey stiff clay and dark grey-brown amorphous organic sediment (with some plant fragments) in cm-scale patches

The flot was small and consisted of plant debris and a few invertebrates. A very small group of beetles and bugs was present, together with several mites and *Daphnia* ephippia. The latter, together with caddis larval fragments and *Hydraena* sp. stand as evidence of aquatic deposition. The remaining fauna may have lived at the water's edge, including the shorebug *Saldula* sp.

Preservation of these remains was moderately good, though hard to quantify as there were so few remains. It was estimated as E 2.0-3.0, mode 2.5; F 2.5-3.0, mode 3.0 (strength of mode could not be judged).

A subsample of 10 kg of this deposit would be needed for enough remains for useful interpretation to be extracted.

Context 13 [4.64-4.80 metres below ground level] Sample IN6 (0.5 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Dark Greyish Brown 2.5Y4/2 silty clay with frequent peaty lenses/beds. In upper part of context the silty clay forms large lenses within the peat layers. In the lower part the silty clay predominates with short discontinuous beds and lenses of peat. Context silty clay matrix becomes increasingly more humic downwards.

Laboratory description: Two lithologies were represented in approximately equal measure. A moist, black (with cm-scale brown mottling—?oxidation), brittle (working crumbly), amorphous organic sediment with much herbaceous detritus, and a mid grey silty clay (to clay silt) with abundant ?roots.

The flot consisted mainly of herbaceous plant debris. Insects were rather well decayed and rare (E 2.5-4.0, mode 3.5, weak; F 3.0-5.0, mode 4.0, weak). *Daphnia* ephippia were abundant, and the remaining fauna was predominantly aquatic or of likely waterside origin.

A very large subsample (of the order of 10 kg) would be required for a full analysis.

Context 14 [4.80-5.25 metres below ground level] Sample IN7 (1.25 kg sieved to 300 microns with paraffin flotation)

Excavator's description: Peat. In its upper part: 10YR2/2 Very Dark Brown/10YR2/1 black. Breaks open to a more orange (Brown: 10YR3/3). Compact and very well humified. Fairly smooth. Occasional grit and few visible plant remains. Towards its base the peat becomes looser and less well-humified with visible woody plant remains (wood peat) and a browner colour (10YR2/2 very dark brown).

Laboratory description: Moist, dark brown (black internally), soft (working just plastic), amorphous organic sediment with some herbaceous detritus.

The flot was of moderate size, with some plant remains but mainly invertebrate fragments. Preservation was quite good, although some remains were very fragmentary, perhaps having been crushed by pressure during coring (E 2.0-3.0, mode 2.5, weak; F 1.5-5.0, mode 3.0, weak).

Aquatics were both common and diverse, with numerous *Daphnia* ephippia and *Ochthebius* ?*minimus* (Fabricius), and a wide range of other water beetles which collectively suggested a rich weedy clean water habitat. Much of the remaining fauna may have lived on damp mud and in swamp vegetation and moist litter, rather drier ground being suggested by the dung beetle *Onthophagus* sp. and the chafer *Phyllopertha horticola* (Linnaeus).

A substantially larger subsample would provide an assemblage which would permit detailed reconstruction of conditions at the point of deposition and probably in the wider surroundings, although the fragmentary remains would be difficult to identify.

Context 16/17 [5.50-5.90 metres below ground level] Sample IN8 (1.5 kg sieved to 300 microns with paraffin flotation)

Excavator's description: **Context 16:** Soft smooth silty clay. Gradual colour transition through black to blueish green to Greenish Grey (5GY5/1) downwards. Occasional plant fragments. Faintly laminated in lower part. **Context 17:** Interbedded/interleaved lenses of silty clay [16] and sand [18]. Occasional haphazard twiggy plant fragments.

Laboratory description: Moist, light to mid grey (mottled with somewhat browner patches on a cm-scale), clay silt with some fibrous plant matter present. The sample was contaminated externally by sand (presumably from Context 18).

The small flot was predominantly of plant fibres, together with traces of insect cuticle. The few invertebrate remains which could be tentatively identified were apparently terrestrial forms, in contrast with most of the rest of the samples examined here.

Discussion and statement of potential

Some of the deposits represented by these core segments were clearly quite rich in insect and other macro-invertebrate remains, and gave clear evidence of aquatic deposition where there was some mud and swamp vegetation. However, as is common in such core samples, the quantity of sediment was too small to yield sufficient remains for full analysis or detailed environmental reconstruction. In some cases the remains were highly fragmented, perhaps being crushed by pressure or shockwaves created by coring. This too militated against useful reconstruction, making identification very difficult.

Recommendations

Doubtless if these deposits were exposed in open section and samples of around 5-10 kg collected at five or ten centimetre intervals a useful study could be made (and a better understanding of the stratigraphy arrived at too). Such a study would require a dating framework for the deposits to be established (e.g. from the pollen sequence or a series of radiocarbon dates). However, given the existing samples, it is not recommended that further work is carried out on the macro-invertebrate remains.

Retention and disposal

All of the current material should be retained for the present.

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.

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