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An evaluation of biological remains from excavations on
land to the rear of Gowthorpe, Finkle Street and Micklegate
in Selby town centre (site code Selby 1993)

by

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Summary

Samples of sediment and an assemblage of hand-collected bone from four trenches to the north-west of Selby town centre have been examined

Assemblages from a sequence of peats and clays from Trench 1, close to the Selby Dam (a tributary of the River Ouse) appeared to record essentially natural deposition with no evidence for human activity but substantial indications of natural woodland vegetation

From Trench 2, samples of richly organic material from the fills of the Kirk Dyke' a medieval water course, showed how the earlier phases of deposition in relatively clean water gradually gave way to accumulation of material with an increasing component of debris derived from human occupation

In Trenches 3 and 4 ditch deposits included some sediments giving evidence for aquatic deposition near human occupation, whilst others had apparently formed under conditions in which organic deposition was limited

A collection of sheep metapodials from Trench 4 were especially interesting as examples of waste from sheepskin processing, they showed an unusual pathological condition

It is recommended that further practical work and sampling be carried out since certain of these deposits are of substantial historical importance

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Introduction

Samples for biological analysis and an assemblage of hand-collected bone from four trenches opened in Selby Town Centre were submitted for an evaluation of the potential of the site for further bioarchaeological investigation. Archaeological information concerning the site and the location of the trenches is given by MAP (undated)

Methods

For all of the GBA samples of sediment submitted by the excavator, a description was made using a standard *pro forma*. From this corpus, a group of 24 was selected to represent contexts considered most important by the excavator and from these, 1 kg 'test' subsamples were removed for processing, following methods of Kenward *et al* (1980, 1986). Flots from these subsamples were examined for plant macrofossils, insects and molluscs, and the residues checked for plant remains, molluscs and other components. Squashes for examination of parasite eggs were made following Dainton (1992). Recording of insects (and other invertebrates apart from molluscs and parasite eggs) followed the 'assessment' procedure of Kenward (1992).

Results

In the following account, the samples are considered for each trench in turn and in stratigraphic order from oldest to youngest in each case. Information in brackets following the context number has been provided by the excavator. The results of

the parasite analyses are only mentioned where positive or where a negative result may be significant.

Trench 1

This trench lay to the north of Selby Dam (a tributary of the Ouse) and the sequence of deposits appeared essentially to be 'natural' with phases of flooding and deposition in standing water. In the lower part there was a deposit rich in large wood fragments, including some substantial branches of oak and alder. This phase has been interpreted by the excavator as a period when a fish pool was established.

Context 117 [natural deposit]

Sample 501 Moist, light to mid blue-grey to mid brown with 1 mm- and 10 mm-scale mottling, stiff working plastic, clay with wood and twig fragments present. No further analysis.

Sample 502 Moist, light to mid blue-grey to mid brown with 1 mm- and 10 mm-scale mottling, stiff working plastic, very slightly silty clay with wood and twig fragments present.

Biological remains were almost entirely absent from this deposit, there were only a few fragments of wood and twig to 15 mm, some herbaceous detritus and some rootlets, all in very small amounts, in the flots and residue. Apart from these remains and a few concreted sand grains, all the remaining sediment had passed the 300 µm sieve.

Sample 503 Just moist, light to mid blue-grey to red-brown with 10 mm-scale mottling, stiff working plastic, very slightly sandy slightly silty clay Slag (?pan) and wood fragments (?contamination) were present in the sample No further analysis

Context 116 [natural deposit]

Sample 401 Wet, moderately heterogeneous, light brown sand with lumps of light blue-grey clay sand Small stones (6-20 mm) and small fragments of very decayed wood and twigs were present in the sample No further analysis

Sample 402 Wet, moderately heterogeneous, light brown sand with lumps of light blue-grey clay sand Small stones (6-20 mm) and small fragments of very decayed wood and twigs were present in the sample

The remains recorded from this sample were essentially the same as for the subsample of 502 wood and twig fragments (larger - up to 35 mm, from roundwood up to 15 mm diameter - and rather more abundant than in the lower sample) and rootlet fragments No invertebrates were recovered There were in addition traces of coal and small numbers of pre-Quaternary megaspores, probably also derived from Coal Measures

Sample 403 Wet, moderately heterogeneous, light brown sand with lumps of light blue-grey clay sand Small stones (6-20 mm) and small fragments of very decayed wood and twigs were present in the sample No further analysis

Context 113 [fish pool deposit]

Sample 301 Moist, mid brown oxidising to dark brown, crumbly, peat (fine and

coarse, woody and herbaceous detritus) with some nutshell present and abundant wood (to about 40 mm diameter) No further analysis

Sample 302 Moist, dark brown, crumbly, peat (fine and coarse, woody and herbaceous detritus)

Both flot and residue contained large amounts of wood and twig fragments and a modest assemblage of plant macrofossils indicative of woody vegetation, notably alder (*Alnus glutinosa*) and oak (*Quercus* sp.), and there were quite large numbers of fragments of tree leaves and leaf abscission pads typical of material forming from a stand of deciduous trees Other woody taxa recorded were hazel (*Corylus avellana*), yew (*Taxus baccata*) and holly (*Ilex aquifolium*) Remains of herbaceous plants were present in small numbers, there were of little additional interpretive value, but all were consistent with natural woodland and there was no evidence of human interference

Arthropod remains were abundant A modest group of beetles and bugs was present, representing both aquatic and terrestrial habitats There were hints of an element from carr woodland, especially from the rare staphylinid beetle *Oxytelus fulvipes* (two individuals), known (for example) from alder and birch carr at Askham Bogs, near York

Sample 303 Moist, mid brown oxidising to dark brown, crumbly, peat (fine and coarse, woody and herbaceous detritus) with some hazelnut shell present No further analysis

Context 112 [fish pool deposit]

Sample 201 Moist, mid to dark brown (darker brown on surfaces due to

oxidation), compressed to slightly layered working crumbly, peat (fine and coarse, woody and herbaceous detritus) No further analysis

Sample 202 Moist, mid to dark brown (darker brown on surfaces due to oxidation), compressed to slightly layered working crumbly, peat (fine and coarse, woody and herbaceous detritus) with abundant wood and twigs present

Wood, bark and twigs were rather abundant in the residue from this subsample and macrofossil remains of alder, birch (*Betula*), and oak were well represented in this and in the flot There was also an abundance of leaf fragments probably from trees Huge numbers of resting eggs (ephippia) of *Daphnia* sp (water fleas) were present, although aquatic insects were not very numerous More notable were insects of woodland, including *Collydium elongatum*, the small stag beetle *Sinodendron cylindricum*, and various others It is possible that this deposit includes an ancient woodland fauna, and it is most important that further work be carried out on it

Sample 203 Moist, mid to dark brown (darker brown on surfaces due to oxidation), compressed to slightly layered working crumbly, peat (fine and coarse, woody and herbaceous detritus) No further analysis

Context 109 [dump/land reclamation]

Sample 601 Moist, mid to dark grey to mid orange-brown with mm- and 10 mm-scale mottling, stiff working plastic, slightly silty clay White flecks, traces of root channels incorporating some iron pan appearing as orange-brown veins and a modern millipede were also present in the sample No further analysis

Sample 602 Moist, mid to dark grey to mid orange-brown with mm- and 10 mm-scale mottling, stiff working plastic, slightly silty clay White flecks, traces of root channels incorporating some iron panning appearing as orange-brown veins, modern roots and freshwater molluscs (in localised patches - probably from another layer) were also present in the sample

Although the small residue consisted entirely of iron-concreted root channel moulds and a few tiny snail shell fragments, the flot yielded modest numbers of stonewort (Characeae) oogonia of at least two types There were, however, only traces of arthropod remains

Sample 603 Moist, mid to dark grey to mid orange-brown with mm- and 10 mm-scale mottling, stiff working plastic, slightly silty clay White flecks, traces of root channels incorporating some iron pan appearing as orange-brown veins and modern roots were also present in the sample No further analysis

Context 107 [flood deposit]

Sample 101 Just moist, mid grey-brown, crumbly to slightly brittle, clay silt with abundant fragmentary freshwater molluscs No further analysis

Sample 102 Just moist, mid grey-brown, crumbly to slightly brittle, clay silt with abundant fragmentary freshwater molluscs

The flot from this subsample consisted largely of freshwater molluscs, together with abundant stonewort (Characeae) oogonia, and statoblasts of the bryozoons *Cristatella mucedo* Cuvier and *Lophopus crystalinus* (Pallas)

Other plant remains were restricted to rare seeds and seed fragments of elderberry

(*Sambucus nigra*) and some rootlets. The residue was almost entirely of whole and fragmentary molluscs, including many juveniles. The most abundant were *Valvata cristata*, *V. piscinalis*, *Bithyma tentaculata*, *Planorbis planorbis*, *Bathyomphalus contortus*, *Armiger crista*, and *Pisidium* spp (all indicative of freshwater habitats, including moving water), and the burrowing land snail *Cecilioides acicula*, which is likely to be a post-depositional contaminant.

This material was probably deposited in clean flowing water, with quite strongly oxidising conditions under which softer biological remains decayed quickly, even the very robust statoblasts were poorly preserved.

Summary of Trench 1

The lower deposits ('natural') gave limited biological evidence, mostly the more robust remains (and including some fossils clearly derived from ancient rocks). Peaty layers interpreted by excavator as forming in a 'fish pool' gave good evidence for woodland, probably in the form of well-developed, species-rich carr. Presumably this represented 'drowned' woodland, flooded when the 'fish pool' was created. The deposit identified as dumping/land reclamation gave poor preservation and may represent a period of silting rather than dumping. The flood deposits' gave poor preservation of delicate organic remains, although there was a large assemblage of mollusc and other preservationally robust remains indicative of deposition in clean (probably flowing) water.

Trench 2

All the deposits for which samples have been examined were from the various

stages of infill of the presumed Kirk Dyke, a ditch cut in the medieval period (C12-13th). The contexts have been divided into two main series, representing parts of the sequences in the northern and southern ends of the earliest cuts recognized, and probably covering a similar history of deposition. A third group of two samples are from a feature interpreted as a grave cut a little to one side of the edge of the dyke.

Series 1

Context 2086 [medieval, lowest recorded context from the southern end of trench]

Sample 57 Moist, mid to dark grey-brown, crumbly to slightly layered, slightly sandy silt. Wood, twigs and plant detritus were present and freshwater molluscs were common in the sample.

The freshwater molluscs included small numbers of about 10 taxa, mostly indicative of standing or perhaps slow-moving water. They included most of the taxa recorded from sample 102 (above), but also present was *Anisus leucostoma*.

The flots and residue also contained a rich assemblage of plant remains including an abundance of wood and twig fragments with some bark and a little charcoal. There were several plants indicative of woodland or hedges, notably oak, holly, birch and hazel, with moderate amounts of tree leaf fragments. The seeds' present included several weed taxa, amongst them corncockle (*Agrostemma githago*) and wild radish (*Raphanus raphanistrum*) pod fragments. These last two perhaps indicate, with the traces of wheat/rye bran' in both flots and residue, that material derived from flour or bread was present (No worm eggs were recorded from the squash examined, though diatoms were observed). Other indicators of the presence of human

occupation in the vicinity were the occasional achenes of hemp (*Cannabis sativa*), a single grape (*Vitis vinifera*) pip, one fig (*Ficus carica*) seed, and traces of both seeds and capsule fragments of flax/linseed (*Linum usitatissimum*). There were rather few plants representing the aquatic environment, but submerged and emergent types were both present. Peatland material was represented by a shoot tip of heather (*Calluna vulgaris*) and by modest numbers of *Sphagnum* leaves which included *SS imbricatum* and *papillosum*, both likely to have been growing in acid raised-bog peat.

The large flot was rich in arthropod remains, with numerous *Daphnia* ephippia, fly puparia and aquatic molluscs. A rather rich group of aquatic and terrestrial beetles and bugs was present. The terrestrial component included plant-feeders (probably from weedy ground) and waterside forms, and also evidence of probable dumping in the form of, for example, grain beetles. These remains of synanthropes (species favoured by human activity) may, however, have been water-transported in drains or gullies.

Context 2085 [medieval, immediately overlying 2086]

Sample 56 Moist, dark brown, crumbly, very humic silt. Pellets of buff clay were present and wood and twigs were both abundant in the sample.

There was, again, a large component of woody and herbaceous plant material in the flot and residue from this subsample and, although much less rich in terms of numbers and diversity of taxa, many of the same plants were represented as in the subsample from 57. There was, perhaps, some indication of an increasing input of weed taxa but the material was not

examined thoroughly enough to warrant a quantitative basis for this comment. Stinging nettle (*Urtica dioica*) achenes were very common in the residue, but these may have originated in plants growing in wet woodland, the natural habitat which this weed occupied prior to human interference. Freshwater molluscs were again present, though in more restricted numbers than in the subsample from 57.

There was a moderately large group of beetles and bugs, with enough aquatics to suggest that the deposit formed in water. Grain pests and other terrestrial forms were quite abundant. There were hints that this component may have originated in stable manure, but further analysis would be required to clarify this.

No worm eggs were recorded from the squash examined, but diatoms were noted which might, if analyzed in detail, provide information about water quality and flow.

Context 2084 [medieval, immediately overlying 2085 and 2086]

Sample 43 Moist, slightly heterogeneous (locally more organic and more crumbly), dark grey-brown, crumbly to somewhat layered and slightly compressed, very humic, moderately sandy silt. Marine mollusc shell fragments, charcoal, coal and fragments of brick/tile were present, wood was common and herbaceous detritus was locally abundant (having the appearance of clods of very well humified compost heap material in a mineral matrix) in the sample.

The plant remains in this subsample were essentially typical of urban occupation deposits, being a mixture of weeds and food plants (including apple (*Malus sylvestris*) endocarp, strawberry (*Fragaria vesca*) achenes, plum' (*Prunus domestica*)

fruitstone fragments and fig seeds) Well preserved fig seeds were, indeed, abundant in the residue, and the possibility that this might indicate the presence of human faeces was borne out by my examination of a squash of a small clast of undisaggregated sediment which was found to contain bran' and eggs of *Trichurus* and *Ascaris*. Worm eggs were not recorded in the squash examined (presumably they were only locally distributed through this rather heterogeneous deposit), but diatoms were again present. There was still a component of woody plants but wetland macrophyte vegetation was almost entirely absent.

A moderately large group of beetles was present in the flots, generally well preserved. There were typical decomposers of occupation sites and species from natural habitats. The material may have included stable manure or material of a similar consistency, and may thus have been dumped from within a building, 'house fauna' was not, however, well represented. This material was considered particularly deserving of further investigation.

Context 2091 [stratigraphically between 2084 and 2072]

Sample 49 Moist, light buff to mid grey-brown to dark grey-brown, crumbly and layered, working sticky, very slightly sandy silt with wood fragments present and herbaceous detritus abundant in the sample.

Again the plant macrofossils from this subsample were a mixture of woody taxa (hazel, alder, blackthorn (*Prunus spinosa*), oak, and willow) with some weeds and a few wetland taxa. A single fig seed was recorded from the residue which was rather rich in twig fragments - typical of deposition of debris from nearby trees into a ditch. A very limited fauna of freshwater

snails and bivalves of about three taxa was also recorded.

This deposit was rather different lithologically from those above and below and may represent the dumping of a different kind of material into the dyke, the plant remains, though, were not dissimilar to those in adjacent layers.

A small but somewhat unusual group of insects was recovered, with evidence that the material was waterlain. There were hints that some material such as hay may have been incorporated. A notable record was of the tiny pithead beetle *Ptenidium punctatum*, typically found in stranded seaweed (although known also from archaeological occupation deposits at the Lloyds Bank site in York, Hall *et al* 1983). Further work on this material would be worthwhile.

Context 2072 [medieval, overlying 2084]

Sample 41 Moist, considerably heterogeneous, predominantly mid to dark grey-brown (colour locally very variable because of inclusions), crumbly, working slightly plastic, slightly humic, slightly sandy slightly clay silt. Lime/mortar and burnt soil/ash were abundant in the sample and wood and vivianite were both common.

The increasing evidence for disposal of occupation materials and for disturbance of the environment seen, for example, in the presence of a little brick/tile (up to 50 mm), was clear in the plant remains from this subsample, which were dominated by weeds of waste places, especially black nightshade (*Solanum nigrum*), which favours nutrient-rich soils and has in the past been considered a typical coloniser of middens and dung-heaps. The presence of all-seed (*Chenopodium polyspermum*) is

consistent with this. It may be no coincidence that this was one of the samples from this group which gave evidence for traces of *Trichuris* eggs from the parasite 'squash'.

A very small group of insects typical of occupation sites was present, ranging from fowl decomposers to 'house fauna' taxa.

The single snail identified from this subsample was *Bathyomphalus contortus*, a species of freshwater habitats.

Context 2082 [medieval, immediately overlying 2072]

Sample 51 Moist, slightly heterogeneous, mid to dark grey-brown, crumbly working slightly plastic, slightly sandy slightly clay silt with an 'earthy' smell. Freshwater molluscs, traces of wood, charcoal, rotted mortar and fragments of brick/tile were present in the sample.

A return to a rather cleaner aquatic environment is suggested for this subsample in the presence of hornwort (*Ceratophyllum* sp.) which was present in the lowermost part of this sequence. Freshwater snails and bivalves, including some of the same taxa recorded in the subsample of 57 (above), were also present in small numbers. There was not, however, a large flora and about two-thirds of the modest-sized residue was sand, the remainder charcoal and plant detritus. Stinging nettle and black nightshade were again the most abundant identifiable plant remains and there were traces of *Trichuris* eggs suggesting that some faecal material may have been present. A distal goose bill fragment was also recorded.

There were only a few, poorly preserved, insect fragments.

Series 2

Context 2029 [medieval, the lowest context excavated towards the northern end of the trench]

Sample 32 Moist, black oxidising to dark grey-brown, plastic, clay silt. Freshwater molluscs were common and very decayed wood fragments were present in the sample.

Plant remains were abundant and well preserved in the residue from this subsample and, together with the abundant freshwater snails and bivalves and ostracods, clearly indicate that the deposit formed in water. The molluscs, in particular, included taxa such as *Valvata cristata*, *V. piscinalis*, *Planorbis planorbis*, *Amurella cristata* and *Pisidium* spp. recorded from the subsamples of 102 and 57 (qv). The few indicators of human occupation included flax/linseed seeds and capsule fragments and seed fragments of corncockle.

There were abundant insect (and other arthropod) remains in the float (and possibly remaining in the residue also). Most were immatures, probably of aquatic forms, and there were adults of various aquatic beetles and bugs. A few terrestrial species were noted.

Context 2028 [medieval, immediately overlying 2029]

Sample 19 Moist, dark grey-brown, stiff to crumbly working plastic, clay silt. Bivalve and gastropod freshwater molluscs were abundant and herbaceous detritus (?reed) was present in the sample.

Aquatic deposition is again indicated by the well preserved plant remains, aquatic insects, cladocerans, molluscs and

ostracods in this subsample, there was, however, a distinctive component of woody plants (oak, willow, hazel, birch) which had been lacking in the assemblage from sample 32. As in the last sample, there were only very few weeds, some flax seeds and capsule fragments, and no artefactual evidence for human occupation.

Insects were abundant, mostly aquatics, but with a small, probably synanthropic, terrestrial component. Amongst the aquatics, the presence of numerous corixid bug nymphs was notable, suggesting fairly shallow water. There were also a few waterside forms.

Context 2027 [medieval, immediately overlying 2028]

Sample 33 Moist, dark grey-brown, crumbly, very humic silt. Brick/tile fragments, vivianite and herbaceous detritus were present and twigs were common in the sample.

Much of the residue from the subsample examined consisted of decayed wood and twig fragments, with some bark and charcoal. Stinging nettle seeds were abundant and the assemblage also included remains representing annual weeds, aquatics and marsh plants, and trees. *Sphagnum imbricatum* leaves were also present. A small amount of brick/tile <20 mm stands as evidence for increasing input of occupation debris.

The modest group of insects showed variable preservation, with most in good condition but a few much less well preserved. Aquatic deposition was indicated, but there was a moderate proportion of terrestrial forms, some of them clearly derived from human occupation. It was not obvious from evaluation recording whether these were

'background' fauna or originated in dumped material.

Context 2070 [medieval, overlying 2027, at about the same stratigraphic height as 2072 (see above)]

Sample 42 Moist, mid grey-buff with centres of lumps oxidised to slightly blue-grey, crumbly, slightly clay sandy silt with traces of very decayed wood present.

There were modest amounts of very decayed wood in the residue from this subsample and also of rootlets, the latter perhaps suggesting inwash of soil. Most of the residue was of sand plus a little brick/tile to 10 mm and some fragments of calcareous concretions, perhaps from lime or mortar. Identifiable plant remains were not abundant and preservation was rather poor and it may be that this deposit formed with intermittent phases of drying out rather than under a continuous aquatic regime. Though there were some plants of wetland habitats, there were also some woody taxa and a group of weeds of no particular interpretive value. There were a few freshwater gastropods of the same kinds seen elsewhere in this and the previous series, and a single *Trichuris* egg.

A small group of aquatic and terrestrial insects was recovered, they were less well-preserved than, but similar to, many of the other groups from the site, but probably deserved recording fully.

Series 3

Context 2041 [basal fill of grave']

Sample 31 Waterlogged, mid to dark purplish grey-brown, plastic soft and sticky, silty clay ?Mortar/plaster and fragmentary burnt mammal bone were

present, herbaceous detritus common and twigs abundant in the sample

The large residue from this subsample was rich in very decayed wood up to 100 mm in maximum dimension, including alder and oak. There was also much bark and many twig fragments. Other woody taxa included *Populus* (poplar, aspen), holly and willow. The smaller macrofossils included abundant orache (*Atriplex* spp) seeds together with a few other weed taxa and traces of both hemp-seed and linseed. There was also a single *Bithymia tentaculata* shell.

The insects represented a mixture of aquatic and terrestrial forms, the latter including some synanthropes. Aquatic insects were not sufficiently numerous to give clear evidence of aquatic deposition.

Context 2039 [upper fill of 'grave']

Sample 2930 (29 and 30 amalgamated) Moist, very heterogeneous major component mid to dark grey-brown, slightly sandy slightly clay silt with minor components buff silt or clay (?retted lime), varicoloured silty sand and dark brown woody, humic silt. Slag (?fused lime) and freshwater molluscs were present and wood was present to locally common in the sample.

Most of the plant taxa in this subsample were weeds of waste ground and cultivated soils but there were a few tree bud-scales (oak and *Populus*), and a few aquatic/marsh plants. Hemp and grape were present in very small amounts but there was otherwise little to indicate human occupation, other than traces of *Trichuris* eggs in the squash examined. There were a few remains of the freshwater snail *Bithymia tentaculata*.

There were numerous well-preserved, but often fragmentary, insects (the fragmentation may have occurred during processing, however). There were sufficient aquatics to suggest a waterlain deposit, and enough species favoured by human occupation to suggest the dumping of waste from in or around buildings. There were some taxa suggesting semi-natural habitats.

Summary of Trench 2

The deposits of Series 1 showed evidence of dumping of a variety of materials into water, there were woodland taxa (perhaps growing very near), weeds, food plants, peatland taxa, grain pests and other synanthropic insects, and evidence of filth, perhaps including stable manure. Some eggs of parasitic nematodes, probably human, were also present. The stratigraphically highest deposit examined gave hints of a cleaner environment, with aquatic deposition. Series 2 material was apparently waterlain, with wood and twig remains increasingly abundant through the sequence, although highly decayed in the uppermost deposit. The samples of Series 3 again included woody remains, but gave limited evidence of other macrofossils, they were from a 'grave' and presumably had a very different origin from the other material from Trench 2.

Trench 3

Three samples from this trench were examined, one from a layer suspected by the excavator of containing 'cess', the other two from the basal parts of two early medieval ditches.

Context 3087 [early medieval ditch fill]

Sample 64 Moist, dark grey-brown, crumbly working plastic, sandy clay silt.

Mollusc shell fragments and burnt soil were present in the sample

There was no indication from the small assemblage of plant remains from the residue and flots for deposition in an aquatic environment, the bulk of the remains being weeds of waste places and cultivated soils, notably stinging nettle and all-seed. There were, however, some ostracods and *Pisidium* shell fragments so there must have been some water in this feature at times. Indicators of human occupation were a very few poorly preserved charred cereal grains tentatively identified as barley and wheat and a little brick/tile <10 mm, there were also traces of *Trichuris* eggs in the squash examined. A single common snail, *Helix aspersa*, was also recorded, but there were only traces of arthropod cuticle.

Context 3089 [early medieval ditch fill]

Sample 50 Moist, moderately heterogeneous - mostly slightly reddish dark grey-brown (oxidising to dark grey), crumbly working slightly plastic, slightly sandy clay silt with minor components of black, crumbly, woody detritus and grey clay sand.

By contrast, the large residue from this subsample contained much decayed wood and bark and, indeed, there was an abundance of small wood fragments in the 1-2 mm fraction which had something of the appearance of 'flakes' and were perhaps derived from woodworking (saw-dust?) rather than from natural decay of the wood. Overall, the residue had a granular appearance. The other plant macrofossils present were essentially weeds typical of occupation sites, and there were a few taxa indicative of the damp conditions obtaining in or near a ditch.

A very small group of adult insects was present, possibly primarily derived from the litter of human occupation. It was not possible to judge whether this material was deposited in water or merely under damp conditions.

Context 3070 [medieval, ?cess]

Sample 40 Moist, mid grey-brown, crumbly to plastic to brittle, silty clay sand with a strong 'earthy' smell and a trace of charcoal present.

There was no evidence from this subsample for faecal material, the most abundant plant remains present being fat-hen (*Chenopodium album*) with perhaps also some all-seed (*C. polyspermum*) indicative of disturbed, nutrient-rich soils. There was a trace of brick/tile and some coal, with a little mammal bone and modest amounts of charcoal and this was evidently a deposit into which some occupation debris found its way, though not formed largely of such material. The other identifiable plant remains were the more resistant woody seeds of elder (*Sambucus nigra*), hazel nut, blackberry, *Ranunculus*. Section *Ranunculus* and stinging nettle, with a trace of Characeae oogonia representing freshwater, but perhaps reworked or wind-dispersed from the nearby dyke.

The only insect (a single fragment of a *Longitarsus* species) may have been a contaminant.

Summary of Trench 3

The ditch fills from Trench 3 gave evidence that the feature was sometimes wet, but only limited aquatic biota was present. One layer was rich in rotted wood, perhaps debris from human activity. A

deposit identified in the field as perhaps 'cess' appeared to consist of dumped material of mixed origins, including occupation debris

Trench 4

The deposits examined from this trench are from the fills of a ditch in use in the C13th and re-cut in the C15th, and from a pit of medieval date

Context 4052 [ditch fill in cut 4053, medieval]

Sample 55 Moist, dark grey-brown veined with dark orange-brown, somewhat layered and crumbly, slightly sandy silt Twigs were abundant, herbaceous detritus common and large mammal bone present in the sample

The presence of abundant *Daphnia ephippia* in the float and residue points to deposition in water, but the bulk of the plant remains recorded were angular wood and bark fragments, and twigs, with seeds' which included abundant stinging nettle and modest numbers of willow fruits and bud-scales The assemblage is rather similar to the lower deposits within the Kirk Dyke, exposed in Trench 2 Besides, willow, there were remains of some other woody taxa - alder, holly, elder and, unusually, alder buckthorn (*Frangula alnus*), the last of this consistent with alder carr (wet woodland in a river valley or fen habitat) There were seed fragments of corncockle and rare achenes of hemp and capsule fragments of flax/lmseed, too, indicating human activity (and, again, similar to the evidence from the lower parts of Trench 2)

There were assorted water beetles, and terrestrial forms suggesting human occupation but with some semi-natural habitats There were hints of a

woodland/tree component, probably deserving of further investigation

Context 4050 [ditch fill in later recut of 4053, late medieval]

Sample 53 Just moist, mid grey-brown, crumbly to plastic, sandy clay silt (locally more sandy and more clay) Medium-sized pieces of chalk (20-60 mm) and ?rotted mortar/plaster (appearing as white flecks) were present and charcoal was common in the sample

Very little material from this subsample remained after processing, most of it was sand, with a little brick/tile to 20 mm, and some charcoal to 15 mm There were no insect remains Most of the plant material consisted of rootlets and root bark and there were traces of fish bone, stinging nettle achenes, and well preserved elder (*Sambucus nigra*) seeds and some snails, which included a freshwater form (*Bithynia tentaculata*) and two or three terrestrial taxa Traces of *Trichuris* eggs may indicate that some faecal material was present, but the nature of the infilling of the ditch cannot be positively elucidated from these remains, it may even be backfill of garden soil'

Context 4048 [pit fill, medieval]

Sample 1552 (samples 15 and 52 amalgamated) Moist, mid to dark grey-brown veined with mid orange-brown, crumbly and brittle, slightly clay sandy silt (more sandy in places) Charcoal was common in the sample and there were a large number of modern roots

The small residue was mostly of sand with a little brick/tile to 10 mm, some rather coarse root fragments and moderate amounts of root bark Charcoal to 15 mm

was also present in moderate amounts, and there was a little bone and a trace of elderberry seed fragments. There were no arthropod remains. The nature of this pit fill is not evident from the material observed, it may, like the ditch fill in sample 53, be backfill of soil.

Summary of Trench 4

The ditch deposits gave evidence of aquatic deposition, perhaps in a body of temporary water given to drying up in the summer. One layer was rich in woody taxa, but with some evidence of human occupation, the other giving only limited evidence. A pit fill was similarly impoverished.

The bones

The excavations produced two standard-sized packing crates (about 50 l each) of hand-collected animal bone. In addition, two residues from bulk-sieving, by the excavator, of subsamples from context 4004 and 4021 were examined. The hand-collected material could be divided into 14 chronological groups on the basis of archaeological evidence. However, these were amalgamated into two main phases (medieval and post-medieval) since the numbers of bones from each minor grouping were too small to provide useful information. Fragments were collected from a total of 68 contexts, 15 of which were discounted because they were modern or of doubtful provenance.

Most of the recorded bone fragments were from medieval deposits, dating from the 12th-16th century. These included a total of 826 fragments (23461 g in weight) from 46 contexts. Only seven contexts were dated to the post-medieval period and yielded a mere 161 fragments (8415 g in

weight) from seven contexts. Of those recorded, 525 fragments (19440 g) were identified to species (434 medieval and 91 post-medieval).

Preservation overall was good to fair and most of the assemblage was brown to dark brown in colour. The best preservation was noted in those contexts from the area of the Kirk Dyke in Trench 2, where waterlogging of deposits resulted in good organic preservation in general. In some cases, marked colour variation of the bones within a single context was noted, suggesting the possibility of mixed assemblages. Fresh breaks (caused during excavation) and (ancient) dog gnawing were apparent throughout the assemblage but were relatively limited in extent, affecting few bones. Evidence of butchery was noted, but again occurred relatively infrequently and was mainly confined to cow-sized fragments. However, four horse bones, which included a scapula, tibia and femur from post-medieval context 2057 and a radius from context 4048 (13th-15th century) showed evidence of butchery in the form of knife or chop marks.

A range of the common domesticates was identified from the medieval assemblage and included cattle (91 fragments), caprovid (291), pig (16) and horse (12). A large proportion of the caprovid remains were represented by large numbers of sheep metapodials which are discussed later. Cat was represented by three fragments only and a single cervid metacarpal, identified as fallow deer (*Dama dama*), was recovered from late medieval context 4021, a context also containing large proportions of sheep metapodials. Of a total of 159 canid fragments, 149 were from a complete articulated dog skeleton also recovered from 4021, the colour and preservation of the bones however appeared quite different from other numerous fragments from the same

context Bird remains were present but in small numbers (10 fragments) and represented domestic fowl, goose (*Anser* sp), duck (*Anas* sp) and immature swan (*Cygnus* sp, from context 4031, 13th-15th century represented by a humerus shaft fragment)

A similar range of species was also recovered from post-medieval contexts, i.e. cattle (30 fragments) caprovid (31), pig (10) and horse (13 fragments, 3 of which represent an articulated hind-leg from an 18th century context) Bird, cat and canid bones were also recovered (a total of six fragments in all), whilst a single fallow deer metatarsal fragment was recovered from context 2057

From the entire assemblage there was a total of 286 measurable fragments, of which 206 were from sheep (the majority representing metapodials) Thirty of the remaining 70 fragments represented the articulated dog skeleton from context 4021 Only 13 mandibles with teeth were recovered (5 caprovid, 4 pig, 1 cow, 2 dog and 1 cat) and only two isolated teeth

The two bulk-sieved samples contained little additional large/medium-sized mammal fragments but did include some additional taxa The sample (16) from context 4004 contained four unidentified fish and two unidentified bird fragments, whilst that from 4021 (sample 17) contained 12 fish fragments (including eel, *Anguilla anguilla*, and possible salmonid fragments), five amphibian fragments and a single small mammal pelvis A single pig lateral phalanx appeared to exhibit surface etching similar to that produced during passage through the gut

Sheep metapodials

As previously mentioned, the large number of sheep metapodials recovered was of considerable interest Of a total of 194 from dated contexts, the majority (144) came from only three contexts (4004, 4007 and 4021), all dated to the 15th century Of the remainder, 21 came from context 4029 (15th-16th century) and 29 from contexts 4032 and 4050 (13th-15th century) A further 33 were recovered from a single context dated as modern, but almost certainly part of the same general late medieval dumping episode A large number were complete and measurable and appear to originally represent a large pile of bones (almost certainly the waste from leather or skin preparation), which has at some time been flattened, resulting in the incorporation of bones into a number of negative features Interestingly, these six contexts contained only 30 1st phalanges and no evidence of 2nd or 3rd ones Although no systematic sieving was undertaken, the two bulk-sieved samples did produce three further specimens, but any large concentrations would have been noticed during excavation It would appear that most phalanges were removed at an earlier stage and the skins arrived with only the metapodials still attached, although they showed almost no evidence of butchery

Pathology

A number of the metapodials exhibited a range of pathological conditions worthy of note Nine metatarsals from contexts 403, 4004, 4021, 4029 and 4050 showed areas of swelling of varying severity on the proximal, posterior aspect of the shaft This took the form of a vertical ridge of highly remodelled bone positioned parallel with and medial to the position of the median extensor tendon Five also showed similar

remodelling on the opposing anterior aspect, usually associated with the more extreme examples. Five exhibited misalignment or splaying of one of the condyles, all but one involving the medial condyle. Interestingly, similar lesions have been described by O'Connor (1984, 24 and 42), in collections of metatarsals from medieval Skeldergate and late post-medieval Walmgate, York. These were also interpreted as waste from sheepskin preparation.

In addition, four metapodials exhibited small pits on the articular surface of the internal trochleas, sometimes affecting both condyles. From the limited numbers of 1st phalanges present, only four (two from context 4021 and two from 4000) exhibited similar lesions on their proximal articular surfaces. Two metacarpals (almost certainly from the same individual) showed severe deformity of the distal condyles. A single cattle 1st phalanx (context 4004) showed signs of severe trauma and subsequent remodelling.

Cattle homcores

A total of 27 cattle homcore fragments was recovered from 16 medieval and 2 medieval contexts. Of the seven which still had basal fragments or were complete, all had been chopped from the skull. In the absence of other primary butchery waste, it would appear that hom-working was also being undertaken in the area.

A number of important points arise from the evaluation of the bone assemblage.

(i) The presence of large numbers of late medieval sheep metapodials certainly suggests skin preparation in the vicinity. The fact that most are well preserved and measurable presents an opportunity to collect biometrical data from a period

which is generally poorly represented nationally.

(ii) The presence of a range of ambiguous pathological conditions on a proportion of the metapodials may also provide some important information regarding late medieval husbandry practices in the region.

(iii) The high proportion of cattle homcores which have been chopped through the base and the paucity of skull and mandible fragments may also indicate hom-working in the area.

Implications and recommendations

(i) Material already collected

These deposits clearly hold much evidence of importance in reconstructing environmental history and land use, as well as aspects of human activity, in medieval Selby. The following further work is recommended on GBA samples.

(a) Trench 1. Plant and invertebrate remains. Investigate selected material to elucidate development of fish pond deposits, particularly the drowned woodland layer. The insects provide hints of perhaps ancient woodland, and might be important in tracing the history of woodland in Vale of York.

(b) Trenches 1 and 2. Test for saline influence in Selby Dam and Kirk Dyke deposits using larger subsamples and selective work on ostracods and diatoms.

(c) Trench 2. Record selected groups of synanthropic insects in order to determine the nature of occupation and dumped materials.

Detailed costings appear in the table below.

Costing for further work arising from second stage of excavation

We would recommend sampling on approximately the same scale as in the first phase, but suggest that evaluation of GBA samples should be on a rather smaller scale (perhaps 15-20). Detailed work should be carried out on a small selection of these samples to amplify the results from those already collected, and for a publication report.

Attention should be paid to bulk-sieving if possible to obtain useful collections of small bone from the Trench 4 area, in particular with special regard to the tanning dump. It would be beneficial to 'site riddle' (to 8-10 mm) a proportion of these contexts, or to take large BS samples.

Detailed costings appear in the table below.

Watching brief

We suggest that about 30 samples might be collected during this phase, of which perhaps 15 would be selected for an evaluation and about five investigated more fully for a publication report.

Work outside current capacity of EAU

Two further lines of investigation seem worth pursuing for at least some of the deposits from Selby: analysis of diatoms and of ostracods. Both would give information about water quality and flow and, in particular, about salinity.

It seems most expedient to apportion two sums of £500 for specialist work on these remains.

Recommendations for disposal of material

It is recommended that no bioarchaeological material or sediments from the present phase of excavations are discarded until more work has been carried, both on these and on further material. A large part of the material should probably be retained in a museum archive, especially if full publication is undertaken.

The archive

All raw material, extracted fossils and data are presently stored at the EAU, University of York. Data are stored on paper and in some computer files.

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