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**Environmental evidence from excavations
at 12-20 Blossom Street**

(YAT/Yorkshire Museum sitecode: 1991.11)

by

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Introduction

This report discusses the results of analyses of invertebrate animal and plant remains from a series of samples from deposits of Roman and medieval date from excavations at 12-20 Blossom Street, York, within and behind the shell of Forsselius' Garage. Most of the deposits appeared to have very little organic material present other than charcoal.

Methods

The sedimentary characteristics of a total of thirty samples submitted were described but further (biological) analyses undertaken on only 14 samples, selected by the authors. On these, a 'rapid assessment' was carried out: 'test' subsamples (Kenward *et al.* 1986) of 1 or 2 kg were taken and processed by paraffin flotation (Kenward *et al.* 1980) to extract insect remains. Plant remains were recorded from the flots from paraffin flotation only.

The samples and results of the analyses

The analyses carried out on each sample, and the remains recovered, are described below, together with a laboratory description of the sediment. A brief archaeological description and/or interpretation of the context is given in brackets where available. The samples are presented in context order. In the case of samples from boreholes, not given a separate context number, a new series in the 9000s was adopted in the laboratory.

Trench 1

Context 1006 [dump of C16 date, perhaps dumped floor levels; sample 27 was a 'spot' find thought to be iron slag]

Sample 1: Mid to dark, greyish-brown, moist to dry, crumbly, silty, coarse sand with inclusions of charcoal, mortar and brick/tile fragments present. The sample also included pinkish-grey clasts, coal, bright orange burnt soil and ashy-looking components.

Only bulk-sieving was carried out, on a 6 kg subsample; the residue was rich in charcoal, brick/tile (to 35 mm maximum dimension) and mortar/plaster with quite large amounts of stone and sand and traces of slag, mammal bone, shellfish, wood fragments and pottery.

Sample 27: There were clear indications of the presence of copper salts in a grey-brown clay. This sample was inappropriate for biological analysis and the sample was returned to YAT.

Context 1020 [C11/12 pottery; deposit perhaps associated with building fronting Blossom St.; there was some evidence of animal burrowing]

Sample 4: A moist heterogeneous sample with frequent mixed layers. Varicoloured from black through greys and browns to grey-orange and brown. It appeared ashy, with smears of humic material. Particle sizes were fine and some charcoal was present.

A 1 kg 'test' subsample was processed, from which a tiny flot was obtained. It included a few poorly preserved fruits and seeds, the majority a cornfield poppy, *Papaver argemone*, and a few toad-rush (*Juncus bufonius*) seeds, of no interpretative value. There were also a few mites. The residue from this subsample was rich in sand with some stones, mammal bone and charcoal and a little gravel.

Context 1032 [levelling deposit containing industrial residue; dated to C2/3 AD]

Sample 5: Mid to dark, yellow-brown-black, moist-dry, crumbly, sandy silt with some ash. No further analysis undertaken.

Context 1036 [levelling deposit containing industrial residue; dated to C2/3 AD]

Sample 9: Mid to dark, brown (with a black cast), moist to dry, crumbly to brittle silt. The sample included medium-sized stones, charcoal and some red-brown burnt soil and was ashy in appearance. No further action undertaken.

Context 1037 [pit fill with industrial residue; C2/3 AD]

Sample 13: Bright red-brown, moist to dry, sandy burnt soil which varies from unburnt natural to burnt indurated red-brown with black parts. Charcoal was present. No further action was taken.

Context 1042 [backfill of ?robbing cut; dated by pottery to C2-3 AD]

Sample 29: Mid yellowish-brown, dry to moist, crumbly sandy silt. Stained, rotted mortar, medium and very large stones were present; the large cobbles may be hearth stones coated in rotted mortar. Charcoal was common. More clayey patches of possibly redeposited natural were also present.

From a 2 kg 'test' subsample a tiny flot was obtained which contained a few very poorly preserved plant macrofossils of no interpretative value—*Alisma*, *Hyoscyamus*, and *Juncus*. There were traces of invertebrate remains, but these were, too, were of no interpretative value. The residue consisted mostly of sand and charcoal, with considerable amounts of stones and traces of slag, mammal bone, brick/tile, mortar/plaster, glass, shellfish and some concretions.

Context 1050 [the earliest deposit from Trench 1, thought to be the build-up on a floor surface or perhaps even the remains of burnt wooden flooring; dated by pottery to C2-4 AD]

Sample 30: A heterogeneous sample with patches of mid to dark grey-brown possibly humic silt, sometimes with paler orange millimetre scale flecks and parts plainly granular. Some charcoal present, and many other minor lithologist. It looked like a very disturbed floor.

From the 1 kg 'test' subsample, a tiny flot was obtained which included several very small charred grass fruits and a single scrap of insect cuticle. The residue was mostly sand and charcoal, with stone and mortar/plaster and traces of slag, brick/tile, and glass.

Trench 2

Context 2012 [this and the following two contexts were from spits associated with the side of a Roman road; each respective context was underneath the other. They may have built up over time (as 'garden soil') or been brought in deliberately]

Sample 11: Dark grey-brown, dry to moist, crumbly to brittle, sandy silt. Brick/tile inclusions were common, mortar was present and there were traces of charcoal and bone (less than 20 mm size).

The tiny flot from the 2 kg subsample contained several elderberry (*Sambucus nigra*) seeds. The residue was mostly gravel and brick/tile with some stones and traces of mammal bone, snails, charcoal and wood fragments.

Context 2013 [see context 2012]

Sample 12: Dark grey-brown, dry, crumbly, slightly sandy silt containing modern roots. Small stones, coal and mortar were present and medium stones and tile/brick were common.

A bulk-sieved sample was processed from which a washover was recovered. The latter consisted mostly of fine charcoal and rootlets with a few fragments of *Sambucus* seeds. The residue was rich in charcoal, brick/tile (to 140 mm) and mortar/plaster with some stones and traces of sand, slag, mammal bone, pottery and wood fragments.

Context 2016 [see context 2012]

Sample 14: Dark brownish-grey, just moist, very crumbly to brittle slightly sandy silt with modern roots. Medium stones, micaceous sandstone, brick/tile and pot were present in the sample.

The 2 kg 'test' subsample submitted to analysis gave a tiny flot with several elder seeds and with a mite and a single prothorax of *Anommatus duodecimstriatus*, possibly intrusive, since it is a burrowing species. The residue consisted mainly of sand with stones and brick/tile and a little mammal bone, pottery, charcoal and wood fragments.

Context 2020 [sampled for identification of burnt clay; the lowermost fill of an early medieval (C12/13) pit]

Sample 6: Bright red to nearly black, through standard the usual brown-orange of the local drift; burnt clay with modern roots, limestone, mortar and tile/brick present. No further action was taken.

Context 2023 [sampling aimed to distinguish the nature of the deposit—whether the edge of a Roman road or a dump near the road]

Sample 15: Mid to dark, grey-brown, dry to moist crumbly slightly sandy silt with modern roots, very small, small and medium stones present and abundant large stones. Some chips of limestone (less than 10 mm) were present, as was some tile/brick. Micaceous sandstone was common. No further action was taken.

Trench 3

Context 3002 [this may have been an accumulation of deposits ('garden soil') or redeposition from elsewhere]

Sample 18: Mid to dark grey-brown, moist, brittle to crumbly, slightly clayey sandy silt with rotted mortar and brick/tile present.

The tiny flot from the 2 kg subsample processed contained only a little sand and charcoal, a few root fragments. There were also some undiagnostic beetle remains. The residue was mostly sand, with some small brick/tile fragments and charcoal and a little stone, slag, mammal bone, shellfish and wood fragments.

Trench 4

Context 4008 [the sample was taken from a section to determine if the context was a dump or a levelling build-up; pottery dated C13/14 to C19]

Sample 16: Dark grey-brown, dry to moist, crumbly to brittle, sandy silt with some modern roots. Also present in the sample were very small and small stones, large cobbles with mortar adhered to them and some brick/tile. No further action was taken.

Context 4010 [this context may have been a dump or a build-up of Roman date, just above natural]

Sample 17: Mid to dark grey-brown, dry to moist, brittle to crumbly, slightly clayey sandy silt with some paler brownish silt patches and modern roots. Some limestone chips greater than 10 mm and some brick/tile were present.

A 2 kg 'test' subsample gave a tiny flot with only a few plant fragments and a single *Sambucus nigra* seed. The residue was mostly sand with quantities of stones, mammal bone and brick/tile (to 28 mm) and a little charcoal and pottery.

A 6 kg subsample was bulk-sieved and the resulting residue consisted of a mixture of stones, sand, mammal bone, brick/tile (to 18 mm) and charcoal, with a little slag, pottery, shellfish and wood.

Context 4012 [the sample was taken to determine whether build-up or levelling; same group as context 4010]

Sample 8: Mid grey-brown, waterlogged, unconsolidated and granular sandy clay of low heterogeneity. An iron object and some charcoal were present as inclusions.

A 2 kg subsample subjected to paraffin flotation gave a tiny flot with a few (?modern) root fragments and a single *Rubus* sp. (probably blackberry) seed. The residue was predominantly sand with some stones, gravel and brick/tile and traces of shellfish, mammal bone, and pottery.

Context 4013 [this may have been build-up or levelling; same group as context 4010]

Sample 7: A mid grey-brown moist to wet, sticky and plastic, sandy clay with some modern roots and abundant pale greenish-grey to ochre mottles, possibly associated with drying cracks.

The very small flot from the 2 kg subsample examined contained rather a lot of the oogonia of the stonewort, *Chara*, a green alga typical of clear, calcareous water, especially in newly-established ponds and lakes. Together with a few rootlet fragments, there were also a few *Juncus* and *Sambucus nigra* seeds of no particular interpretative value. There were no invertebrate remains.

Trench 5

Context 5011 [material from this context could have resulted from build-up or levelling. Any water-borne material was also to be determined; medieval or post-medieval in date]

Sample 2: Mid to dark grey-brown moist, slightly sandy clay silt of mostly crumbly texture but also a little plastic. Very small and small stones, charcoal, bone (less than 20 mm), mortar, brick/tile and possibly a few molluscs were present.

The tiny flot from the 2 kg subsample examined gave a few very poorly preserved plant remains, all certainly or probably weeds of disturbed ground, perhaps where there was nutrient enrichment, the most abundant being stinging nettle, *Urtica dioica*. There were no invertebrate remains. The residue from this sample was mostly sand and brick/tile with some charcoal and gravel and a few stones, and a little mammal bone, pottery and shellfish.

Context 5013 [this sample was also taken to determine whether it was gradual build-up or a levelling dump and if any of the material was water-borne]

Sample 3: Mid to dark, grey-brown, moist, plastic to crumbly slightly sandy silty clay with a trace of charcoal and some mortar and brick/tile. The sample also had flecks of white and local streaks of clay.

A 2 kg subsample processed gave a tiny flot which included a few earthworm egg capsules a single poppy seed (*Papaver cf. rhoeas*) and a charred propagule that may have been annual nettle, *Urtica urens*. There was a single scrap of ?*Helophorus* sp. elytron, of no interpretative value. The residue was mostly sand with some stones, gravel and brick/tile and a little charcoal and mammal bone. There was no biological evidence for deposition in water.

Context 5018 [the sample was taken from a muddy sump contaminated by flooding; an unexcavated Roman deposit for identification]

Sample 10: A mid grey-brown, waterlogged, unconsolidated to slimy sandy silt.

The small flot from the 1 kg subsample processed gave a small flot with small numbers of insect remains. These, however, gave no clear indication of the nature of the surroundings or the depositional regime. Most of the small number of poorly preserved plant macrofossils were greater plantain (*Plantago major*) and toad-rush (*Juncus bufonius*) with a few remains of leaves of the raised-bog forming moss *Sphagnum imbricatum* and several taxa that were probably mostly weeds—*Coronopus squamatus*, *Conium maculatum*, *Ranunculus sceleratus*, *Sambucus nigra* and *Urtica dioica*. Several of these taxa suggest vegetation forming where there was trampling but clearly the moss leaves probably originated in peat (they are commonly recorded from Roman York in deposits containing discrete lumps of acid peat, e.g. at 24-30 Tanner Row, Hall and Kenward, 1990, and Skeldergate Well, Hall *et al.*, 1980).

It may be that analysis of larger quantities of this context might give an interpretable assemblage of invertebrate and plant remains, though the circumstances of the excavation do not rule out the possibility of contamination by other, unsampled deposits. It seems most likely, though, that the remains recorded were of Roman date and their presence indicates the need to take account of at least local waterlogged preservation in planning for any excavation.

The residue from this subsample was mostly sand with mammal bone and iron pan and a little shellfish, charcoal, and very small brick/tile fragments.

Samples from boreholes

Context 9001 [Borehole 1, outside the garage, near Trench 4]

Sample 21 (2.5–3 m): Light brown, moist, stiff to plastic, clayey fine and coarse sand of high heterogeneity; these patches were of yellow, red, dark grey, black, yellow-grey and whitish material and included a large patch of pure sand. Small and medium stones and rotted sandstone were present. No further action was taken.

Context 9004 [Borehole 4, near Trench 2, outside the garage]

Sample 19 (2.5–2.8 m): Mid brown (slightly khaki), moist to wet, thixotropic, plastic, silty clay sand with some pale orange-brown sandy clay. Some very small and small stones, brick/tile and tiny fragments of pot were present. No further action was taken.

Context 9006 [Borehole 6, located inside garage]

Sample 25 (6.3 m): Mid, slightly purplish-brown, wet, sticky to plastic slightly sandy clay with stones ranging from very small to medium some pot and a metal object present. No further action undertaken.

Context 9007 [Borehole 7, located inside garage]

Sample 20 (3.4 m): A mid brown, moist, plastic and sticky, heterogeneous, slightly sandy clay. Some areas were black slaty charcoal rich clay and others a mid pinkish-brown clay which may be natural.

A 1 kg subsample consisting of the blacker parts of the sample was processed. It gave a tiny flot containing nothing but fine charcoal. The residue was mostly charcoal and sand with some mammal bone and traces of gravel, brick/tile, mortar/plaster, glass and wood fragments.

Context 9012 [Borehole 12, located inside garage]

Sample 28 (3.4 m): A spot find that proved to be an iron object which was passed to YAT Finds Department.

Context 9013 [Borehole 13, located at bottom of car-park]

Sample 23 (no depth recorded): Mid purplish-brown, moist, stiff, heterogeneous clay with streaks of grey clay and other colours. Very small to medium stones were abundant. No further action was taken.

Sample 26 (5.7 m): A very heterogeneous, mid yellow-brown and mid grey-brown, moist to wet, sticky to plastic, very sandy clay with modern roots. Some pot, possibly cinders and stones ranging from very small to medium were present. No further action was taken.

Context 9014 [Borehole 14, located in car-park]

Sample 24 (2-2.5 m): Light to mid grey brown, moist, slightly sandy silty clay. In parts the texture was brittle but the 'mud' was brittle. Some millimetre scale layering and microlaminations in the dark brown amorphous organic material (mud) were noted. There were also patches of yellowish-brown fine sand, a few pine pollen grains and many smooth monolet fern spores. This was perhaps evidence for a waterlain sediment from a river, stream or pond.

The tiny flot from the 1 kg subsample processed gave a single hemlock (*Conium maculatum*) fruit and a few scraps of plant tissue and invertebrate cuticle.

The residue from this subsample was mostly sand with some charcoal and glass, and a little stone, mammal bone, pottery and shellfish.

Context 9017 [Borehole 17, located in car-park]

Sample 22 (5 m): Mid yellow-brown, moist to wet, plastic to sticky clay sand with small and very small stones. A lithology typical of the local natural drift (till). No further analysis undertaken.

Implications

Plainly the majority of the deposits examined have little or no potential for analysis of waterlogged or charred animal and plant remains (although this report does not deal with any bone which may have been present, other than small fragments recorded from residues). Context 9014 gave a small plant and insect assemblage, signalling the need to plan for the presence of limited waterlogged preservation in some features and also the need to ensure that any such features are not overlooked during excavation.

References

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