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**An evaluation of biological remains from excavations
in St Saviourgate, York (site code: 1995.434)**

by

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Summary

Deposits of late medieval and modern date from two small trenches in St Saviourgate, York, were evaluated for their bioarchaeological potential. A series of pit fills from one trench proved to have good preservation by waterlogging of plant and invertebrate remains; they clearly included much material that was faecal in origin. An occupation layer from a second trench proved to have only modest preservation of biological remains; they were of more limited interpretative value.

A small but excellently preserved assemblage of animal bones was recovered, most being from pit fill deposits of Trench 1. The material was particularly notable for its high concentrations of fish remains, with the bones of sheep and chickens indicating the disposal of both commercial butchery waste and kitchen/domestic refuse.

Should further development be undertaken at this site, it is essential that an appropriate sampling and recovery strategy be employed and that a comprehensive post-excavation programme be provided for.

Keywords: ST SAVIOURGATE; YORK; LATE MEDIEVAL; MODERN; PLANT REMAINS; INSECT REMAINS; BONE; PARASITE EGGS

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Introduction and methods

Six sediment samples and a small box (approximately 24 x 24 x 36 cm) of animal bones, recovered from excavations in St Saviourgate, York, were submitted for evaluation of their bioarchaeological potential. The material, mostly collected from the fills of a single pit, was dated to the late medieval period.

The sediment samples ('GBA' and 'BS' *sensu* Dobney *et al.* 1992) were inspected in the laboratory and a description of their lithology was recorded using a standard *pro forma*. A subsample of 1 k was taken from three samples for extraction of macrofossil remains, following procedures of Kenward *et al.* (1980; 1986). The flots and residues resulting from processing were examined for plant and invertebrate macrofossils and bone.

Two of the remaining three samples (Sample 6, Context 115 and Sample 2, Context 210) were bulk-sieved to 500 :m (with a 500 :m mesh for the washover), the residues briefly sorted for finds and notes made on their composition.

Three of the samples were examined for the eggs of parasitic nematodes using the methods outlined by Dainton (1992).

All vertebrate remains from the sixteen bone-bearing contexts were viewed. Subsequently, assemblages from five of these contexts (those containing twenty or more fragments) were recorded in more detail, whilst notes were made on the remainder.

Results

The sediment samples

The results of the investigations of the sediment samples are presented in context number order, with information provided

by the excavator in square brackets.

Context 105 [fill of hollow]

Sample 1

Moist, dark brown, soft (working plastic), very humic, slightly sandy, slightly clay silt. Small (6-20 mm) stones and fragments of wood were present.

The large residue consisted of about 60% by volume of organic material, including very decayed wood and charcoal, with many small clasts of undisaggregated sediment. Some of the latter were more or less concreted and it was clear that they were composed largely of wheat/rye 'bran'. There is little doubt that this layer was rich in rather decayed faeces. The count for *Trichuris* sp. (whipworm) eggs was four, all being poorly preserved in the 'squash', with no polar plugs remaining. Other identifiable plant remains included moderate numbers of seeds of weld or dyer's rocket, *Reseda luteola* L., a plant much used in dyeing in the past, but also a common weed, especially of disturbed lime-rich soils in towns.

In addition to the worm eggs, the parasite 'squash' consisted mostly of organic detritus, many mineral grains, some fungal spores and hyphae and a few diatoms. Also present were some live soil nematodes and phytolith fragments.

A large proportion of the small flot consisted of well-preserved insect remains. Decomposer species predominated, with some synanthropes. There were a few grain pests. There were clear hints of foul conditions and hints of house fauna (*sensu* Hall and Kenward 1990) but a larger subsample would be required for recovery of an interpretable assemblage. There were small numbers of individuals of some species regarded as post-depositional invaders, particularly *Rhizophagus*

?*parallelocollis*.

Context 112 [pit fill]

Sample 3

Moist, dark grey, plastic, slightly sandy, silty clay. Fragments of mortar/plaster were common and pieces of brick/tile were present.

No further analysis was undertaken.

Context 113 [pit fill]

Sample 4

Moist, dark brown, crumbly and brittle, very humic, amorphous organic sediment. Faecal concretions were abundant in the sample.

The residue was large and rich in 'bran' and small concretions; there were also seed fragments of corncockle (*Agrostemma githago*), and apple (*Malus*) 'core' (endocarp); the flot, too, contained these remains, together with achenes of strawberry (*Fragaria*). This material is undoubtedly faecal in origin, and there is good preservation of plant remains.

The parasite 'squash' consisted mostly of organic detritus, with many mineral grains and hyphae, much plant tissue, some ?phytoliths fragments and a few fungal spores. Nine *Trichuris* sp. eggs were recorded, three with one polar plug each and the remainder with none, indicating that preservation was poor.

The flot contained abundant well-preserved beetles and numerous fly puparia, mostly Sepsidae. Although the beetles included representatives from a wide range of terrestrial habitats (and a trace of aquatics), the bulk of the fauna was indicative of at least rather foul conditions, the sepsids reinforcing this interpretation. House fauna was rare. Some weevils associated with nettles (*Urtica* sp(p).) were noted.

Context 115 [pit fill]

Sample 5

Moist, dark grey (?slightly brownish), soft and plastic, slightly humic, sandy, slightly clay silt. Medium-sized (20-60 mm) stones were present.

Although the organic content of the large residue was only about 30% by volume, most of this fraction was 'bran' with corncockle seed fragments and at least one hilum (attachment scar) from a waterlogged pea (*Pisum*) seed, this latter specimen representing excellent preservation of material which is rare in the fossil record in this form. Some mineralisation was evident.

The 'squash' showed roughly equal amounts of mineral sediment and organic detritus, along with many fungal spores and hyphae, some plant tissue and some fragments tentatively identified as phytoliths. Five *Trichuris* sp. eggs were noted, one with both polar plugs intact.

The small to moderate-sized flot contained a large amount of bran and produced useful numbers of insect remains. Although there were small numbers of individuals from other habitats, decomposers tolerant of moderate to very foul conditions predominated.

Sample 6

Moist, dark grey, soft and plastic, slightly sandy, slightly clay silt. Medium-sized (20-60 mm) stones, fragments of wood, and oyster shell were present.

This sample produced a moderate- to large residue rich in biological remains and artefacts. The two main components were charcoal and the remains of fish, but small numbers of nutshell fragments, large mammal bones, and pieces of wood, and numerous tiny fragments of eggshell were also present. Additionally, a charred field bean (*Vicia faba* L. ssp. *minor*) was identified; excellently preserved, with the hilum clearly visible, although the testa had decayed.

Large (>60mm) stones, pieces of brick/tile, sherds of pottery, mortar/plaster and metal fragments were also noted.

The vertebrate remains from this sample are discussed in the 'vertebrate remains' section below.

Context 210 [pit fill]

Sample 2

Moist, mid-dark grey, crumbly (working slightly plastic) slightly sandy, clay silt. Mortar/plaster and brick/tile fragments were abundant, whilst pieces of cinder and coal and large mammal bones were present.

The residue was composed mainly of mortar/plaster and brick/tile fragments, sand, pieces of coal, with some cinders. A few fragments of bone, shellfish and charcoal (to 5 mm) were also present.

The vertebrate remains consisted mainly of large and medium mammal fragments, and there were also several amphibian bones. Fish remains were present in small numbers and included thornback ray (*Raja clavata* L.).

Vertebrate remains

Preservation of the recorded and scanned material varied, but on the whole the vertebrate remains from Trench 1 and in particular those from the pit fills (Contexts 113, 114 and 115) were extremely well preserved and dark brown or brown in colour. A small number of fragments from Context 113 were coated in what appeared to be faecal concretions. Material from Trench 2 tended to be scored as 'fair', with 'angularity' (i.e. the nature of the broken edges) being recorded as 'variable'. The colour of the bone from this trench was mainly brown or fawn.

Few of the bones showed evidence of fresh breakage and dog gnawing, although, the proportion of butchered fragments from the recorded contexts was relatively high (20-50%). Evidence from the caprine

remains suggesting brain removal, by chopping through the back of the cranium or by splitting the skull longitudinally, was noted from Context 115.

A total of 259 (3821g) identified and 191 (2854g) unidentified fragments were recorded. The bulk of these remains were identified as caprine, followed by domestic fowl, pig and cattle (Table 1). Of a total of 90 caprine bones, 22 were mandible fragments and 26 were metapodials, with 11 additional metapodials noted from the scanned material. The unidentifiable fraction, however, consisted of many cow-sized fragments, (including shaft, rib and vertebra fragments), although sheep-sized cranial and rib fragments were also present.

One sheep metatarsal (Context 113) exhibited a pathological condition, manifested as a vertical ridge of remodelled bone on the proximal anterior aspect of the shaft, positioned parallel and medial to the line of the median extensor tendon. Two other metatarsals of modern date (Context 103), from the scanned material showed the same pathology. To date, this condition (of unknown aetiology) has been noted from several groups of sheep metatarsals of medieval and post-medieval date (Carrott et al. 1993a, 1993b; Dobney et al. 1994, forthcoming; O'Connor 1984).

A single horncore (from Context 114) and one metatarsal (from Context 210) were identified as goat, with a further goat metacarpal also being identified from the scanned material (Context 110). Other mammal species present included domestic cat and dog, and there was a single horse bone from the scanned assemblage (Context 206). The remains of geese were also present in small numbers and appeared to be of a size equivalent to that of the greylag. They may therefore represent either wild or domestic individuals.

A total of 79 measurable fragments were present in the recorded fraction, of which 30 were caprine bones and 29 were chicken. Twenty mandibles with teeth

were also recorded, again most representing caprines.

The hand-collected fish remains comprised mainly large Gadidae fragments (including two of ?cod (cf. *Gadus morhua* L.), an articular and a cleithrum), plus a single fragment of halibut (*Hippoglossus hippoglossus* (L.)).

The residue from one of the bulk-sieved samples (Sample 6, Context 115), produced both large mammal and bird fragments, but the main component was an extremely large number of fish remains. These included pike (*Esox lucius* L.), dace/chub (*Leuciscus* sp.), perch (*Perca fluviatilis* L.), flatfish (Pleuronectidae), thornback ray (*Raja clavata* L.), herring (*Clupea harengus* L.), ?whiting (cf. *Merlangius merlangus* (L.)) and numerous other Gadidae fragments.

Some of the fish vertebrae had obviously been crushed but because of their large size it was not thought that they had been ingested but damaged during butchery.

It must be noted that it was only possible to view a small proportion of the fish remains, in the limited time available.

In addition to those bird species recorded from the hand-collected bone, a radius and an ulna identified as woodcock (*Scolopax rusticola* L.) and a ?thrush (cf. *Turdus philomelus* Brehm) carpometacarpus were noted from the sieved material.

Discussion and statement of potential

Plant and invertebrate remains were mostly well to very well preserved. The plant assemblages were readily interpretable, and clearly originated in large part from faeces. A full record of the suite of taxa present would provide useful information about food use in this part of York during the late medieval period, and would be valuable for comparison with samples from other sites, notably The Bedern (barely 100m to the north-west of the present site).

The insect remains, too, have the potential to provide substantial information concerning the conditions within the pits, the materials deposited within them, and the nature of the surroundings. It appears, on the evidence of assessment, that stable manure was not dumped, and that if material was brought from within buildings it was in the form of kitchen waste and small amounts of floor sweepings. Faeces may have been deposited directly or in the form of 'nightsoil', of course. It appears likely that the pits were located in an area with only sparse vegetation.

Larger subsamples than the 1 k used for assessment would be required in order to provide reliable interpretation from the insect remains.

The bone assemblage, particularly that from the Trench one deposits, was extremely well preserved. The recorded material contained a moderate number of sheep metapodials, traditionally associated with craft activities (e.g. tanning waste). However, concentrations of these elements may in fact be waste from carcass preparation (for food); the presence of small numbers of other elements in the assemblage perhaps supports this theory.

The chicken elements represent major meat-bearing bones. The almost complete absence of distal wing and limb elements (e.g. radius, ulna, carpometacarpus) probably indicates that these remains are table waste from 'dressed' birds.

Therefore, it is apparent that, whilst the bird and indeed also the fish remains complement the insect assemblage, in that they appear to indicate kitchen/domestic waste, the high proportion of sheep mandibles and metapodials represent a commercial component: primary butchery and/or tanning waste.

The presence of such high concentrations of well preserved material (particularly the extremely numerous fish remains from Context 115) suggest that a large and important assemblage would be recovered

should further excavation and sampling be undertaken in this area. Few large, assemblages of medieval date have been recovered from York and a large, systematically recovered fish bone assemblage from the city is rare. General comparisons could be made with the nearby site in The Bedern (Hamshaw-Thomas, in prep.) and medieval Coppergate. Important comparative samples within the region include, Lurk Lane and Eastgate, both in Beverley (Scott 1991; 1992).

The vertebrate remains could potentially provide useful information regarding the following:

- (a) Interpretation of archaeological features on site.
- (b) Evidence of possible local activities and patterns of refuse disposal.
- (c) Detailed information regarding late medieval husbandry practices from the high proportion of mandibles with teeth and measurable bones.
- (d) A better understanding of trade with coastal fisheries and the provisioning of a medieval city from the large numbers of marine fish remains.
- (e) An increased understanding of the use of the local riverine resource from the freshwater fish remains.

There is no doubt that the cut fills, at least, in the area assessed represent an important archaeological archive which should not be destroyed or subjected to reduction in ground water content without full excavation and bioarchaeological investigation.

Recommendations

It is assumed that the area investigated lay within a yard associated with domestic and/or commercial occupation. Deposits representing this kind of land use in the late medieval period are poorly studied in York and have great potential for recovery of valuable archaeological information.

Consequently, *in the event of further development at this site, it is essential that all well-sealed and well-dated deposits should be sampled and examined. Provision should be made for detailed post-excavation research on a considerable scale.*

If possible, the material so far collected should be studied fully and the information recovered be made widely available.

Retention and disposal

All material should be retained for the present.

Archive

All extracted fossils from the test subsamples, and the residues, flots and bones, 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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Table 1. The vertebrate remains recorded from St Saviourgate.

Taxon		No. of fragments	No. of measurable bones	No. of mandibles with teeth
<i>Bos f. domestic</i>	cattle	20	7	-
Caprinae	sheep/goat	98	30	19
<i>Sus f. domestic</i>	pig	22	-	1
<i>Canis f. domestic</i>	dog	4	1	-
Canid	dog family	1	-	-
<i>Felis f. domestic</i>	cat	1	-	-
<i>Gallus f. domestic</i>	chicken	42	29	-
<i>Anser sp.</i>	goose	13	12	-
Indeterminate bird		6	-	-
Fish		52	-	-
<i>Subtotal</i>		259	79	20
Unidentifiable		191	-	-
<i>Subtotal</i>		191	-	-
Total		450	79	20