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Assessment of samples for biological analysis and of bone from excavations at the Queen's Hotel site, York (sitecode 1988-9.17)

by

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Introduction

The deposits at the Queen's Hotel site, on the corner of Skeldergate and Bridge Street, York, were excavated under less than ideal circumstances; most of the stratigraphy was recorded in the shadow of contractors' equipment and it is very much to the credit of the archaeologists that as many as 916 'biological' samples of various kinds were recovered and that, in addition, a moderate of bone was hand-collected. Deposits spanned the period mid 2nd to 20th centuries, the most archaeologically significant layers being those of 2nd-11th century date (with good preservation of organic remains in the Anglo-Scandinavian levels and an important corpus of bone from Anglian deposits). Most of the Roman deposits appeared to have very little evidence of animal and plant remains.

The 916 samples taken can be categorised as follows:

(i) 495 were GBAs (raw sediment up to about 10 kg); 449 contexts were represented;

(ii) 250 were bulk-sieved (BS) to 1 mm (at the time of writing, a large proportion have been sorted for artefactual and biological materials, but some remains to be rinsed and dried and then sorted); 199 contexts represented;

(iii) 59 were 'site-riddled' (SR) to *c.* 10 mm, the bone having been removed and associated (but not mixed) with a small amount of hand-collected; 57 contexts represented.

(iv) In addition there were 90 'Spot' samples and a further 22 which did not fall into one of these categories.

The number of contexts sampled by means of at least one GBA, BS or SRS sample was 467.

Seven boxes of hand-collected shell also exist; these are presumably mainly marine molluscs, principally *Ostrea*.

There are, additionally, 50 boxes of bone from SR samples and hand-collection, each of approx. 25 l capacity, in store. There is likely to be a substantial amount of further bone in the BS residues.

Assessment strategy

GBA samples

The choice of General Biological Analysis (GBA) samples for assessment was made by Dr T. P. O'Connor in 1990, by requesting YAT to supply samples at random to represent contexts for which he had described the residues from the BS samples as (a) 'organic' or (b) 'inorganic with bones and/or grain'. Additional requests were made for samples from a small number of specific contexts. This was done with the good intention of obtaining parallel data for BS and GBA samples, but as a result some potentially important contexts for which only a GBA sample exists have not been examined. These are discussed below.

For the assessment of GBA samples, twenty-five from 24 contexts were examined in the laboratory. Of the 25 samples examined (representing 24 contexts), it transpires that five are from contexts in Area 1, the stratigraphy for which is not to be phased, since the deposits were largely excavated by machine. The remaining samples represent a reasonable coverage of the chronological sequence but only a very poor spread of feature type and spatial distribution. This is primarily a result of choosing samples on the basis of their lithology rather than archaeology. It should be remembered that an archaeological narrative has only become available in the early part of 1993, long after the practical work for this assessment was initiated.

The numbers of samples and contexts for GBA samples are shown in Appendix Table 1 and the archaeological sequence is summarised in Appendix Table 4.

BS samples

An assessment of the BS residues was made by O'Connor (1990a), who examined all the residues in the tubs in which they were stored. Numbers of samples and contexts for BS samples are shown in Appendix Table 2.

SR samples

Only bone, and perhaps some large shell has been collected during processing of these samples on site (see above), the residues having been discarded at that time. The bone was assessed by O'Connor (1990b). The numbers of samples and contexts for SR samples are shown in Appendix Table 3.

GBA samples

Methods

A description of the matrix and records of obvious inclusions was made in the laboratory, and a 1 kg 'test' subsample processed from each, using methods described by Kenward *et al.* (1980), as modified by Kenward *et al.* (1985).

For the assessment of insect remains, flot sizes were noted, since the amount of flot has important implications for the time required for sorting and recording. The accounts of the insect assemblages are based on 'assessment recording' (*sensu* Kenward 1992) and are thus largely subjective as to interpretation. Priority has been assigned on the basis of the value of each sample in archaeological interpretation of the context from which it came *and/or* in obtaining a more general view of the site and period.

Plant remains from the GBA subsamples were recorded principally from the residues, which had been stored wet since processing in 1990 in sealed polyethylene bags (apparently without any deterioration). Where there was a large organic content, these residues were resieved to 4, 2 and 0.3 mm and a small amount of each fraction examined quickly under the microscope; samples with a small organic content or where no organic material was discerned, were treated by the 'washover' technique and the light fraction checked without further sieving. The dense fraction left behind was examined after draining but before being dried. After checking, residues with more than a trace of organic material were returned to sealed polyethylene bags with an excess of water, and the remainder were dried in an oven.

Results

The samples are considered in order of phase, area and context group. The phases used here are based on a site sequence provided by the excavator but are not numbers that can be related to the Level II report; for this, context groups and series (also given) should be used. Context types provided by the excavator are given in brackets after the context number.

Phase 2: Early Roman organic dumped deposits; drainage ditch cutting natural; mid C2

Context 5201 [Context group 5.2; dump/build-up]

Sample 917 (/T)

Insects - The flot, of modest size, consisted mostly of fibrous plant fragments. There were some insect remains, including *Oryzaephilus ?surinamensis*, *Sitophilus granarius*, *?Alphitobius* sp., *Tipnus unicolor* and *Aphodius contaminatus*. There was also a variety of decomposers and some outdoor forms. The material was of sufficient interest to warrant processing a larger subsample if the archaeological definition can be made more precise; if this is done, high priority.

Plants - About half the residue consisted of wood fragments and fine organic detritus, the rest sand with some bone and brick/tile. There were strawy fragments and some cotton-grass stem/rhizome, ?heather twig, bracken, heath grass, and knapweed involucres, suggestive of turf, straw or hay. High priority.

Phase 3: Late C2 to early/mid C3 activity; ephemeral timber structures over Phase 2 dumps; dumping/levelling in advance of construction

Context 4143 [Context group 4.2; occupation/build up]

Sample 591 (/T)

Insects - The flot was tiny and contained almost no organic matter. Low priority.

Plants - The residue was mostly of sand and gravel, with a little mortar/plaster and bone; a large fragment of wholly unabraded Samian pottery was also present. There was no plant material other than a little charcoal. Low priority.

Context 4144 [Context group 4.2; ?occupation deposit]

Sample 592 (/T)

Insects - The material was effectively barren. Low priority.

Plants - A very small washover of charcoal to 10 mm was obtained from this residue of sand with a little brick/tile; there were quite a lot of angular oolitic limestone fragments. Low priority.

Context 4146 [Context group 4.2; ?]

Sample 595 (/T)

Insects - The tiny flot contained no recognisable insect remains. Low priority.

Plants - This residue was essentially of sand and gravel with a little bone, mortar/plaster and pottery; a trace of charcoal included what may be a charred bud of ash (*Fraxinus*). Low priority.

Context 5192 [Context group 5.4; levelling/dump]

Sample 889 (/T)

Insects - The small flot included a modest number of insects remains. There were assorted decomposers and some grain pests (*Oryzaephilus ?surinamensis* and *Sitophilus granarius*). Medium priority if archaeological information can be made more precise.

Plants - Sand and gravel made up the greater part of this residue, with some very decayed wood in the modest washover; the presence of a few waterlogged wheat glume bases makes this sample of somewhat higher priority than it would otherwise have been, for these remains are rare in archaeological deposits and need careful examination. Medium priority.

Context 5166 [Context group 5.7; levelling]

Sample 801 (/T)

Insects - The trace flot contained a very small number of insects; their preservation was such that it appears likely that input was low rather than remains having rotted away completely. Medium priority.

Plants - This residue of gravel and sand gave a small washover of charcoal to 20 mm, with several plump charred wheat grains. Medium priority if the concentration of grains makes further analysis worthwhile (a BS sample from this context has been processed and should be examined).

Context 5167 [Context group 5.7; backfill]

Sample 805 (/T)

Insects - The tiny flot contained only traces of insect cuticle. Low priority.

Plants - Although mostly of stone, gravel and sand, there was a small washover of charcoal to 20 mm, with several charred wheat and ?barley grains and a little bone. Low priority, though the three BS samples from this context could be checked for charred cereals.

Context 5189 [Context group 5.7; dump/backfill]

Sample 878 (/T)

Insects - The small flot contained some insect remains (perhaps ten individuals), including *Ochthebius* sp. and *Sitophilus granarius*. Low priority unless archaeological information can be made more specific, when a subsample of at least 3 kg would perhaps provide an interpretable assemblage and medium priority would be assigned.

Plants - The residue consisted mostly of sand, with a modest amount of very decayed wood and a few plant macrofossils suggestive of the presence of cut grassland vegetation. Medium priority; as for the insects, the processing of a larger subsample might be useful.

Phase 7: C4-C9; C4th demolition and infil of 2nd stone Roman building; grey inorganic build-up and/or dumped deposits; post-Roman activity, structures, burials

Context 3109 [Context group 3.7; pit back-fill]

Sample 353 (/T)

Insects - The small flot contained a small number of reddened (poorly-preserved) insects. Low priority but some material of this type should be surveyed rapidly.

Plants - The washover from this residue was small with a little very decayed wood, and a trace of charcoal. For the most part, the residue consisted of gravel, sand and mortar/plaster. Low priority.

Context 5093 [Context group 5.12; post-hole fill]

Sample 661 (/T)

Insects - The flot was tiny, and almost barren of arthropod remains. Low priority.

Plants - A small washover of angular charcoal and very decayed wood to 15 mm included a few seeds of elderberry, blackberry and some weed taxa. For the most part, however, the residue comprised stones (irregular oolitic limestone to 30 mm), gravel and sand with some mortar/plaster. Low priority, especially in view of the nature of the context.

Context 7041 [Context group 7.7; demolition deposit]

Sample 732 (/T)

Insects - The tiny flot contained traces of pale insect cuticle, but consisted mainly of sand grains. Low priority.

Plants - The residue consisted mostly of mortar and brick/tile with a little bone and pot; there was a trace of charcoal and some ?modern roots. Low priority.

Context 7027 [Context group 7.8; dump/levelling/pit/trench fill?]

Sample 709 (/T)

Insects - The tiny flot contained traces of organic matter and a small number of seeds, but only traces of insect cuticle. Low priority.

Plants - Much of the residue comprised fragments of oolitic limestone, and there was a small washover of charcoal and very decayed wood, with some elderberry seeds and a few charred cereals; medium to low priority (low, especially in view of the uncertain archaeological context).

Context 7048 [Context group 7.8; ?fill]

Sample 719 (/T)

Insects - There were only traces of insect cuticle in the very small flot. Low priority.

Plants - A large proportion of the residue was made up by part of a cow proximal humerus and two cow phalanges; the rest was sand and gravel with some oolitic limestone and traces of mortar.

Phase 8: C9-10; early Anglo-Scandinavian structures, etc.

Context 3040 [Context group 3.12; layer, ?floor]

Sample 242 (/T)

Insects - The flot was very small; there were some insect remains, regarded as deserving recording (little time would be required) but subjectively nondescript. Medium priority.

Plants - There was a modest-sized washover of very decayed wood fragments (including chips), mostly <2 mm, with sand making up the rest of the material. Low priority.

Phase 8/9: C9-11; Anglo-Scandinavian structures, etc.

Context 7003 [Context group 7.11; dump]

Sample 665 (/T)

Insects - The flot contained traces of organic matter including poorly preserved insects which, however, had no obvious implications. Low priority.

Plants - There was a small washover of angular charcoal and very decayed wood fragments, with a trace of charred barley grain, but few other identifiable plant remains; the remainder was sand and gravel with some mortar/plaster and a little bone. Low priority.

Phase 9: Anglo-Scandinavian structures, etc.

Context 4016 [Context group 4.9; pit fill]

Sample 269 (/T)

Insects - The flot was quite large but contained abundant insect fragments. Fly puparia were numerous and spiracular processes of Syrphidae immatures were noted. There was a single *?Melophagus ovinus* (sheep ked) adult. The abundant, very well preserved, beetles included numerous *Anobium punctatum*, but apart from this there were only hints of 'house fauna'. The assemblage consisted predominantly of decomposers of assorted ecological affinities. There were some outdoor taxa. High priority.

Plants - About half the residue was wood in the >4 mm fraction, including several chunks of ?wattle/wicker and quite a few chips. Most notable, however, were the abundant hemp

(*Cannabis sativa*) achenes, which were present along with a rich diversity of other plant remains, mainly weeds and possible grassland taxa. There was also a little 'bran' and dyer's greenweed stem. High priority.

Context 4020 [Context group 4.9; pit fill]

Sample 272 (/T)

Insects - The flot was quite large and consisted mostly of arthropod remains, with abundant beetles and fly puparia and some syrphid spiracular processes. Preservation was very good. There were several individuals each of *Philonthus* sp(?p). and *Anobium punctatum*, and some *Monotoma* sp. The group may have represented material from within a building, colonised by some decomposers of rather foul conditions once deposited in the pit; alternatively this may have been a loose-textured fill of plant debris. Specimens of *Leperisinus varius* and *?Dorytomus* sp. were noted. This was a somewhat unusual group. High priority.

Plants - Almost all the residue was wood, much of it in the >4 mm fraction and including some chips, with some twig fragments and bark. There were fragments of ?straw, and an unusual mixture of macrofossils including hemp, linseed, bracken, and rather frequent rose seeds. 'Bran' was present, as were sloes, apple pips and 'core', corncockle seed fragments, some moss and dyer's greenweed stem. High priority.

Context 4068 [Context group 4.9; pit fill]

Sample 368 (/T)

Insects - The flot was rather large and included abundant fly puparia and other insect remains. The beetle assemblage may have included 'house fauna' but consisted principally of generalist 'compost' taxa. There were some lice, including a male *Pediculus humanus*. High priority.

Plants - There was a modest amount of wood in the >4 mm fraction, including some chips. Food was quite abundant (especially 'bran', with apple pips and 'core') and some very well preserved seeds and fruits of a variety of other plants, notably teasel (probably fullers' teasel, *Dipsacus sativus*), hemp, summer savory, celery seed and blackberry. Dyer's greenweed was again present. High priority.

Context 6018 [Context group 6.17; ?hearth]

Sample 681 (/T)

Insects - The tiny flot contained traces of organic matter and a single, suspiciously well-preserved, *Meligethes* sp. pronotum. Low priority.

Plants - The small washover from this residue of sand and gravel was mostly fine charcoal; low priority.

Area 1 (unphased, but all deposits Anglo-Scandinavian (C10/11) or later) (Priorities are assigned on the assumption that contexts can be dated reasonably closely.)

Context 1159 [Pit fill]

Sample 209 (/T)

Insects - The flot was quite large and consisted mainly of fine plant debris. Insects, especially beetles, were abundant. There were some *Aglenus brunneus*, but a clear 'house fauna' group was lacking. The decomposers were mainly generalists. Preservation was excellent. Fly puparia were fairly numerous, and there were syrphid spiracular processes. Some *Damalinia* lice were recorded. High priority.

Plants - The residue was almost wholly of organic matter, mainly very decayed wood fragments in all fractions. There were a few concretions rich in organic matter (perhaps from herbivore dung rather than human faeces) and an abundance of very fragmentary strawy plant debris. The identifiable plant macrofossils were mostly weeds of various kinds with a small component of wetland taxa. High priority.

Context 1204 [Fill of barrel well]

Sample 149 (/T)

Insects - The flot, of medium size, was rich in insect remains. Preservation was very good. Decomposers were abundant, being dominated by generalists of the type found in 'compost'. There were hints of a 'house fauna' group. 'Outdoor' forms were apparently rare, only a single *Apion* sp. being recorded. Non-beetles included fly puparia, Syrphidae spiracular processes and a singe ?louse. High priority.

Plants - The residue was rich in decayed wood fragments, including some chips, with a little evidence for foodplants (apple 'core', sloe, hazelnut, raspberry, wheat/rye 'bran'), with traces of linseed and flax capsule fragments and dyer's greenweed stem fragments. High priority.

Sample 153 (/T)

Insects - The flot was rather large and contained abundant insect remains. Beetles were quite numerous and well preserved. As in sample 149, most of the remains were of decomposer species, predominantly generalists but with hints of 'house fauna'. There were moderate numbers of very well preserved beetle larvae, including *?Hister* sp. and *?Melanotus erythropus*. These clearly deserve further study. High priority.

Plants - This residue was rich in wood fragments, including chips, with some large fragments of moss (*Neckera complanata*) and some foodplants (linseed, apple 'core', sloes, blackberry) and remains of probable animal foods (fish bone, eggshell). High priority.

Context 1226 [Pit fill]

Sample 171

Insects - The flot was quite large and contained numerous insects and other invertebrates, but the assemblage consisted mostly of immatures of nematoceran Diptera. Beetles were moderately abundant and well preserved. They included foul and generalist decomposers, with hints of 'house fauna'. Lice were recorded: *?Damalinia* sp . and *?Pediculus humanus*. The material deserves further investigation. High priority.

Plants - The bulk of the residue consisted of decayed wood fragments, especially in the >4 mm and <2 mm fractions. There were also some foodplants (apple 'core', bran, the latter in some quantity). High priority.

Context 1261 [Pit fill in 1258]

Sample 235 (/T)

Insects - The quite large flot included abundant fine fragments of woody plant tissue and numerous excellently-preserved insects and some other arthropods. An adult sheep ked, *Melophagus ovinus*, and some beetle larvae were noted. The latter included some large, characteristic, head capsule fragments requiring investigation. The adult beetles were varied as to origins, but included several *Aphodius granarius*, some other *Aphodius* remains, at least four *Trox scaber*, several *Acritus nigricornis* and some taxa not regularly encountered in urban deposits. Some flea abdominal segments were present, and some lice were observed (*Damalinia ?bovis* and *Pediculus humanus*). High priority.

Plants - Wood fragments, including chips, made up the bulk of the residue, especially the >4 mm fraction. There were some linseed and flax capsule fragments and some ?straw fragments, as well as traces of concretions, probably faecal in origin. There was virtually no inorganic material in this residue. High priority.

Context 1296 [Build-up ?inside or outside]

Sample 342 (/T)

Insects - Insects were not very numerous. There was a flea body segment and a *?Melophagus ovinus* adult. The remains may have been deposited on a floor or represent strays or scatter from a building. It is possible that processing a larger subsample (perhaps 3 kg) would provide sufficient insects for interpretation. High priority if archaeological question remains important or deposition on a floor is established.

Plants - The residue here was rather unusual in being a mixture of wood fragments (including chips), charcoal and grey 'mortary' material, with rather frequent linseeds. Medium priority.

Discussion

The method adopted for choosing samples for assessment, although intended to provide a good cover of the range of preservation at the site, had two disadvantages. Firstly, a proportion of the material examined came from 'secondary' contexts, such as dumps and backfills. Secondly, contexts of probably interpretative significance, such as the Roman ditch fills and Anglo-Scandinavian floors, have not been assessed. There is no doubt, however, that such contexts should be examined when the main phase of post-excavation work is carried out.

There is little doubt that a selection of the samples from Queen's Hotel deserve fuller investigation for their content of plant and invertebrate remains. The following problems are addressable through them:

1. Comparison of the early Roman landscape of this site with that upstream on the banks of the Ouse, in the area of the sites at Tanner Row, Rougier Street and Wellington Row, by detailed examination of the ditch fills and associated deposits.

2. A rapid survey of the deposits associated with the stone buildings may throw light on problems of preservation and representativity of organic remains under such circumstances. The main cost here would be for processing.

3. All late-Roman/Anglian deposits require rapid survey as any information concerning the biota of these periods is likely to be of importance. As for (2), the cost would be low.

4. Anglo-Scandinavian floors and pit fills should be analysed in detail, to permit reconstruction of environment, human activity and living conditions in this part of York, and for comparison with the material from 16-22 Coppergate, on the opposite side of the River Ouse. This is the first opportunity to look at well preserved material from the area SW of the Ouse. The main cost of further analysis would lie here.

BS samples

O'Connor (1990a) recorded the general composition of the BS residues on a standard *pro-forma*, noting a distinction of four basic categories:

(i) residues described as organic: 51 samples from 30 contexts:

> These residues, often extremely rich in wood and other well-preserved plant material, mostly came from samples of the fills of pits from the Anglo-Scandinavian phases of occupation, and these will provide important comparanda for the material of similar date from 16-22 Coppergate. An important 2nd century ditch backfill

(seven samples from context 5201) appears to be the only source of well-preserved organic material from the Roman deposits; this will provide evidence for comparison with the stratified organic deposits at 24-30 Tanner Row (General Accident).

(ii) residues described as inorganic, with small bones: 23 samples from 22 contexts:

The bulk of these residues is made up of fragmented mortar and tile with little organic material and most are of sub-Roman to Anglian date. These will primarily provide information concerning the formation of the deposits and evidence for small mammals, integral to an understanding of the conditions at and near the site. Given the date of the bulk of the samples, it is imperative that a thorough investigation of the small mammal bone is undertaken to test for the presence of animals such as black rat.

(iii) residues described as inorganic, with charred grain: 20 samples from 17 contexts:

Although a number of the inorganic 'gravelly' residues contained flecks of charcoal, about 20 contained an appreciable amount of charred grain, half of these being from Area 5. The condition of the grains seen in these residues suggests that at least some may be from primary deposits, but a check for residuality of, for example, pottery, in these contexts should be made before large amounts of time are expended on detailed analysis.

(iv) there were nine samples from six contexts described as being 'other important samples':

This group included a major 11th century dump (context 2040), which was from Area 2. This context also produced the largest hand-collected bone assemblage from the site, but the lack of phasing for this area calls into question the validity of carrying out detailed analysis; reference to the excavator will need to be made, but the size of the assemblage makes it of importance to provide a supplement to the main assemblage.

Also in the group there are seven residues from five contexts of Anglian date. Although superficially unproductive, they should be sorted as a priority, given their date.

Bone from SR samples and hand collection

For the hand-collected and SR bone, a paper record was made for each context group. These records noted details of the quantity and condition of the bone and the range of taxa present on a three-point semi-quantitative scale (few, some, majority). Notes were also made of any particularly unusual or informative specimens. Taxa such as fish, wild birds and small mammals were not necessarily fully identified unless a precise identification could be reached quickly.

Bone assemblages were examined from a total of 239 contexts; of these, only 39 appeared to consist of more than 100 fragments, most of the remainder comprising less than 10 fragments. These very small assemblages must be seen as of little research value other than as a source of mandible for age-at-death estimation or for biometrical analysis.

Preservation was variable, but was generally good. Much the best preservation was seen in assemblages from Anglo-Scandinavian deposits, where the bone fragments were recovered from anoxic, richly organic sediments, much resembling contemporaneous deposits at 16-22 Coppergate and 2nd-3rd century deposits at 24-30 Tanner Row. Underlying these richly organic deposits were layers of looser material, sometimes of 'rubbly' character, over and around the masonry walls of a substantial Roman building. Bone assemblages from these deposits were generally less well preserved, though still fairly good. There is certainly no reason to think that differential preservation could bias any comparisons of data for different deposits.

Degree of fragmentation was moderately variable. Assemblages from Anglo-Scandinavian and later deposits typically showed a modal fragment size in the range 70-100 mm, whilst in assemblages from the earlier deposits most fragments fell into the range 50-70 mm. There was thus a correlation between fragment size and preservation. Few assemblages included a sufficiently high proportion of heavily abraded fragments or a marked enough variation in colour to indicate substantial residuality.

The larger bone assemblages

The records for the 39 larger groups have been classified into broad time periods on the basis of pottery spot dates and stratigraphic position.

(i) Roman, 2nd-3rd century

Contexts 5175, 5201, 7201

Dump 5175 gave a rather undistinguished assemblage, with cattle bones predominating, but including a few roe deer fragments. Ditch backfill 5201 yielded a large amount of cattle bone, most of it skull fragments, and backfill 7201 of a construction trench also produced a cattle skull. The paucity of large assemblages from Roman deposits is regrettable, but perhaps not unusual in the context of York's archaeology. The big refuse deposits of 2nd-3rd century date encountered at Tanner Row must be seen as exceptional.

(ii) Late Roman to Anglian, 4th-9th century

Contexts 6041, 6048, 6069, 6070, 6071, 6076, 6140, 6142, 7027, 7041, 7048, 7142, 7158, 7162

This group includes a great deal of material stratified between the major Roman building and Anglo-Scandinavian occupation and the contexts consisted for the most part of the rubble fill of the major Roman building, layers overlying this rubble, and dumps against the walls of the building. Some gave bone assemblages of little immediate interpretative value, but others may be significant in terms of human activity in the area. Context 7162

seems to have been a deliberate backfilling of part of the building and yielded a bone assemblage which included rodents, a small passerine bird, and a corvid. Similarly, bones of rodents and birds likely to have been scavengers were noted in 6070, 6076 and 7041, the last of which also included three human skeletons. These four contexts may represent rather unintensive occupation, if not virtual abandonment. Of the remainder, 6069 and 7142 were notable for apparently including more pig than sheep remains, and 6071 gave several bones of a felid, possibly wild cat. These post-Roman deposits are clearly of importance to the history of York as a whole.

(iii) Anglo-Scandinavian, 9th-11th century

Contexts 1071, 1197, 1204, 2040, 2043, 2051, 2062, 2070, 2091, 2103, 5007, 5064, 6034, 6089, 6098, 6116

At this preliminary stage it is not practicable to place contexts within the 9th century with sufficient accuracy to segregate Anglian from Anglo-Scandinavian with certainty. The division between this group and the last is thus somewhat indistinct. Context 1071 was defined by the base of a mechanical excavator spit and gave a well preserved assemblage which included most of a horse skull. Dump 2040 gave much the largest assemblage from the site, in an excellent state of preservation, and included a great deal of cattle skull fragments, goat horn cores and several cat skulls. Pit fill 1197 included numerous cattle metapodials and skull fragments, and a number of goat horn cores, similar to assemblages from other, albeit later, deposits along the riverside in this part of York (Wellington Row, 58-9 Skeldergate) and seem to indicate extensive butchering of cattle and collection of cattle and goat horn in this area.

Other Anglo-Scandinavian assemblages were fairly undistinguished, though the bones from well construction cut fill 2062 included a few frog bones. More importantly, none of the contexts in this group gave an assemblage resembling those described above for 6070, 7041 and 7162.

(iv) Medieval and later, post-11th century

Contexts 1025, 1066, 1182, 2009, 2015

Assemblages from medieval contexts were mostly well preserved but undistinguished, in some cases having been obtained from contexts define by the base of a mechanical excavator spit. The lack of phasing for deposits from Areas 1 and 2, from which all these contexts were recorded, means that little further work is warranted.

Conclusions

It is clear that the site has not yielded a substantial quantity of Roman material, and investigation of Roman bone assemblages should therefore be directed towards particular questions. The concentration of cattle skull fragments noted in context 5201 may represent

use of the area for disposal of butchery waste. Small vertebrates from bulk-sieved samples should be used to add to the accumulating records of rats and mice in Roman York and further specimens of garden dormouse should be sought. It seems unlikely that there is sufficient material to contribute to the investigation of sheep mortality profiles necessitated by results from Blake Street and Tanner Row, or to provide useful samples of biometrical data.

The 4th-9th century deposits are clearly fundamentally important, and all bone assemblages from these deposits should be examined, even if some of the small hand-collected groups are then rejected for detailed recording. It is important that biometrical data is collected from well-stratified groups even though numbers of measurable bones are likely to be small.

The Anglo-Scandinavian material merits examination since it provides an opportunity to make closely defined and limited comparisons with material from other York sites, especially 16-22 Coppergate. However, the amounts of bone involved are likely to be modest, except for the material from dump context 2040.

Of the 50 boxes of bone, only about half appear to qualify for recording in any detail. Work should concentrate on the 4th-9th century assemblages, and then seek particular data to answer questions pertinent to the Roman material.

Costings

For the purposes of the following costings, it is assumed that a large proportion of the GBA samples will yield few biological remains as material will be selected to represent the archaeological sequence, not necessarily those layers rich in fossils.

(i) Inspecting, describing and prioritising all well-provenanced GBA samples (*ca.* 300) for selection for processing; updating database — 2 weeks RF1

(ii) Processing selected GBA samples (*ca.* 150) — 7.5 weeks Tech.

(iii) Recording plant remains (and other components) from selected processed samples (*ca.* 100) — 6 weeks RF1

(iv) Preparing and recording squashes (*ca.* 50) for intestinal parasite eggs — 1.5 days Tech.

(v) Recording insect (and other macroscopic invertebrate) remains from selected flots (*ca.* 100) — 4 weeks RF1

(vi) Sorting selected BS residues — 11 weeks Tech.

(vii) Checking BS residues, recording components not recovered during sorting — 1 week each RF1, RF2

(viii) Identification and recording of plant remains from BS residues (detailed recording from selected samples only) 5 weeks RF1

(ix) Identification and recording of non-fish bone from BS residues (detailed recording from selected samples only) 8 weeks RF2

(x) Identification of fish bone from BS residues 3 weeks RF2

(xi) Identification of invertebrate remains from BS residues 1 day each RF1, RF2

(xii) Identification and recording of bone from SRs and hand-collected material 4 weeks RF2

(xiii) Inspection of 'spot' samples and recording of selected material 1 week each RF1, RF2

(xiv) Data analysis and writing 15 weeks RF1, 9 weeks RF2

The following gross costs may be taken as a guide for 1993/4 financial year:

RF1 (Research Fellow, Senior)	£825/week
RF2 (Research Fellow, Junior)	£600/week
Tech. (Technician)	£431/week

These figures do not include VAT. The Fellows have been given tentative permission to include this site in their work programme, but it is recommended that YAT write formally to EAU requesting official confirmation.

References

Kenward, H. K. (1992). Rapid recording of archaeological insect remains - a reconsideration. *Circaea* **9** (2), 81-8.

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.

O'Connor, T. P. (1990a). *An assessment of residues of bulk-sieved samples from the Queen's Hotel site (1988-9.17).* Archive report deposited at EAU/YAT.

O'Connor, T. P. (1990b). *An assessment of the hand-collected bones from the Queen's Hotel site (1988-9.17).* Archive report deposited at EAU/YAT.

Phase	Area	Context group(s)	No. samples (contexts)	Total no. samples (contexts)
1	5	1	5 (2)	5 (2)
2	3	1	4 (4)	
	5	2	7 (4)	11 (8)
3	3	2	12 (12)	
	4	1-4	35 (35)	
	5	3-8	45 (42)	
	7	1-3	12 (11)	104 (100)
4	3	3	4 (4)	
	4	5	2 (2)	
	6	1	2 (2)	8 (8)
4/5	7	4	22 (22)	22 (22)
5	3	4	1 (1)	1 (1)
6	6	3-5	6 (6)	
	7	5	4 (4)	10 (10)
7	3	5-8	15 (14)	
	4	6, 7	17 (16)	
	5	9-13	29 (28)	
	6	6,8,9,14, 15	18 (17)	
	7	6-10	25 (23)	104 (98)
8	3	10-14	14 (14)	
	4	8	16 (16)	
	5	14-16	8 (8)	
	6	11-13	7 (7)	
	7	11	8 (8)	53 (53)
9	3	15	1 (1)	
	4	9	19 (16)	
	5	17,18	9 (9)	
	6	17	6 (6)	35 (32)
Total				353 (335)

Table 1. Numbers of samples and contexts for GBA samples from Areas 3-7.

Phase	Area	Context group(s)	No. samples (contexts)	Total no. samples (contexts)
2	3	1	2	
	5	2	7	9 (3)
3	3	2	10	
	4	1,2,4	15	
	5	3-5,7,8	35	
	7	1-3	4	64 (55)
4	3	4	4	
	4	5	2	6 (6)
4/5	7	4	10	10 (6)
5	3	4	1	1 (1)
6	6	3,4	2	
	7	5	4	6 (4)
7	3	7	10	
	4	6,7	15	
	5	9-12	11	
	6	6,8,14	7	
	7	6-8,10	15	58 (52)
8	3	10-12,14	8	
	4	8	5	
	5	14-16	6	
	6	11,13	3	
	7	11	4	26 (26)
9	3	15	1	
	4	9	9	
	5	17,18	10	
	6	16	2	22 (18)
Total				202 (170)

Table 2. Numbers of samples and contexts for BS samples from Areas 3-7.

Phase	Area	Context group(s)	No. samples (contexts)	Total no. samples (contexts)
2	3	1	1 (1)	1 (1)
3	3	2	6 (6)	
	4	1,2,4	9 (8)	15 (14)
4	3	3	4 (4)	
	4	5	1 (1)	5 (5)
5	3	4	4 (4)	4 (4)
7	3	5-7	8 (8)	
	4	6,7	12 (12)	
	5	13	3 (2)	23 (22)
8	4	8	2 (2)	
	5	14,15	6 (6)	8 (8)
9	4	9	2 (2)	
	5	18	1 (1)	3 (3)
Total				59 (57)

Table 3. Numbers of samples and contexts for SR samples from Areas 3-5 (there were none from Areas 6 and 7).

Context groups					Approx. date and EAU Phase	Archaeological interpretation
Area 3	Area 4	Area 5	Area 6	Area 7		
3.17	4.11	5.19	6.18	7.12	post-medieval to C20 [11]	Structures (mostly machined off)
3.16					C11 to late medieval/early post-medieval [10]	Structures (mostly machined off), and various features
3.15	4.10	5.18	6.7		C10-11	Anglo-Scandinavian strucures, surfaces, fences, pits, etc.
	4.9	5.17	6.17		[9]	
3.14 3.13 3.12 3.11 3.10	4.8	5.16 5.15 5.14	6.13 6.12 6.11	7.11	C9-10 [8]	Early Anglo-Scandinavian structures, etc.
3.9 3.8	4.7				C9	Post-Roman activity/structures/burials
3.7D			6.10	7.10		
3.7C				7.9		Grey inorganic build-up
3.7B		5.13	6.15	7.8		and/or dumped deposits
3.7A		5.12	6.14			(interspersed with some
3.5	4.6	5.11 5.10 5.9	6.9 6.8 6.6	7.7		activity)
3.6				7.6	C4 [7]	Demolition and infill of 2nd stone Roman building
			6.5		C4	Radical alteration to but
			6.4	7.5		continued use of 2nd stone
			6.3		[6]	building (poss. change of use)
3.4			6.2		C3-4 [5]	Use of and alterations to 2nd stone building
3.3	4.5		6.1	7.4	mid C3 [4]	Construction of 2nd stone bldg (?bath house)
	4.4	5.8		7.3	Early/mid C3	Robbing of 1st bulding and
				7.2		levelling up for next building
	4.3	5.7		7.1		Contruction of 1st stone bldg
	4.2	5.6 5.5				Dumping/levelling deposits in advance of construction
3.2	4.1	5.4 5.3			Late C2 [3]	Activity/ephemeral timber structures (?) above dumps
		5.2			Mid C2	Early Roman organic dumped deposits; drainage ditch cutting natural
3.1					[2]	
		5.1			?late-glacial [1]	Natural subsoil

Table 4. Context groups, dating and archaeological interpretation of the sequence at Queen's Hotel (based on a scheme by Martin Brann, York Archaeological Trust).