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Evaluation of biological remains from excavations on land to the rear of 7-15 Spurriergate, York (site code: 2000.584)

by

Allan Hall, Stephen Rowland, Harry Kenward, Deborah Jaques and John Carrott

Summary

Thirty-one sediment samples and three large boxes of hand-collected bone from deposits revealed by excavations on land to the rear of 7-15 Spurriergate, York, were submitted for an evaluation of their bioarchaeological potential.

Plant and insect macrofossils were well preserved in most of the nine samples examined and represented material which included faeces (also rich in eggs of parasitic intestinal nematodes) and stable manure. They have considerable potential for bioarchaeological interpretation and are of a period poorly represented in published material from York.

A small and excellently preserved assemblage of bone was recovered from medieval and early post-medieval deposits. The bulk of the material represented the main domestic species (cattle, caprovid and pig), with goose and chicken also fairly common. Small quantities of raven and buzzard bones were present, along with, cat, dog, hare, red and roe deer. However, there was no conclusive evidence for systematic commercial activities being undertaken in the vicinity. Preliminary observations suggest that a large proportion of the assemblage was more likely to be domestic household refuse, with a moderate component of butchery waste. Fish remains were well preserved and recovered both from the samples and the hand collected assemblage. Species present included large gadid, herring and eel. The current assemblage should be recorded fully and clearly shows the potential for recovery of additional valuable material in the event of further excavation.

KEYWORDS: 7-15 SPURRIERGATE, YORK; EVALUATION; EARLY POST-CONQUEST; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATES; INTESTINAL PARASITIC NEMATODE EGGS; VERTEBRATE REMAINS

Authors' address:

Palaeoecology Research Services
Environmental Archaeology Unit
Department of Biology
P. O. Box 373
University of York
York YO10 5YW

Prepared for:

MAP Archaeological Consultancy Ltd
39 Greengate
Malton
North Yorkshire YO17 7EL

Telephone: (01904) 433846/434475/434487
Fax: (01904) 433850

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Introduction

An archaeological evaluation excavation was carried out by MAP Archaeological Consultancy Ltd on land to the rear of 7-15 Spurriergate, York (NGR: SE 60319 51842), during August 2000.

Thirty-one sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992) and three large boxes (a total of approximately 120 litres) of hand-collected bone, from two trenches, were recovered from the deposits for bioarchaeological evaluation. Pottery recovered from the deposits ranged in date from 10th century through to modern but most contexts were more tightly constrained to between the 10th and 11th centuries.

Methods

Sediment samples

The sediment samples were inspected in the laboratory. Nine of the samples (four from Trench 1 and five from Trench 2) were selected for investigation and processed following the procedures of Kenward *et al.* (1980; 1986), for recovery of plant and invertebrate macrofossils.

Note that, because of the highly organic nature of the deposits sampled and the consequent likelihood that they would be of considerable value, many more samples were examined than had been costed for in the project.

The residues were examined for plant macrofossils and other components. The flots were examined for macrofossil invertebrate remains. In both cases notes were made on the kinds of remains present, their state of preservation and their abundance. Insect preservation was recorded

using the scale of Kenward and Large (1998).

The selected sediment samples were also examined for the eggs of intestinal parasitic nematodes and other microfossils using the 'squash' technique of Dainton (1992).

Table 1 shows a list of the samples examined with notes on their treatment.

Vertebrate remains

For the hand-collected vertebrate remains that were recorded, data were entered directly into a series of tables using a purpose-built input system and *Paradox* software. Subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, for the larger assemblages, notes were made concerning fragment size, dog gnawing, burning, butchery and fresh breaks.

Where possible, fragments were identified to species or species group, using the reference collection at the Environmental Archaeology Unit, University of York. Fragments not identifiable to species were described as the 'unidentified' fraction. Within this fraction, fragments were grouped into a number of categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), bird, fish, small mammal and totally unidentifiable.

Results

Sediment samples

The results are presented in context number order by trench. Archaeological information, provided by the excavator, is presented in square brackets.

All of the thirty-one submitted samples were highly organic with varying contents of wood and fine and coarse herbaceous material. The nine samples selected for processing were chosen to represent a sequence through the phases of each of the two trenches.

Trench 1

Context 1026 [First highly organic deposit in Trench 1—matted wood in a highly organic silty matrix overlying Context 1032 (a blue clay deposit). No pottery spot date available]

Sample 7/T (1 kg sieved to 300 microns with paraffin flotation and microfossil ‘squash’)

The microfossil ‘squash’ was mostly organic detritus with some inorganic material. Several forms of diatom (possible introduced in water *via* faeces) and six eggs of intestinal parasitic nematodes (four *Trichuris* and two *Ascaris*) were seen. Preservation of the microfossils was rather poor and none of the *Trichuris* eggs were measurable.

The very large residue of about 600 cm³ consisted mainly of herbaceous detritus with perhaps less than a third by volume of mineral sediment and mineralised material (the latter mainly in the form of faecal concretions to 25 mm). The presence of some mineralised cereal grains and modest numbers of fig seeds points further to the nature of this deposit as faecal in origin, though preservation was not extremely good. A ‘litter’ component of wood chips and ‘straw’ was also present and there were abundant fly puparia, some of them mineralised.

The flot was quite large and consisted largely of fly puparia, of which there were probably more than a thousand. Most were Sphaeroceridae, a family including many species associated with foul matter. Beetles were moderately abundant, with numerous *Cercyon terminatus* (Marshall) and *Philonthus* sp. Together these suggest a foul deposit, though not necessarily of human faeces. Other remains included house fauna. There were quite large numbers of the

spider beetle *Tipnus unicolor* (Piller and Mitterpacher), suggesting a post-Conquest date, but the lack of grain pests suggests that the material was deposited soon after the Conquest, perhaps later 11th or early 12th century.

Insect preservation was rather constantly good (E range 1.5-2.0, mode 2.0 strong; F range 2.0-3.0, mode 2.0 strong, using the scale of Kenward and Large 1998).

This deposit may have contained stable manure, or a mixture of this with human faeces). It is desirable that a larger subsample should be analysed for insect remains, both to clarify interpretation and to give a full record of this very characteristic group for future synthesis.

Context 1035 [Primary fill of pit 1037. Pottery spot date 11th century]

Sample 12/T (1 kg sieved to 300 microns with paraffin flotation and microfossil ‘squash’)

The microfossil ‘squash’ was mostly organic detritus with a little inorganic material. A few phytoliths, diatoms and fungal spores, and a single live ?soil nematode were recorded. No eggs of intestinal parasitic nematodes were seen.

There was a large residue of about 500 cm³ of woody debris, mostly wood chips (to 30 mm), with quite a lot of bark, sand and grit, the mineral component perhaps making up 15% by volume of the residue. There was a modest range of well-preserved seeds, mainly from weeds or cultivated land and waste places and a modest component of wheat/rye (*Triticum/Secale*) ‘bran’ perhaps indicating faecal material or food waste. The presence of uncharred oat (*Avena*) chaff may suggest waste from animals rather than humans.

The flot yielded a very interesting group of insect remains. Preservation was variable, though generally quite good and with no clear evidence of bimodality, such as might result from the presence of a residual component (E 2.0-4.0, mode 2.5 weak; F 2.0-4.0, mode 2.5 weak). Some *Mycetaea hirta* (Marshall) were, however, noticeably well-decayed, and may have originated further up the taphonomic chain.

No species of insect was particularly abundant, but the subjective impression was that this was a small stable manure group, including species from both the hay used as feed (plant feeders and perhaps invaders of hay stacked in the field) and from the stable floor. The plant remains would support this interpretation. There were no grain pests, suggesting a very early post-Conquest date. This material should be

subjected to further detailed analysis using a large subsample, both to clarify interpretation and to provide data for synthesis.

A small bone assemblage, amounting to 11 fragments and weighing less than 1 g, was recovered from this sample. Seven of these fragments were of friable unidentified fish bone; three were unidentified mammal, two of which had been burnt. There was a single unfused distal end of a juvenile pig lateral metapodial.

Context 1040 [Deposit of soft sand with wood fragments overlapping wattle fence (Context 1045). Pottery spot date 10th-11th century]
Sample 18/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was approximately half organic detritus and half inorganic material. Many phytoliths, some diatoms, a few fungal spores, and a single live ?soil nematode were recorded. No eggs of intestinal parasitic nematodes were seen.

The moderate-sized residue of about 200 cm³ contained about 50 cm³ of sand and gravel, the rest consisting of granular charcoal, bark, wood, and hazel (*Corylus avellana* L.) nutshell, all rather decayed (soft, or rounded, or both). There were rather large quantities of charred oat grains and some spikelets which were clearly cultivated oat, *A. sativa* L., as well as some barley grains. Some of the oat grains were shrivelled, whilst others showed clear signs of a coleoptile (shoot), suggesting the grains had begun to germinate prior to charring. Also present were some weeds of cornfields and waste places, some charred, others preserved by waterlogging.

The flot was perhaps most notable for the presence of several charred insects, almost entire and in good condition: such remains are very unusual. The species represented were *Atomaria* sp. and *Aglenus brunneus* (Gyllenhal); closer examination might reveal more—they presumably originated with the grain. Preservation of the material preserved by anoxic waterlogging was rather good, though a little variable (E 2.0-4.0, mode 2.5 weak; F 2.0-4.0, mode 2.5 weak). This appeared to be a small house fauna group, with some hints of the presence of something like stable manure, though further analysis of a larger subsample would be necessary to confirm such an interpretation. The remains of a *Tenebrio obscurus* Fabricius were so fragmented as to suggest the possibility that they had been milled, though some other process (such as consumption by a horse) might have the same effect.

There were six unidentified fragments of bone, all of which appeared to be stained black, while a seventh was calcined. There was a single fish rib, also stained, and two vertebral fragments belonging to small fish.

Context 1043 [Deposit of compact organic silt above wattle fence (Context 1045). Pottery spot date 10th-11th century]
Sample 22/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was approximately half organic detritus and half inorganic material. A few ?fungal spores and a single live ?soil nematode were recorded. No eggs of intestinal parasitic nematodes were seen.

The very large residue of about 550 cm³ comprised woody detritus with <100 cm³ of sand and grit. Nutshell of hazel was quite prominent and well preserved in the coarser fraction. Otherwise, the residue was rich in herbaceous detritus and wood fragments (to 30 mm), including some chips. The well preserved fruits and seeds represented a variety of plants including weeds of various kinds, some grassland plants and further foodplants (including apple, *Malus sylvestris* Miller, wheat/rye 'bran', and linseed, *Linum usitatissimum* L.)

The small flot contained quite large numbers of insect remains, whose condition was good (E 1.5-3.0, mode 2.0 weak; F 1.5-2.5, mode 2.0 weak). Beetles predominated, and these in turn were mainly house fauna species, or others which might have lived with them. A louse, probably *Damalinea* and sheep ked *Melophagus ovinus* (Linnaeus) offer a hint that wool cleanings were present. There was little to suggest foul matter, and the deposit presumably included floor sweepings (the plant remains were consistent with this). Analysis of a larger subsample is desirable to enhance interpretation and provide data for synthesis.

Trench 2

Context 2004 [Fill of timber lined circular pit. Pottery spot date 11th-12th century]
Sample 10/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was approximately half organic detritus and half inorganic material. Some diatoms (at least four types), a few phytoliths, and a single live ?soil nematode were recorded together with eight eggs of parasitic intestinal nematodes (five *Ascaris* and three *Trichuris*).

The very large residue of about 700 cm³ was mainly of woody and herbaceous detritus but with a rather prominent component of sand and grit. The herbaceous fraction consisted mostly of what was probably uncharred cereal chaff with some wheat/rye 'bran', the latter especially in the <1 mm fraction. The well preserved fruits and seeds were again a mixture of cornfield weeds, grassland taxa and probable foodplants.

The flot consisted largely of woody and herbaceous plant fragments. Preservation of invertebrates was good, though the degree of chemical erosion was rather variable (E 1.5-3.5, mode 2.0 weak; F 2.0-3.0, mode 2.5 weak). Modest numbers of insects were present, and the beetles included taxa strongly suggestive of hay. Notably, there were two large weevils, apparently *Hypera punctata* (Fabricius), and a lygaeid bug, perhaps *Drymus* sp. There was no large community of stored hay or stable manure, but small numbers of appropriate species were present, and subjectively this assemblage is a stable manure group. Analysis of a large subsample is required, both to confirm the identification of the material and to provide data for synthesis.

The vertebrate assemblage weighed 1 g and contained a fragmented, calcined proximal juvenile bird femur, a juvenile caprovid phalanx, a single herring (*Clupea harengus* L.) vertebra and premaxilla, and a single unidentified fragment.

Context 2015 [Fill of pit 2012—primary fill above wattle lining (Context 2018). Pottery spot date 11th century]
Sample 4/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was mostly organic detritus with a little inorganic material. Some phytoliths, a few diatoms (at least two types), and a few fungal spores and hyphae were recorded. Five eggs of intestinal parasitic nematodes (three *Trichuris* and two ?*Ascaris*) were also noted. The eggs were poorly preserved and some other microfossils, which may have been additional very decayed *Trichuris* eggs, were also seen.

This subsample yielded an extremely large residue of about 900 cm³ of herbaceous detritus, some of it apparently straw or hay fragments and uncharred cereal chaff, with some woody debris (including wood chips) and a little sand; there was also quite a lot of leather (to 70 mm). Overall, there was an impression of litter from, for example, an animal stall or stable manure.

Modest numbers of insects were present in the flot. Their degree of decay varied somewhat (E 2.0-4.5, mode 2.5 weak), fragmentation less so (F 2.0-2.5, mode 2.0 weak). There were hints of fauna originating in hay (including a newly emerged *Apion* sp., the froghopper *Aphrodes flavostriatus* (Donovan), and *Sitona* sp.). Other components might reflect stable manure or damp hay, but there was no strong community of such conditions. *Damalinea* sp. perhaps, and *Melophagus ovinus* probably, originated in wool cleanings.

Detailed analysis of insect and other invertebrate remains from a larger subsample of this deposit is desirable.

A single scorched unidentified bone fragment was recovered.

Context 2034 [Small deposit in wattle-lined pit 2005. Pottery spot date 11th-12th century]
Sample 19/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was mostly organic detritus with a little inorganic material. Twenty-three eggs of intestinal parasitic nematodes (14 *Trichuris* and 9 *Ascaris*) were seen. Two of the *Trichuris* eggs were sufficiently well preserved to be measurable. A few phytoliths and a single live ?soil nematode were also noted.

The very large residue of about 800 cm³ consisted mostly of fine (<1 mm) wheat/rye 'bran' and faecal concretions with some fragments of *Allium* leaf epidermis (probably leek, *A. porrum* L.) which retained a vivid yellow-green colour. Notable amongst the other remains were some short lengths of coarse bristles or hairs, presumably from livestock. A large proportion of the other plant remains present are likely to be weed seeds present as contaminants in grain or milled with flour—there were abundant seed fragments of corncockle (*Agrostemma githago* L.) and small numbers of fragments of field scabious (*Knautia arvensis* (L.) Coulter) and shepherd's needle (*Scandix pecten-veneris* L.), for example.

The large flot, containing abundant bran, yielded small numbers of beetles, but numerous mites. Insect preservation was generally good (E 1.0-2.5, mode 1.5 distinct; F 1.5-5, mode 2 distinct). A bruchid ('bean weevil') was conspicuously fragmented, perhaps having been eaten in pulses. Although insects were not common, subjectively they included a group of taxa typical of cess pits, as seen in the analyses of Carrott and Kenward (in press). For this reason, and to amplify interpretation, detailed analysis of a large subsample is required.

Eight fragments of bone, weighing less than 1 g, were recovered from this sample. There were two bird carpals, three eel (*Anguilla anguilla* (L.)) vertebrae, and three herring vertebrae, one of which appeared to have been slightly crushed in a way consistent with having been eaten.

Context 2046 [Fill of pit 2005. No pottery spot date available]

Sample 25/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was mostly organic detritus with a little inorganic material. There were more than twenty *Trichuris* eggs (some of which were measurable) and some phytoliths.

The very large residue of about 700 cm³ was of woody detritus, with a large <1 mm fraction consisting mostly of wheat/rye 'bran'. There were some well preserved woody propagules, including a sloe (*Prunus spinosa* L.) fruitstone with a pinkish colour and hazelnut fragments with apical knife marks (suggesting a pre-Conquest date for this deposit, at least). Some faecal concretions present sometimes showed a purplish colour and fragments of ?leek leaf epidermis were golden in colour. The deposit was clearly largely well preserved faeces, perhaps human, though there was a fairly extensive range of taxa probably representing hay or straw.

Insects were well preserved (E 1.5-2.5, mode 1.5 distinct; F 1.0-2.0, mode 1.5 distinct). Fly puparia and pupae (probably from within puparia) were abundant and beetles present in modest numbers in the large flot. House fauna was present, but much of the assemblage was accounted for by species able to tolerate foul conditions. The cut may have held water as there were a few aquatics, but these may equally have arrived via faeces, whether human or of livestock. A single honeybee (*Apis mellifera* L.) 'pollen basket' is another fragment which may have arrived via faeces, having been eaten with poorly filtered honey or honeycomb. It is desirable to analyse the invertebrates from a larger subsample of this material both for site interpretation and for future synthesis.

The vertebrate assemblage included three unidentified fragments likely to have belonged to small birds and fish, and two immature vertebrae most closely resembling amphibian bones. Eel vertebrae and two murid upper incisors, small enough to have belonged to a house mouse (*Mus domesticus* Ruddy), were also identified.

Context 2069 [Deposit cut by pits 2028 and 2066. No pottery spot date available]

Sample 30/T (1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash')

The microfossil 'squash' was approximately half organic detritus and half inorganic material. Five *Ascaris* eggs and one *Trichuris* were seen. A few phytoliths were also noted.

The moderate-sized residue of about 250 cm³ included about 150 cm³ of sand and gravel. The coarser fraction was mostly well preserved wood chips (to 30 mm) with a little strawy debris (and some small clumps of greenish undisaggregated fine organic debris, though this material could not be identified further). Seeds were well preserved and quite frequent, and were consistent with the presence of straw and hay, perhaps together indicating the presence of stable manure.

The flot included a fairly small and ecologically mixed group of insect remains and quite large numbers of mites. Preservation was good (E 1.5-2.0, mode 2.0 weak; F 1.5-2.5, mode 2.0 weak). On balance, foul conditions were probably indicated, and remains brought with fodder and water may have been included. A larger subsample would produce a diagnostic group, and detailed analysis is required to clarify the nature and origin of the material, and to provide information for synthesis.

This sample contained twelve well preserved but unidentified mammal fragments, one of which was calcined, another singed, and a third with cut marks.

Hand-collected vertebrate remains

Vertebrate material was recovered from two trenches and amounted to three boxes (each box approximately 40 litres) of bone. Seventeen contexts from Trench 1 yielded a small bone assemblage of 180 fragments dating from the 10th to the 16th century (see Table 2). Trench 2 contained 35 bone bearing contexts amounting to 1350 fragments, all of which could be dated to the 10th-12th centuries (see Table 3). With the exception of the small Context 1039, preservation and angularity of the bone was consistently recorded as 'good' and 'spiky' for both trenches, and colour in many cases was fawn or beige, occasionally ginger or brown. Butchery was evident at high frequencies in most contexts, being particularly noticeable on rib, vertebrae and cattle fragments. Dog gnawing and burning was not particularly common, affecting the odd bone rather than whole contexts. The small amount of gnawing suggests that these bones were deposited shortly after consumption. The low frequency of fresh breakages

partly reflects the good preservation and the curation of the bone. As the trenches were so close together, and showed little differentiation between each other, it was decided to examine the material by period rather than by trench. Two periods were defined, 10th-12th century and 13th-16th century.

Period 1: 10th-12th century

Forty-seven contexts yielded bone assemblages ranging in size from 1 to 294 fragments, and weighing over 28 kg in total; the majority could be closely dated to the 11th and 12th centuries (see Table 4). About a third of fragments were identified to species, and included 17 mandibles and 104 measurable bones. All of the three main domesticates were represented, but cattle were predominant both in terms of weight and number of fragments. Cat was the most frequent of the minor domesticates, with a total of fifteen fragments from ten contexts, including three mandibles, none of which bore marks characteristic of skinning. It is probable that the most of the dog remains from Contexts 2013 and 2016 originate from the same individual. Single horse bones were recovered from Contexts 2051 and 2059. The metacarpal from the latter context had been symmetrically butchered at the distal end. Such a form of butchery is unlikely to have aided the dismemberment of the limb, and may instead related to tool or artefact manufacture.

There was no other evidence of worked bone, but there were three pieces of worked deer antler, one each from Contexts 2041, 2059 and 2033. The first two could be definitively identified as red deer (*Cervus elaphus* (L.)), that from 2041 originating from a particularly large individual. This latter piece was also very worn suggesting that it had perhaps been curated for some time before deposition, or, that it may have been used as a tool. It is possible that antlers rather than whole carcasses were traded for working, as suggested by O' Connor (1991, 259) for Anglian and early Norman Fishergate, York. In addition, there was a complete red deer calcaneum and a radius fragment, and a roe deer (*Capreolus capreolus* (L.)) distal radius, again similar to Fishergate. It is likely that these bones derived from meat-bearing joints of wild individuals imported into the city.

Four species of bird were identified, the majority of bones belonging to chicken and goose. The latter were of similar size to wild grey geese (*Anser* sp.), but it is possible that they were small domesticates. There were three wing bones of raven (*Corvus corax* (L.)), which is likely to have been a scavenger, and the same may be true of the single buzzard (*Buteo* sp.) tarsometatarsus from Context 2011. Fish remains were also recovered, with several bones of large

gadids, mainly vertebrae, but including a cleithrum most closely resembling that of a very large cod. There were not enough fragments to determine whether the bones originated from processed and preserved stockfish.

Although material derived from a number of feature types, there were no apparent concentrations or correlations between certain elements and particular features and contexts. Thus elements considered to be indicative of industrial activities, such as horn cores and metapodials, were no more frequent in pits than in surface deposits, and there was no real disparity in the proportion of elements of the head and distal limb when compared with those considered to bear more meat. Considering the small size of the majority of the contexts, this is unsurprising. In addition, the distinction between meat and waste is likely to be determined by the social status of the consumer. The presence of worked antler has already been noted, and most of the five cattle horncores and the single unusually large sheep horncore (from Context 2073) had been butchered, but whether this was to separate them for hornworking is impossible to determine. Only Context 2059 seemed to have contained large proportions of primary butchery waste, and the same was true to a lesser degree of material from Contexts 2058, 2067 and 2073. It is difficult to attribute much validity to this observation as the fragment counts are relatively small, but all four contexts are assigned to occupation deposits of the 11th century, and bones from Contexts 2059 and 2073 are more heavily butchered than most others. It is interesting that five of the eight horncore and antler fragments originated from these two contexts, but this may partly be due to the fact that these were among the largest assemblages.

Period 2: 13th-16th centuries

There was only a limited assemblage from this period, represented by three small contexts, all of which were from Trench 1 (see Table 5). There were only 51 fragments, of which 23 could be identified to species and included eight measurable bones and two mandibles. Preservation and angularity in each case was described as 'good' and 'spiky', while colour varied between, rather than within, contexts from brown to fawn to beige. With so few fragments it is impossible to assign much meaning to the assemblage. Cattle, caprovid and pig were all present, the latter being proportionately less well represented than in the previous phase. There were single goose, cat and dog bones, and the only definitely wild animal was hare (*Lepus* sp.), again represented by a single bone. Of particular interest were the single sheep and goat horncores bearing butchery marks from Context 1020, dated to the 14th-15th centuries,

which could reflect some form of industrial activity. A single large mammal rib fragment, also from Context 1020, bore a periostitic reaction on the internal surface. It is possible that such a reaction may have resulted from infection of soft tissues such as the pleural membrane, and may as such be concomitant with some form of tubercular infection (Charlotte Roberts, pers. comm.).

Discussion and statement of potential

Assessment of the samples from this site show that it is of great importance as a rare representative of the early post-Conquest period with superb preservation of organic remains. Assuming the artefactual dates are correct, it appears to sit in the period immediately after the Conquest, but before Norman social organisation had led to the arrival of abundant grain pests (which is postulated to be a result of centralised storage, although mass importation may have been involved). The Spurriergate site thus provides a superb opportunity to examine continuity across the Conquest period, especially when combined with information from nearby sites. The presence in the insect assemblages of moderate numbers of the spider beetle *Tipnus unicolor* is perhaps significant: this species was very rare in (perhaps absent from) Anglo-Scandinavian York, but common in the later medieval. Here perhaps we are seeing the beginning of its very poorly understood increase, which may have considerable historical significance, perhaps in relation to building type or trade.

Plant remains were usually well or very well preserved in the samples examined (although not as good as the best of the material from 4-7 Parliament Street, Hall and Kenward 2000). By extension it is likely that preservation was equally good in all the deposits sampled. Some clearly indicate the presence of faecal material, perhaps both human and from livestock, while others appear to contain domestic floor sweepings. The deposits therefore have a very high

potential for further study to investigate environment and living conditions at this site. If the dating is early post-Conquest—and the lack of dyeplants and regular occurrence of corn marigold, *Chrysanthemum segetum* L., suggests this may be the case—the material is of great importance within the city in terms of addressing any changes taking place immediately after the Norman conquest.

Insect remains were excellently preserved in the main (though, again, on average not quite as well as the best of the material from 4-7 Parliament Street), and of great importance both as a source of information concerning conditions in a rather poorly known period of York's history, and in an area which, though close to Coppergate and other sites, has special interest as standing near the top of a slope which originally led to a likely area for boat moorings. It is very strongly recommended that these samples should be studied in detail (as recommended above) and that the remaining samples from the site should be assessed and a substantial number selected for analysis so as to provide data on a scale suitable for statistical analysis.

Some of the deposits showed sufficiently good preservation of *Trichuris* eggs to allow measurement of these remains—this may allow a statistical determination to species level and thus identify the source of the faecal content of the deposits.

Deposits from Spurriergate produced a small assemblage of bone, although the bulk was tightly dated to the 11th-12th centuries. Preservation of bone, with one small exception, was uniformly good for both trenches and all periods. There were one or two fragments that were more rounded within 'spiky'-boned contexts, including the deer antler fragment from Context 2041, and the large sheep horncore from Context 2073. Dog gnawing was present but was not extensive. It seems likely that most bones were fairly quickly incorporated into the

deposits and that little reworking of the material occurred.

Most of the deposits producing bone were pitfills, occupation layers and dumps associated with ‘backyard’ activities. Although the worked antler implies that some craft working may have been conducted in the vicinity, there was little evidence to suggest concentrated industrial activity during the 10th-12th centuries. It is possible that some hornworking was carried out in the 14th-15th centuries, which is roughly analogous to the large concentrations of goat horncores from 14th century deposits from Petergate (Ryder, 1970), but the evidence as yet too limited to draw any conclusions. Most of the bones appeared to represent domestic household or kitchen refuse, with a not insignificant component of primary butchery waste, which may have as much to do with the status of the occupant as with commercial activity. However, the presence of red and roe deer bones, often associated with high status sport and consumption, conflicts with such a view, unless they had been culled and imported into the city under licence, or had been acquired from the woodlands surrounding the city. Again, the hare from the later phase deposits may be indicative of hunting and status, but by this time the forest law had largely become redundant (Stenton 1965). There is much evidence to suggest that wild birds were caught for market sale (e.g. in the 13th-14th century at Launceston Castle, Cornwall, Albarella and Davies 1996) and the same may have been true of hares.

Small numbers of fish bones were recovered from this site, all dating to the 11th-12th centuries and mainly from Trench 2. An assemblage characteristic of medieval sites, including York (Bond and O’Connor 1999), it contained the remains of large gadids (with at least some cod), herring and eel.

Small vertebrate remains were represented by amphibians, most likely to have occupied damp, shady areas of the yard, and by house

mouse, which would probably have been commensal within the tenement.

Recommendations

The material recovered to date is a valuable source of information concerning this part of York and this critical early post-Conquest period in its own right and should certainly be studied more closely, regardless of whether more material will become available in due course. Studies of plant and insect macrofossils, parasite eggs and vertebrate remains should all be undertaken both on larger samples of the material studied in this exercise and on the 22 samples not examined (all of which exhibited good waterlogged preservation when inspected in the laboratory).

It is clear that the deposits show potential for producing a well-preserved and tightly-dated vertebrate assemblage, including domestic, wild, avian and fish components from a particularly interesting period in the history of York. Together with information from other sites in York, the current material could provide important data for comparison and synthesis. A basic archive should be made of the well-dated material from the present assemblage, which should include biometrical and age-at-death data.

Any future excavation at this site should be accompanied by an extensive programme of sampling and bioarchaeological analysis; the deposits should not on any account be damaged, or put at risk by development—e.g. by lowering of the water-table or ingress of reactive substances—without proper excavation and sampling.

Retention and disposal

All of the current material should be retained and stored in such a manner that decay is minimised.

Archive

All material is currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

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References

- Albarella, U. and Davis, S. J. M. (1996). Mammals and birds from Launceston Castle, Cornwall: decline in status and the rise of agriculture. *Circaea, The Journal of the Association for Environmental Archaeology* **12**(1), 1-156.
- Bond, J.M. and O'Connor, T.P. (1999). Bones from Medieval deposits at 16-22 Coppergate and other sites in York. *The Archaeology of York* **15** (5), 299-429, plates. XVI-XIX. London: Council for British Archaeology.
- Carrott, J. and Kenward, H. (in press). Species associations among insect remains from urban archaeological deposits and their significance in reconstructing the past human environment. *Journal of Archaeological Science*.
- Dainton, M. (1992). A quick semi-quantitative method for recording nematode gut parasite eggs from archaeological deposits. *Circaea* **9**, 58-63.
- Dobney, K., Hall, A. R., Kenward, H. K. and Milles, A. (1992). A working classification of sample types for environmental archaeology. *Circaea, the Journal of the Association for Environmental Archaeology* **9** (for 1991), 24-6.
- Hall, A. and Kenward, H. (2000). Technical Report: Plant and invertebrate remains from Anglo-Scandinavian deposits at 4-7 Parliament Street (Littlewoods Store), York (site code 99.946). *Reports from the Environmental Archaeology Unit, York* **2000/22**, 31 pp.
- Kenward, H. and Large, F. (1998). Recording the preservational condition of archaeological insect fossils. *Environmental Archaeology* **2**, 49-60.
- 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., & Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3**, 163-172.
- O'Connor, T. P. (1991). Bones from 46-54 Fishergate. *The Archaeology of York* **15** (4), 209-298, plates. XII-XV. London: Council for British Archaeology.
- Ryder, M. L. (1970). The animal remains from Petergate, York. *Yorkshire Archaeological Journal* **42**, 418 - 428
- Stenton, D.M. (1965). *English Society in the Early Middle Ages* (4th ed.) London: Pelican

Table 1. Land to the rear of 7-15 Spurriergate, York. List of examined sediment samples, with notes on their treatment.

Context	Sample	Notes
1026	7	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
1035	12	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
1040	18	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
1043	22	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
2004	10	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
2015	4	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
2034	19	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
2046	25	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'
2069	30	1 kg sieved to 300 microns with paraffin flotation and microfossil 'squash'

Table 2. Land to the rear of 7-15 Spurriergate, York. Summary of vertebrate remains from Trench 1, including the number of mandibles with teeth in situ, the number of measurable fragments and the total number of fragments by date.

Date	No. contexts	No. mandibles	No. measurable	No. fragments
10-11 th	1	0	2	8
11 th	8	1	8	55
M-L 11 th	2	0	7	23
11-12 th	1	1	1	15
12 th	2	0	6	28
13-14 th	1	1	1	5
14-15 th	1	1	7	43
15-16 th	1	1	0	3

Table 3. Land to the rear of 7-15 Spurriergate, York. Summary of vertebrate remains from Trench 2, including the number of mandibles with teeth in situ, the number of measurable fragments and the total number of fragments by date.

Date	No. contexts	No. mandibles	No. measurable	No. fragments
10-11 th	3	0	3	20
10-12 th	5	0	3	35
11 th	9	12	37	635
M-L 11 th	8	1	8	292
L 11 th	2	0	0	7
11-12 th	1	0	1	54
L 11-12 th	7	2	28	307

Table 4. Land to the rear of 7-15 Spurriergate, York. Vertebrate remains from 10th-12th century deposits. Key: No. meas. = number of measurable fragments; No. mands. = number of mandibles with teeth; No. teeth = number of isolated teeth of use for providing ageing or sexing information; No. frags. = number of fragments recorded.

Taxon		No. meas.	No. mands.	No. teeth	No. frags.	Weight (g)
<i>Canis f. domestic</i>	dog	-	-	-	10	208
<i>Felis f. domestic</i>	cat	-	3	-	15	33.5
<i>Equus f. domestic</i>	horse	1	-	-	2	154
<i>Sus f. domestic</i>	pig	9	-	-	67	1206
<i>Cervus elaphus L.</i>	red deer	1	-	-	4	209
<i>Capreolus capreolus (L.)</i>	roe deer	-	-	-	1	10.5
Cervid	deer	-	-	-	1	7
<i>Bos f. domestic</i>	cattle	37	4	7	223	11763
Caprovid	sheep/goat	24	5	2	73	1590.5
<i>Anser sp.</i>	goose	5	-	-	14	69.5
<i>Gallus f. domestic</i>	chicken	15	-	-	29	63.5
<i>Buteo sp.</i>	?buzzard	-	-	-	1	1
<i>Corvus corax</i>	raven	-	-	-	3	6.5
Bird		-	-	-	12	41.1
<i>Gadus sp.</i>	gadid	-	-	-	9	46
Fish		-	-	-	7	7.1
Subtotal		92	12	9	471	15416.2
Large mammal		-	-	-	71	2191.5
Medium mammal 1		-	-	-	58	353
Medium mammal 2		-	5	1	14	57.5
Unidentified		-	-	-	864	10069.3
Subtotal		-	5	1	1007	12671.3
Total		92	17	10	1478	28090.7

Table 5. Land to the rear of 7-15 Spurriergate, York. Vertebrate remains from 13th-16th century deposits. Key: No. meas. = number of measurable fragments; No. mands. = number of mandibles with teeth; No. teeth = number of isolated teeth of use for providing ageing or sexing information; No. frags. = number of fragments recorded.

Taxon		No. meas.	No. mands.	No. teeth	No. frags.	Weight (g)
<i>Lepus</i> sp.	hare	-	-	-	1	2
<i>Canis</i> f. domestic	dog	-	-	-	1	9
<i>Felis</i> f. domestic	cat	-	-	-	1	6.5
<i>Sus</i> f. domestic	pig	-	1	-	2	45
<i>Bos</i> f. domestic	cattle	4	-	1	10	607
Caprovid	sheep/goat	-	2	-	5	138
<i>Capra</i> f. domestic	goat	1	-	-	1	46
<i>Ovis</i> f. domestic	sheep	2	-	-	2	87
<i>Anser</i> sp.	goose	1	-	-	1	2
Subtotal		8	3	1	24	942.5
Medium mammal 1		-	-	-	3	51
Large mammal		-	-	-	4	225
Unidentified		-	-	-	20	349
Subtotal		-	-	-	27	625
Total		8	3	1	51	1567.5