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Environmental evidence from 17-21 Piccadilly (Reynard's Garage)

(YAT/Yorkshire Museum sitecode: 1990-1.29)

by

D. M. Alldritt, J. B. Carrott,
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Summary

Two series of samples from this site were examined for plant macrofossil and invertebrate remains and their lithology recorded. The first series, from boreholes were deposits which were mainly more or less devoid of biological remains, but some had modest assemblages of occupation-derived organisms.

Samples from the trial trenches were mostly rather rich in occupation-derived material with little or no clear evidence for deposition in or by water. Two very distinctive contexts were rich in plant remains. One appeared to be mostly litter (hay, straw and peat), perhaps stable cleanings, the other a deposit rich in vegetative remains of woad and therefore probably dyebath waste. The latter also yielded a single fruitstone of an unusual exotic, cornelian cherry (*Cornus mas*).

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Introduction

This report discusses the results of analyses of invertebrate animal and plant remains from deposits excavated from the site at 17-21 Piccadilly (formerly Reynard's Garage). Two series of samples were available: firstly those from trial boreholes undertaken in November 1990 and secondly a group from trial excavations in January 1991.

Methods

All the General Biological Analysis (GBA) samples were described in the laboratory following a standard pro forma and subsamples of raw sediment were taken for analysis of plant and invertebrate animal remains.

A 'rapid assessment' was carried out on eighteen of the samples and four spot samples were examined. 'Test' subsamples (Kenward *et al.* 1986) of 1 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 and from the residues or washovers of the residues.

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 and a date are given in brackets where available. The samples are presented in context number order.

Context 1005 [Borehole sample]

Sample 103: Mid grey-brown, moist, plastic to slightly crumbly to slightly brittle sandy, slightly clay, silt. The sample was contaminated with patches of what appeared to be engine oil. No inclusions were noticed in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The flot contained a single *Sambucus nigra* seed but no invertebrate remains.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The small washover contained charcoal, a few beads of glassy slag and quite a few whole and fragmentary *Sambucus nigra* seeds.

The small residue (dry weight 137 g) was mostly sand and gravel with some brick/tile and a little charcoal.

Context 1008 [Borehole sample]

Sample 602: Varicoloured (mid brown to dark grey-brown) dry, crumbly to indurated, heterogeneous, sandy, silty, clay. There were abundant fragments of mortar and brick/tile with very small, small and medium-sized stones and pieces of charcoal also present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The tiny flot contained a very few small charcoal and coal fragments, a single fig (*Ficus carica*) seed, one charred fat hen (*Chenopodium album*) seed and one achene of stinging nettle (*Urtica dioica*).

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The small washover contained roughly equal amounts of charcoal and coal, a little glassy slag, and trace amounts of *Sambucus* seed fragments, celery-leaved crowfoot achenes (*Ranunculus sceleratus*) and sedge nutlets (*Carex* sp(p).).

The modest residue (dry weight 242 g) consisted mostly of sand and gravel with rather a lot of brick/tile fragments up to 50 mm.

Context 1010 [Borehole sample]

Sample 403: Light to mid grey-brown, moist, plastic to slightly crumbly, silty, sandy, clay. Fragments of brick/tile and some localised patches of olive-brown and gingery-brown were present; small and very small stones were common in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The tiny flot contained several *Sambucus nigra* seeds, a few tiny scraps of charcoal and a little coal.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The small washover was mostly charcoal and some coal with some whole and fragmentary *Sambucus nigra* seeds and a trace of fish bone.

The smallish residue (dry weight 179 g) was mostly sand and gravel with some brick/tile (to 10 mm).

Context 1011 [Borehole sample]

Sample 202: Mid grey-brown, moist, plastic to slightly crumbly, sandy, silty, clay. Patches of mid red-brown, clay sand, other materials of varying colours and pieces of 'modern' glazed drainpipe were present and pieces of brick/tile were common in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The flot was composed of a few tiny scraps of charcoal with a single stinging nettle achene and one sedge nutlet.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The very small washover was mostly fine charcoal with a few beads of glassy slag, a single charred caryopsis of ?barley (cf. *Hordeum* sp.), a single elder seed and a single nutlet of a mint (*Mentha* sp.).

The small residue (dry weight 171 g) consisted mostly of sand and gravel with some brick/tile and charcoal.

Context 1012 [Borehole sample]

Sample 203: Varicoloured (light grey-brown to dark grey) moist, plastic, silty, sandy, clay with patches of light pinkish-brown. Charcoal, brick/tile and a small piece of 'mortar-like' material with a brown 'glaze-like' surface (which was removed to be returned to the excavator) were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains.The flot was composed of a few tiny fragments of charcoal with one ?modern birch (*Betula* sp.) fruit.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The tiny washover contained charcoal, a little bone and one fragment of *Sambucus* seed.

The small residue (dry weight 144 g) consisted mostly of sand and gravel with some fine brick/tile and ?slag.

Context 1013 [Borehole sample]

Sample 803: Varicoloured (light grey-brown to light orange-brown to light grey to black, dry to moist, brittle to unconsolidated, slightly silty, mixed fine and coarse sand. Very small, small and medium-sized stones, mortar and brick/tile, some blackish humic silt (which coated one of the larger stones), a small chunk of heavily insect burrowed ash (*Fraxinus*) wood (to 30 mm) and one shoot fragment of moss (*Climacium dendroides*) were present in the sample. The burrows in the wood were consistent with woodworm, *Anobium punctatum*. This, though not recorded from the present sample, was noted in several others from this site, and is one of the most consistently represented species in urban archaeological deposits.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The very small flot contained few insects. There were a few decomposers of typical urban nature, and two individuals of the spider beetle *Tipnus unicolor* and a single saw-toothed grain beetle, *Oryzaephilus surinamensis*. The majority of the beetles probably originated in or adjacent to buildings. There were two water beetles - *Helophorus aquaticus* or *grandis*, and a small *Helophorus* species. There was a very small assemblage of seeds (*Brassica* sp(p)., *Rumex acetosella* agg. and *Eleocharis palustris*) of no particular interpretative significance.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The modest washover was mostly granular wood fragments (bearing signs of 'worm') and herbaceous plant detritus including some ?monocot stem fragments. The identifiable plant remains included fragments of seeds of corncockle (*Agrostemma githago*) and of fruits of black bindweed (*Bilderdykia convolvulus*), both cornfield weeds likely to have been milled with grain, some other arable weeds, weeds of waste ground and a leaf fragment of holly (*Ilex aquifolium*); overall the assemblage appeared to be a diluted version of one typical of urban medieval occupation deposits but with no particular character.

The modest residue (dry weight 384 g) was composed mostly of sand, gravel and brick/tile (to 30 mm) with a little plant detritus.

Context 1014 [Borehole samples]

Sample 303: Dark grey to grey-brown, dry to moist, crumbly to somewhat fissile, heterogeneous, humic, sandy, slightly clay, silt. Charcoal, wood fragments, small bone (less than 20 mm), oyster shell, mortar, brick/tile and flecks of vivianite were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. About half the very small flot was composed of insect remains. There was a small group of generalised decomposer beetles, and a few species associated with outdoor habitats. There were many mites, some fly puparia, three lice (*Damalinia* sp., probably from domestic animals) and an adult and a puparium of the sheep ked *Melophagus ovinus*. The plant remains included some weeds of waste ground and arable land, and the wetland moss *Scorpidium scorpioides*.

The modest residue was examined wet and was mostly plant detritus but with some charcoal and burnt and unburnt mammal bone, and oyster shell. Quite a large assemblage was recorded including modest numbers of stinging nettle (*Urtica dioica*), annual nettle (*U. urens*) and self-heal (*Prunella vulgaris*) fruits, perhaps suggestive of areas of disturbance and of more stable grassland. The traces of moss included a mixture of wetland and woodland taxa, the former perhaps growing locally, the latter probably imported with timber or deliberately brought to the town. Traces of apple endocarp and linseed point to the presence of 'useful' plants in the deposit, but the assemblage was not indicative of particular human activity and appears to have been a general occupation accumulation. There was no particular evidence for deposition in water or for flooding of the deposit as it formed.

Sample 404: Dark grey-brown, moist, plastic, sandy, silty, clay. Small and very small stones, large bone fragments (greater than 20 mm), shellfish, brick/tile and some patches of stiffer, mid grey-brown, silty, clay were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. Two seeds each of elder and sun spurge (*Euphorbia helioscopia*) were present in the tiny flot.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The smallish washover was mostly charcoal with some cola and a little herbaceous detritus, including further sun spurge seeds, charred hazel nutshell, fish bone, one very decayed fool's parsley (*Aethusa cynapium*) fruit, oyster shell fragments and a little glassy slag.

The small residue (dry weight 137 g) was composed mostly of sand and gravel with a ?horse incisor, oyster shell, brick/tile (to 15 mm).

Though apparently from the same context, this sample was very different botanically from 303 and 603 and it may be that the deposit did not form uniformly over its area or that there was some confusion in recording during excavation.

Sample 603: Very dark grey, moist, crumbly, to plastic slightly humic, sandy, clay, silt. Very small stones, large fragments of burnt bone (greater then 20 mm) and pieces of brick/tile were present and ?fine charcoal which may account for the dark colouration were abundant in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. Although very small, the flot was quite rich in seeds, the majority species of waste ground. About half the flot was made up by insect remains. Beetles were moderately abundant, predominantly a mixed group of decomposer species. Only *Carpelimus bilineatus* was represented by more than one or two individuals; this beetle is consistently present or abundant in Anglo-Scandinavian and medieval deposits in York and elsewhere and perhaps colonised rotting vegetable matter. There were at least two *Daphnia* ephippia and a single waterside bug, *Saldula* sp.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The washover was mostly woody detritus up to about 10 mm in size and the identifiable plant remains included a wide range of weeds and waste ground plants, most notably modest numbers of stinging and annual nettles, black nightshade (*Solanum nigrum*), chickweed (*Stellaria media*), sheep's sorrel (*Rumex acetosella* agg.) and weld/dyer's rocket (*Reseda luteola*). There were also modest numbers of corncockle seed fragments and other cornfield weeds. A possible grassland (?hay) component was indicated by the modest numbers of buttercup (*Ranunculus* Section *Ranunculus*) achenes, cow parsley (*Anthriscus sylvestris*), meadow-sweet (*Filipendula ulmaria*) and *Leontodon* sp(p). There were also traces of heather (*Calluna vulgaris*) remains, perhaps from turf or brushwood. The very heterogeneous nature of the assemblage is typical of medieval urban occupation deposits, with no component (other than weeds) predominating.

The small residue (dry weight 140 g) consisted mostly of sand and gravel with a little coal and brick/tile.

Sample 806: Very dark grey-brown, moist, crumbly, humic, sandy, clay, silt. Woody detritus (both less than and greater than 2 mm) was also present. Large stones, a large alder (*Alnus*) stake and associated fragments, and patches of mid grey-brown silty clay were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. Remains of several weed taxa were present in the small flot which was about one-third insect remains. A single specimen of the water beetle *Hydraena testacea* was recorded, and there was also a *Cyphon* sp., associated with waterside and damp ground habitats. The majority of the beetles were assorted decomposer species and there was a single human flea (*Pulex irritans*), a grain weevil (*Sitophilus granarius*) and a specimen of the spider beetle *Tipnus unicolor*. The insects do not offer clear evidence as to the origin of this material but at least a proportion of the deposit probably represented debris from occupation.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The washover was mostly woody detritus but included some peat fragments containing cotton-grass (*Eriophorum vaginatum*) stem/rhizome fragments. Leaves of the raised-bog-forming moss *Sphagnum imbricatum* were also recorded and may have originated in these peat fragments. The assemblage of identifiable plant remains included modest numbers of weld, toad rush (*Juncus bufonius*), and ?red goosefoot (*Chenopodium* Section *Pseudoblitum*) seeds and achenes of buttercup and nutlets of sheep's sorrel. Waste ground and arable land are again indicated, perhaps with some evidence for hay (hogweed, *Heracleum sphondylium*, is probably to be counted as evidence for this). Four fig seeds and traces of flax (*Linum usitatissimum*) capsule fragments were virtually the only other 'useful' taxa. This list is not unlike those from samples 303 and 603 from the same context.

The small residue (dry weight 165 g) consisted mostly of sand and gravel with plant detritus.

Context 1015 [Borehole samples]

Sample 104: Mid orange-brown, moist, stiff, sticky, firm, plastic, slightly sandy, silty, clay with grey-brown ?oxidation mottling. The sample contained no obvious inclusions.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. Only a few minute scraps of charcoal were present in the tiny flot.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The tiny washover was mostly charcoal.

The tiny residue (dry weight 32 g) was mostly sand and gravel with a little brick/tile and charcoal.

Sample 807: Light to mid grey-brown, moist to wet, sticky to plastic, rather thixotropic clay, mixed fine and coarse sand. Some ?contamination with darker and lighter sediment and some stiffer and more 'clayey' patches were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The tiny flot contained a few beetle fragments - a few decomposers and a single aquatic - and seeds of a very small range of plants which can mostly be considered to have been weeds of various kinds. There were at least two *Daphnia* ephippia.

A washover (to 300 microns) was performed on the residue to separate the organic fraction so that this could be examined wet, whilst the bulk of the material was dried prior to examination. The small washover contained wood fragments and a modest range of weeds including annual nettle, fat-hen, black nightshade and swine-cress (*Coronopus squamatus*) (together suggesting rather foul conditions with dung-heaps or middens) with a trace of linseed and hazel nutshell.

The very small residue (dry weight 78 g) consisted mostly of bleached sand with a few pieces of coal up to 20 mm.

Context 2015 [Spot sample taken to identify wood type. Found in association with industrial waste including mould fragments; late C16th]

Sample 1: this sample comprised fragments of charred roundwood up to about 30 mm in maximum diameter, the longest fragment being about 50 mm. The wood from which these fragments came was evidently rather straight (probably coppice poles) and the bark was still present. From a count of rings on the largest fragment the wood had probably been cut in its ninth year. The wood was ring-porous without prominent late-wood vessels and with apparently narrow rays; it is most likely to be young oak (*Quercus*) or perhaps sweet chestnut (*Castanea sativa*).

Context 2046 [Sample taken to determine whether this was a dump or natural build-up; later C14th]

Sample 2: Very dark brown to grey-brown moist, matted/compressed herbaceous detritus (both less than and greater than 2 mm) was also present. A little sand and silt, mid brown organic material, some of it concreted, patches of whitish material (?mould), twig and wood fragments were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The modest-sized flot was composed mostly of plant fragments but included a modest assemblage of insect remains whose preservation was varied. The beetles comprised a decomposer group of a rather generalised kind, and there were many fly puparia. Plant remains included modest numbers of buttercup achenes and *Sphagnum* leaves.

The large residue had a high organic content and was therefore examined wet. It was composed largely of fine to medium herbaceous detritus, the larger fragments of 2-4 mm having the appearance of hay or straw debris.

A large assemblage of plant remains was recorded from this sample, with evidence for hay/straw (especially culm-nodes of cereal/grass, hogweed fruits, legume flowers and petals and grass caryopses). However, there was also evidence for peat (large amounts of shoot fragments of *Sphagnum imbricatum* as well as peat fragments containing *Sphagnum* spores and *Calluna* pollen, and cotton-grass remains), and vegetative fragments of heather and bracken - indeed, a

mixture of possible 'litter' material was present. A few concretions of this 'grassy' material were also found. These were flattened, usually discoid, and up to about 40 mm in diameter, and perhaps originated in discrete animal droppings within what may have been stable cleanings rather than waste from floors of human habitation.

Context 2046 [Spot sample taken for identification]

Sample 3: this was a discrete lens of peaty material within 2046. A subsample from the 120 g sample available was disaggregated and found to consist largely of woody and herbaceous fragments of which a large proportion were leaf fragments of bog myrtle or sweet gale (*Myrica gale*). Some of the twig fragments could also be identified as *Myrica* and there were modest numbers of the very distinctive fruits of this plant, too. A smear of the peaty matrix gave large numbers of *Sphagnum* spores and coryloid pollen (which includes *Myrica*) and suggests that this was, indeed, a naturally-formed peat rather than a deposit of *Myrica* discarded after some process (e.g. dyeing, brewing). *Sphagnum imbricatum* leaves and shoots were also recorded, suggesting this peat to have been cut from an area of raised-bog (a flower of *Erica tetralix*, another indicator of wet peatland habitats confirms this). The few insect remains noted from this material included *Cyphon* sp., a taxon to be expected from wetland, and two decomposer species probably from the matrix in which this peat was deposited.

Context 2048 [Spot sample taken for species identification; not dated]

Sample 5: an irregular chunk up to 20 x 10 x 10 cm of reddish waterlogged wood; it was identified as willow (*Salix* sp.).

Context 2050 [later C14th]

Sample 4: Dark grey-brown, moist, crumbly to slightly brittle, slightly sandy, slightly clay, silt. Very small stones, small bone fragments (less than 20 mm), very small fragments of brick/tile and occasional lumps of lighter grey-brown silty clay were present and ?fine charcoal were abundant in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The flot was rather small and contained few, poorly preserved insects. These included the bug *Heterogaster urticae*, associated with nettle-beds and likely to be of climatic significance (Hall *et al.*, 1983, 219). The plant remains comprised a few seeds of weedy taxa.

The residue was examined wet and was mostly coarse sand and decayed wood fragments. The plant remains were a diverse mixture of weeds and waste ground types together with some probable grassland/hay taxa - the deposit perhaps included some very decayed hay. There was a single fragment of a teasel fruit, perhaps fuller's teasel (*Dipsacus sativus*) and there were modest numbers of weld/dyer's rocket seeds, too.

Context 2052 [pit fill, thought by the excavator to be a cess-pit; later C14th]

Sample 6: Mid olive with lighter and darker olive patches, moist, brittle, becoming thixotropic when handled, sandy, silt. Amorphous organic material in the form of heavily decayed plant detritus was abundant in the sample. There were no other obvious inclusions in the sample. The sample smelled of hydrogen sulphide and produced more of this when exposed to dilute hydrochloric acid.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The flot was of modest size but included moderately abundant insects whose preservation was mostly good. The majority were typical urban decomposers but there were a few species dependent upon outdoor habitats. There were strong hints that many of the insects originated in or around buildings, from, for example, *Cryptophagus scutellatus*, *Tipnus unicolor* (2 individuals), *Mycetaea hirta*, a larva of *Tenebrio ?obscurus* and flea. A single adult sheep ked, *Melophagus ovinus*, was also present. Plant remains were sparse and included scraps of holly (*Ilex aquifolium*) leaf epidermis and some other dicotyledon leaf fragments up to about 2.5 mm in maximum dimension.

Three beetles which have rarely been recorded from deposits in York were noted: *Helophorus rufipes* (2 individuals at least), *Anthicus floralis* (usually replaced by *A. formicarius* in deposits in York) and *Monotoma brevicollis*.

The residue was examined wet and was found to be a most unusual mixture of granular, highly calcareous, rather amorphous greyish material and brown plant detritus (about 20% by volume) which tended to clump and clog the sieves. A washover separated the organic component and this was examined more closely. It was found to consist almost entirely of spiral thickenings from xylem vessels together with some scraps of other vegetative tissue. Such material has been identified from two Anglo-Scandinavian deposits at 16-22 Coppergate as the partly-digested remains of woad leaves (*Isatis tinctoria*), presumably waste from the dye-bath. Indeed, several pod remains of the same plant were recorded from this sample, as at Coppergate.

The other plant remains from this sample were fruits and seeds of taxa typical of urban occupation deposits - arable and waste ground weeds, for the most part. However, there was also a single fruitstone of the cornelian cherry, *Cornus mas*, a species native to S. and C. Europe and apparently not recorded before from British archaeological deposits. Its presence here is difficult to explain; it must surely have been imported deliberately or accidentally. It may be more than coincidence that cornelian cherry grows in the Thuringia district of S. Germany, an area noted for its woad growing and exporting in the medieval period. It would be interesting to examine more of this sample to determine if other 'exotic' taxa are present.

The calcareous material may be re-deposited lime from some process associated with textile working.

Context 2053 [Spot sample rich in seeds and fly puparia; late C13th/early C14th]

Sample 7: this was a large, flat very calcareous concretion weighing about 220 g, up to about 15 x 10 x 3 cm in size, consisting of dark brown to grey-brown material, softer on the outside, hardened within. There were abundant fly puparia in places and some matted grass/straw fragments to about 30 mm. There were very well preserved ova of the parasites *Ascaris* and

Trichuris and wheat/rye 'bran' was present in the unconsolidated material. Essentially, this was a hardened lump of (?human) faeces.

Context 2076 [Sample taken to ascertain whether this was a riverside/river-lain deposit; 1st half of C13th]

Sample 8: Very dark grey-brown, moist, crumbly, humic, very sandy silt. Herbaceous detritus (both less than and greater than 2 mm) was also present. Small stones, large bone fragments (greater than 20 mm), vivianite, oak (*Quercus*) wood chips and some pieces of pottery (which were removed to be returned to the excavator) were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The flot was small and included a small group of beetles of varying preservation and diverse ecological requirements, although most were decomposers. There were no aquatic insects but two types of *Daphnia* (water-flea) ephippia (resting eggs) and at least one of a third cladoceran were present, indicating that some aquatic deposition took place.

The residue had a high organic content, especially of wood fragments, and was therefore examined wet. The assemblage of plant remains included a range of weeds and waste ground taxa, with moderate amounts of mammal bone and very fragmentary fish bone. There were single fruitstones of 'plum' and 'cherry' and traces of linseed and flax capsule fragments. Only toad rush, perhaps a plant of waterlogged tracks in the vicinity of the site, was present in more than very small amounts.

Context 2077 [Sample taken to determine the nature of its deposition; late C12th/early C13th]

Sample 9: Dark grey-brown, moist, crumbly, to slightly brittle very sandy silt. Small and very small stones, wood chips, twig fragments, large bone fragments (greater than 20 mm) and patches of lighter grey sand were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The flot was of modest size and consisted mainly of insect remains of varied preservation. There were some
decomposer beetles of mixed requirements but with hints that there were foul habitats; a few non-decomposers were also present. There were a few *Daphnia* ephippia and a single donaciine beetle, indicative of the incorporation of some aquatic material. The plant remains were all arable or waste ground weeds.

The quite large residue had a high organic content and was therefore examined wet. There was a long and ecologically diverse list of identifiable plant remains amongst the woody detritus, with moderate numbers of weld and chickweed seeds, corncockle seed fragments, achenes of celery-leaved crowfoot, buttercups, stinging nettle, corn marigold (*Chrysanthemum segetum*) and stinking mayweed (*Anthemis cotula*), fruits of persicaria (*Polygonum persicaria*) and nutshell fragments of hazel. There was some wheat/rye 'bran' and some hints that hay and straw were present with a little heather and bracken - perhaps all litter of some kind. The deposit was presumably occupation derived, containing leather, fish bone (rather a large component of quite substantial fragments), brick/tile, and pottery.

Context 2078 [Sample taken to determine the nature of the material's deposition; late C12th]

Sample 10: Very dark grey-brown, moist, crumbly, to brittle sandy, silt. Small and very small stones, twig fragments, large bone fragments (greater then 20 mm) and patches of lighter grey sand lenses were present in the sample.

A 1 kg 'test' subsample (/T) was processed by paraffin flotation to extract insect remains. The small flot contained a few insect remains, mainly decomposers of a typical urban character, with some hints of foul habitats. There was a single corixid bug and a *Daphnia* ephippium, hinting at aquatic deposition. Identifiable plant remains were limited to modest numbers of toad rush seeds, perhaps growing on wet ground nearby.

The residue had a high organic content with quite large amounts of woody detritus and was therefore examined wet. Some of the wood fragments were rather rectangular in shape and may have been chips from woodworking rather than simply having decayed from large pieces. There was a mixture of identifiable plant macrofossils including many weed taxa, with modest numbers of weld, black nightshade and (?wild) turnip (*Brassica rapa*, probably a weed) seeds. The only clearly 'useful' plant was grape (*Vitis vinifera*, a single pip). This occupation deposit also included charcoal, pottery, fish and mammal bone (some of the latter was burnt), fish scale, oyster shell, brick/tile and ?daub.

Concluding remarks and implications for further work

The borehole samples proved to be either more or less sterile of biological remains or to contain what appeared to be occupation-derived material, perhaps dumped. There was no good evidence for deposition in or by water.

The trial trench samples were mostly rich in organic remains. One proved to consist of vegetative remains and pod fragments of woad, presumably dyebath waste, another was rich in a variety of 'litter' materials -hay, straw and peat. This probably derived from animal housing rather than human occupation. The remaining GBAs gave evidence of occupation-derived material. There was no clear evidence of aquatic deposition, whether in standing water or by flooding, although aquatic invertebrates including water-fleas were present in small numbers. An origin in water brought perhaps for some industrial purpose is one possible explanation for their presence; such remains are not infrequently found in urban archaeological deposits that have clearly formed terrestrially (e.g. at 16-22 Coppergate).

There is clearly a good potential for further bioarchaeological study of this area to establish whether deposition was taking place in a wetland environment or whether there was any contribution from river flooding. Further excavation and analysis should reveal whether the more organic deposits formed through large-scale dumping or gradual accumulation and incorporation of debris from nearby occupation. Further investigation of insect remains should show whether the presence of some rarely recorded species is significant or a chance phenomenon. Certainly more information should be sought from these deposits concerning the dyeing industry in this part of York - was this a place where processes involving unpleasant effluvia were carried out, for example?

References

Hall, A. R., Kenward, H. K., Williams, D. and Greig, J. R. A. (1983). Environment and living conditions at two Anglo-Scandinavian sites. *The Archaeology of York* **14**(4). London: CBA.

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**, 163-72.