

**Assessment of biological remains from excavations at the NCP car park,
Skeldergate, York (site code: YORYM 2003.282)**

by

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Summary

Sixty-six bulk sediment samples, five boxes of bone and one box of shell from excavations on the site of the NCP car park, Skeldergate, York were submitted for an assessment of their bioarchaeological potential. Recovered artefacts were of medieval date, from the 12th through to modern period, with some residual Roman pottery also noted.

Subsamples were processed from 24 deposits, several produced interpretatively valuable assemblages of plant and insect remains and others gave quantities of vertebrate remains (including fish and small mammal bones). These samples have substantial potential for bioarchaeological analysis, particularly those from the 12th to 13th centuries for which little evidence is currently available. Samples from Contexts 2040, 3030, 3033, 3034, 3035, 8024, 8027, 8032 and 8035 would benefit from further examination, of which Context 8027 is of particular interest as it contains a mix of charred, part-charred and uncharred remains, which have been tentatively interpreted as partly-burnt roof thatch. In some cases, the processing of additional sediment would be required to recover more substantial assemblages. All but one of the seven samples examined for the eggs of intestinal parasitic worms did contain such remains. Those from deposits in Trench H indicated the presence of a significant faecal component, whereas those from other areas of the site suggested only trace, or 'background', levels. Comparison of the trichurid eggs seen with data from modern parasites indicated that they were almost certainly of the whipworms of humans or pigs, or perhaps of both.

The small hand-collected shell assemblage was, overall, of fair preservation, predominantly recovered from early medieval deposits and dominated by oyster valves. The bulk of the shell most likely derives from human food waste, but the assemblage was rather too small to be of any great interpretative value. However, given the general lack of bioarchaeological evidence from the early medieval period in York, it may be worth fully recording the oyster remains from deposits of this date at Skeldergate to provide records in space and time for use in synthesis.

The excavations produced a medium-sized assemblage of vertebrate remains, which consisted mostly of butchery waste, with a small component of domestic refuse. A deposit of cattle horncores indicated some craft activity. More detailed study of the current assemblage (including the material recovered from the samples) would provide useful archaeological and zooarchaeological data, subject to the tightening of the chronological framework.

Further analysis of the material from this site should include an additional examination of the samples and vertebrate material recovered from the previous evaluation intervention provided adequate dating and archaeological information were available.

KEYWORDS: NCP CAR PARK; SKELDERGATE; YORK; ASSESSMENT; MEDIEVAL; POST-MEDIEVAL; PLANT REMAINS; CHARRED PLANT REMAINS; INVERTEBRATE REMAINS; INTESTINAL PARASITE EGGS; *TRICHURIS*; *ASCARIS*; INSECTS; BEETLES; ECTOPARASITES; SHELL; OYSTER (*OSTREA EDULIS*); VERTEBRATE REMAINS; CRAFT ACTIVITIES; ?WOODWORKING; ?DYEING; ?WOOL PROCESSING; ?HORN WORKING; ?TANNING

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Introduction

Archaeological excavations were carried out by MAP Archaeological Consultancy Ltd on the site of the NCP car park, Skeldergate, York (NGR SE 601 515), between August and September 2003 and December 2003 and January 2004.

Eight trenches were excavated to investigate the nature of the archaeological deposits at the site. The trenches revealed a variety of features, including structures, such as floors and hearths, layers, construction cuts, pits and postholes. Features dated from the 12th century through to the modern period.

Sixty-six sediment samples ('GBA'/'BS' *sensu* Dobney *et al.* 1992), five boxes of bone and one box of shell (two small 'spot' samples were also included in this box), were submitted to PRS for an assessment of their bioarchaeological potential.

Methods

Sediment samples

The sediment samples were inspected in the laboratory. Twenty-four were selected for assessment and their lithologies were recorded, using a standard *pro forma*, prior to processing, following the procedures of Kenward *et al.* (1980; 1986), for the recovery of plant and invertebrate macrofossils.

The flots and washovers resulting from processing were examined for plant and invertebrate macrofossils. The residues were examined for larger plant macrofossils and other biological and artefactual remains. Where the residues were mainly composed of waterlogged plant remains, they were examined wet. When primarily mineral in

nature the residues were dried, weighed and their components recorded. Flots were stored in alcohol.

Plant remains in the various flots, washovers and residues and the general nature of these fractions were recorded briefly by 'scanning', identifiable taxa and other components being listed directly to a PC using *Access* software.

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Insects in the flots were recorded using 'assessment recording' *sensu* Kenward (1992), creating a list of the taxa observed during rapid inspection of the flot, with a semi-quantitative estimate of abundance, and a subjective record of the main ecological (e.g. aquatics, grain pests) or indicator/activity (e.g. for stable manure, Kenward and Hall 1997) groups present. A record of the preservational condition of the remains was made using scales given by Kenward and Large (1998). This scheme provides scales for chemical erosion and fragmentation (0.5-5.5, the higher figure representing the greatest degree of damage), and colour change (0-4), in each case giving a range and a value for the position and strength of the mode (Kenward and Large 1998, tables 2, 3 and 5-7).

Seven of the samples were examined for the eggs of intestinal parasitic nematodes using the 'squash' technique of Dainton (1992). Assessment slides were scanned at 150x magnification with 600x used where necessary. Although primarily for the detection of intestinal parasitic nematode eggs, the 'squash' technique routinely reveals other microfossil remains, and where present these have been noted.

The two 'spot' samples were examined and using a low-power stereo microscope and briefly described.

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This report subsumes some information from an evaluation carried out in 1999-2000 (Jaques *et al.* 2000).

Hand-collected shell

One box of hand-collected shell (representing material from 47 contexts) was submitted. All of the remains were identified as closely as possible within the constraints of an assessment. The weight (in grammes) of shell from each context was noted.

For oyster (*Ostrea edulis* L.) shell, additional notes were made regarding: numbers of left and right valves; evidence of having being opened using a knife or similar implement; measurability of the valves; damage from other marine biota (polychaet worms and dog whelks); encrustation by barnacles. Preservation was recorded using two, subjective, four-point scales for erosion and fragmentation—scale points were: 0 – none apparent; 1 – slight; 2 – moderate; 3 – high.

Hand-collected vertebrate remains

For the hand-collected vertebrate remains, 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'). Additional information, such as fragment size, dog gnawing, burning, butchery and fresh breaks, was noted where applicable.

Fragments were identified to species or species group using the PRS modern comparative reference collection. The bones which could not be identified 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), and totally unidentifiable.

Results

Sediment samples

The results are presented in context number order by trench (no samples from Trench F were assessed). Archaeological information, provided by the excavator, is given in square brackets. A brief summary of the processing method and an estimate of the remaining volume of unprocessed sediment follows (in round brackets) after the sample number.

TRENCH A – 5.5 METRES BY 12 METRES ORIENTATED NORTH-EAST BY SOUTH-WEST AND LOCATED TO THE NORTH-WEST OF THE SITE

Context 1016 [fill of robber trench 1021, 15th-16th century]

Sample 42/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, mid to dark brown to mid to dark grey-brown, crumbly (working soft and slightly sticky), slightly sandy, slightly clay silt. The deposit was sandier in places possibly as a result of the presence of rotted mortar; occasional lumps of light brown sand were also noted. Stones (from 2 mm to over 60 mm), fragments of mortar/plaster, brick/tile, coal, charcoal, burnt bone and ?ancient rootlets were all present.

The very small washover, of about 70 ml, consisted of cinder, charcoal and coal; there were also a few fragments (to 10 mm) which may have been burnt peat, but the possibility that they were simply further coal cannot be ruled out. A single ?woodworm (cf. *Anobium punctatum* (De Geer)) elytron was noted.

The medium-sized residue (dry weight 0.66 kg) consisted mostly of stones (to 10 mm) and sand, with some brick/tile (to 38 mm; 21 g), pottery (one sherd, to 20 mm; 3 g), coal and cinder (to 30 mm; 51 g), ?copper (<1 g), charcoal (to 18 mm; 1 g), a fragment of clay pipe and two fragments of fly puparium.

Sixteen fragments of bone (weight 3 g) were also recovered from this sample. Mammal bone consisted of 11 unidentifiable fragments and a small piece of pig tooth. Three fish bones and a scale were recovered which included a ?cyprinid cleithrum.

This sample does not warrant further analysis.

Context 1032 [silty sand with cobbles, 15th-16th century]

Sample 44/T (10 kg processed to 300 microns with washover; no unprocessed sediment remains)

Just moist, light grey-brown to mid to dark grey-brown, crumbly, layered in places (working soft and somewhat plastic), slightly sandy, clay silt to silty clay, with some dark grey ?ashy lumps. Mortar/plaster, brick/tile, charcoal flecks and bone were present.

This large sample yielded a minute washover of a very few ml of charcoal, with a trace of charred cereal grain (oats, *Avena*, and ?bread/club wheat, cf. *Triticum aestivo-compactum*), and a very few uncharred remains which may indicate some deposition of material with a wetland origin, but insufficient to warrant further analysis.

The large residue (dry weight 3.45 kg) was mostly sand, with some stones (to 25 mm), ferrous concretions (7 g), ?faecal concretions (2 g), fused sand (4 g) and charcoal (to 15 mm; 7 g). Several large fragments of brick/tile (80 x 90 mm; 641 g), five sherds of pottery (7 g), some mortar/plaster (to 40 mm; 111 g), one definite and one possible bead and a few fragments each of oyster and mussel shell (*Mytilus edulis* L., ~2 g) were recovered.

This sample produced 289 fragments of bone, which weighed 62 g. Several pig fragments were identified, together with over 100 unidentified mammal fragments. Birds were represented by chicken remains, including a femur which appeared to have been damaged by acid etching, and members of the turdidae (chats and thrushes) and passerine (sparrows, finches etc.) families. Over a hundred fragments of fish scales and bone were recovered, which included the remains of flatfish (Pleuronectidae), herring (*Clupea harengus* L.), pike (*Esox lucius* L.), eel (*Anguilla anguilla* (L.)), cyprinid, salmonid and small gadid.

This sample does not warrant further examination for plant and insect macrofossils, but additional material should be processed for the recovery of fish remains.

Context 1045 [silt in brick structure 1031, 15th-16th century]

Sample 46/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, mid brown to mid grey-brown, with some areas of light to mid grey, crumbly (working soft), clay silt. Mortar/plaster, coal, ?cinders and ?fine herbaceous detritus were present.

There was a very small washover (of about 40 ml) of coal and cinders, with some charcoal and a little fish

bone; there were some scraps of what may have been mineral-replaced plant material but nothing identifiable.

The medium-sized residue (dry weight 0.82 kg) was mostly sand, with a large number of stones (to 10 mm). Some coal (to 25 mm; 69 g), mortar/plaster (to 25 mm; 23 g), faecal material (to 25 mm; 78 g), mineralised seeds and fruits, three fragments of oyster shell (<1 g) and bone were also present. The last totalled 74 fragments of bone (weighing 6 g). Six fragments of rabbit may belong to the same individual and include the pelvis, astragalus, calcaneus and three phalanges. Twenty-four fragments of unidentifiable mammal and two of bird were also recovered, while 42 fish fragments included the remains of eel, haddock (*Melanogrammus aeglefinus* (L.)) and ?cyprinid.

This sample does not warrant further examination for plant and insect remains, but additional material should be processed for the recovery of fish remains.

Context 1046 [latest fill in stone structure 1065, 15th-16th century]

Sample 47/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, light to mid grey-brown to light to mid orange-brown, crumbly (working soft and slightly plastic), clay silt, with some slightly sandier patches ?from rotted mortar. Stones (6 to 60 mm), fragments of mortar/plaster and brick/tile, cinder, charcoal and ?fine charred material were present.

The small washover, of barely 100 ml, consisted of coal, cinder and (mainly) charcoal, the last of these including some fragments of roundwood (probably hazel, *Corylus*) to about 10 mm diameter, and a few small vertebrate (?mainly amphibian) bones.

The medium-sized residue (dry weight 0.73 kg) was mostly sand, with large numbers of stones (to 20 mm). Some brick/tile (to 40 mm; 5 g), coal (to 15 mm; 1 g), mortar/plaster (to 20 mm; 3 g), charcoal/cinder (to 42 mm; 11 g), one fragment of ?iron (to 11 mm; 1 g) and three fragments of unidentified shellfish (<1 g) were recovered. Also present were sixty fragments of bone weighing 8 g. Small mammals were represented by a ?rat (cf. *Rattus* sp.) ulna and ?mouse (cf. *Mus* sp.) vertebra as well as a number of unidentifiable fragments. Other identified fragments included a ?pigeon (cf. Columbidae) furcula and the remains of herring, haddock and a large eel.

No further analysis is necessary for plants and insects, however, additional sediment should be processed for the recovery of vertebrate remains.

Context 1115 [silt pre-dating Phase 2 building, 14th-15th century]

Sample 61/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, light to mid brown to mid grey to mid to dark grey-brown, crumbly (working soft and somewhat plastic), slightly sandy, clay silt to silty clay, with some small patches of light golden-brown clay. Stones (2 to 6 mm), ?rotted charcoal and ?very rotted marine shell were present.

There was a very small washover, of about 20 ml, of charcoal and a few elder seeds, with a little very decayed wood (which gave the appearance of being subject to some mineral-replacement).

The 'squash' subsample was approximately equal parts organic detritus and inorganic material. A single rather poorly preserved *Trichuris* egg was seen and there were also some pollen grains/spores and a few ?phytolith fragments and diatoms (all apparently of one form).

There was a small residue (dry weight 0.52 kg) mostly of stones (to 35 mm) and a large amount of sand. Some brick/tile (to 18 mm; 1 g), pottery (to 20 mm; 3 g), three fragments of mortar/plaster (to 15 mm; 3 g), charcoal (to 15 mm; 1 g), ?faecal material (to 18 mm; 5 g), one fragment of fly puparia (<1 g) and a single unidentified shellfish fragment (<1 g). The small assemblage of bone recovered amounted to 97 fragments, of which 62 were unidentified mammal bones. Additionally, there were 35 fish fragments including the remains of eel, herring, smelt (*Osmerus eperlanus* (L.)) and small gadid.

No further analysis of the plant and invertebrate remains from this sample is necessary. Additional sediment from this deposit should be processed, however for the recovery of fish bone.

Context 1119 [organic silty clay pre-dating Phase 2 building foundation, 14th-15th century]

Sample 63/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, mid to dark grey-brown to dark grey (with some small, to 10 mm, patches of light to mid grey-brown), crumbly (working soft and slightly sticky), ?slightly humic, clay silt. Stones (6 to 20 mm), mortar/plaster, brick/tile and ?rotted charcoal were present.

The very small washover, of about 15 ml, comprised small (to 10 mm) fragments of cinder and charcoal, with a trace of fish bone and scale, and a little very

decayed wood, together with a few decay-resistant plant remains, mainly whole and fragmentary elder (*Sambucus nigra* L.) seeds. The finer fraction yielded rather a lot of seeds of long prickly-headed poppy (*Papaver argemone* L.) and a few other weeds of cultivated and waste land of various kinds.

The small residue (dry weight 0.59 kg) was mostly stones (to 15 mm), with some sand, brick/tile (to 55 mm; 31 g), five sherds of pottery (to 25 mm; 7g), ?metal (<1 g), charcoal (to 15 mm; 1 g), three fragments of oyster shell (<1 g) and some further elder seeds.

Eighteen grammes of bone recovered from this sample included 84 unidentifiable mammal fragments, a pig incisor, a single fragment of bird bone and 24 fish bones which included the remains of herring and several haddock vertebrae.

No further study of plant and invertebrate remains from this deposit is necessary, but additional material should be processed for the recovery of fish remains.

Context 1135 [organic silty clay pre-dating Phase 1 deposits, 14th-15th century]

Sample 66/T (11.5 kg processed to 300 microns with washover; no unprocessed sediment remains)

Moist, mid grey-brown, stiff to crumbly (working soft), ?slightly sandy clay silt. Stones (6 to 20 mm), mortar/plaster, ?pot, coal and ?mammal bone were present.

There was a very small washover of about 20 ml of cinder and charcoal, and a very few uncharred seeds, including well-preserved fig (*Ficus carica* L.), as well as blackberry (*Rubus fruticosus* agg.) and elder. There were also traces of charred cereal grains (oats and ?bread/club wheat).

The large residue (dry weight 3.18 kg) consisted mostly of stones (to 40 mm) and sand. Some brick/tile (to 30 mm; 25 g), pottery (to 50 mm; 51 g), slag (to 60 mm; 101 g), mortar/plaster (to 55 mm: 117 g), ?iron (to 25 mm; 20 g), ?faecal material (to 20 mm; 2 g), charcoal (to 15 mm; 11 g), nutshell, two fragments of glass (1 g) and four fragments of oyster shell (~24 g) were all noted.

This sample also produced 322 fragments of bone which weighed 179 g. Sheep/goat and cow loose teeth and a cow tarsal, which had been heavily butchered, were identified, as well as a rat maxilla, vole tooth and amphibian humerus. There were 263 fragments of unidentifiable mammal bone which included a sesamoid damaged by acid etching and other fragments which had been butchered. Fish were represented by 52

fragments of bone and included the remains of gadid, herring and eel.

No further analysis of plant and invertebrate remains from this deposit is warranted. Additional sediment from this deposit should be processed for the recovery of fish bone, however.

TRENCH B – 2 METRES BY 10 METRES ORIENTATED NORTH-EAST BY SOUTH-WEST IN AN AREA OF TWO PILE CAPS

Context 2017 [fill of pit 2019 (with bovine horncores), 15th-16th century]

Sample 30/T (10.5 kg processed to 300 microns with washover; no unprocessed sediment remains)

Moist, mid grey-brown to mid grey, crumbly (working soft), slightly clay sandy silt. Stones (of greater than 60 mm), mortar/plaster, brick/tile, pot, coal, charcoal and mammal bone were all present.

The minute washover from this large subsample was about 20 ml of cinder. There were a few charred oat grains and two poorly preserved barley (*Hordeum*) grains, the remaining identifiable plant remains mainly being uncharred weed seeds.

The large residue (dry weight 3.80 kg) was mostly sand, with large numbers of stones (to 25 mm). Some brick/tile (to 48 mm; 116 g), pottery (three sherds, to 40 mm; 13 g), slag (to 30 mm; 23 g), coal (to 30 mm; 23 g), cinders (to 15 mm; 2 g), mortar/plaster (to 40 mm; 34 g), copper (to 15 mm; 3 g), two fragments of ?iron objects (to 26 mm; 5 g), charcoal (to 15 mm; 2 g), six flakes of oyster shell (~1 g) and some bone were recovered.

In total, this sample produced 182 fragments of bone (weight 56 g), of which 165 (representing both mammals and birds) could not be identified to species. Pig and sheep/goat loose teeth were recovered as well as a sheep/goat phalanx, a ?squirrel (cf. *Sciurus vulgaris* L.) metapodial and a woodcock (*Scolopax rusticola* L.) carpometacarpus. Twelve fragments of fish bone included the remains of herring and ?gadid.

No further analysis of this deposit is necessary for plant and invertebrate remains, but further processing of the remaining sediment is warranted for the recovery of vertebrate remains.

Context 2023 [silty clay with cobbles, 15th-16th century]

Sample 32/T (9.5 kg processed to 300 microns with washover; approximately 10 litres of unprocessed sediment remain)

Just moist, mid grey to mid to dark grey-brown (with flecks of bright yellow), crumbly (working soft and slightly plastic), slightly clay silt. There were also some lumps of lighter grey-brown clay. Stones (2 to 20 mm), mortar/plaster, brick/tile, vivianite, metal nails, charcoal, large mammal and bird bone, oyster shells and lumps of charred or part charred ?peat were present.

The very small washover, of about 60 ml, consisted mainly of charcoal and a little cinder and uncharred material that may have been peat (to 10 mm). There were a few uncharred fruits and seeds, including hemp (*Cannabis sativa* L.), beet (*Beta*, a fruit fragment), greater celandine (*Chelidonium majus* L.) and a few weed seeds.

There was a large residue (dry weight 2.10 kg) mostly of sand, with some stones (to 55 mm), brick/tile (to 70 mm; 151 g), five sherds of pottery (to 30 mm; 9 g), coal/charcoal (to 40 mm; 17 g), mortar/plaster (to 40 mm; 7 g), three fragments of iron nails (3 g) and two fragments of oyster shell (9 g).

Bone recovered from this sample amounted to 102 fragments (51 g). Cattle, caprovid, pig and chicken remains were identified. Additionally, 24 fish bones were recovered, including bones of herring, haddock, gadid and ?mackerel (cf. Scombridae).

No further analysis for plant and invertebrate remains is necessary, given the very low concentration of remains and the lack of a more definitive context interpretation. However, for the recovery of additional vertebrate material, the remaining sediment from this sample should be processed.

Context 2039 [Fill of pit 2041, 15th-16th century]

Sample 39/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, mid to dark grey to mid to dark grey-brown, crumbly (working soft and slightly sticky), slightly sandy, clay silt, with some sandier patches. Mortar/plaster, brick/tile, coal, fine charred material and ?marine shell were all present.

This subsample yielded a small washover, of about 80 ml, of charcoal and coal, with some undisaggregated, rather 'peaty', sediment (perhaps reworked?), some of these clasts containing short lengths of animal hair—perhaps material from daub, for example. There were small numbers of rather decayed uncharred seeds and

the wood fragments present were small and very decayed. Traces of insect cuticle were noted in the washover.

The medium-sized residue (dry weight 0.77 kg) was mostly sand, with some stones (2 to 20 mm), brick/tile (to 32 mm; 17 g), four sherds of pottery (to 18 mm; 3 g), coal/cinder (to 30 mm; 13 g) and mortar/plaster (to 20 mm; 5 g). A fragment of oyster shell (<1 g), a few fragments of mussel shell (<1 g) and an unidentified land snail were also recovered. In addition, nineteen unidentifiable fragments of bone (weighing 2 g) were recovered from this sample.

No further analysis of this deposit is necessary.

Context 2040 [fill of pit 2042, 15th-16th century]

Sample 38/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, mid to dark grey to mid to dark grey-brown, crumbly (working soft), slightly sandy, slightly clay silt, with small patches of light to mid brown sand. Stones (2 to 6 mm and 20 to 60 mm), mortar/plaster, brick/tile, coal, ?charcoal, other ?fine charred material, large mammal bone and ?marine shell were present.

There was a very small washover (of about 50 ml) of cinder, coal and charcoal, with some uncharred wood. There were also a few weed seeds and traces of ?rye (cf. *Secale cereale* L.) grains. Modest numbers of insect fragments were present in the washover (a few of which were separated), including the spider beetle *Tipnus unicolor* (Piller and Mitterpacher), and a flea abdomen which may not have been from *Pulex irritans* L., the human flea.

The medium-sized residue (dry weight 0.79 kg) was mostly sand, with some stones (to 20 mm), brick/tile (to 70 mm; 51 g), slag (to 25 mm; 3 g), coal/cinder (to 25 mm; 9 g), mortar/plaster (to 30 mm; 27 g), wood/charcoal (1 g), two fragments of unidentified shellfish (~1 g) and a little bone. The bone recovered from this sample amounted to 27 fragments (weighing 3 g), although only a pig tooth and a small mammal femur were identifiable.

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Further investigation of the insect remains from this sample may be worthwhile, but no further analysis is necessary for the plant or vertebrate remains.

TRENCH C – 2 METRES BY 12 METRES ORIENTATED NORTH-WEST BY SOUTH-EAST IN THE LOCATION OF THREE PILE CAPS

Context 3030 [organic sandy silty clay below 2027, 13th century]

Sample 35/T (3 kg processed to 300 microns with paraffin flotation; approximately 14 litres of unprocessed sediment remain)

Moist, very dark grey to black, brittle and crumbly layered in places, ?humic, slightly sandy silt, with some small lumps of light to mid grey clay. Stones (2 to 20 mm and over 60 mm), mortar/plaster, brick/tile, fine uncharred plant material, very rotted charcoal and other fine ?charred material were all present.

The large residue of about 1350 ml included an organic component forming a washover of about 750 ml, the remainder being sand and gravel. The organic material was mainly bark with some wood, much of it in small (2 to 4 mm) flakes; the concentration of identifiable plant remains was rather low, perhaps because of the bulk of well-preserved wood and bark. Preservation of these remains was generally quite good, although some of the hazel nutshell present was somewhat eroded, with other fragments more 'pristine'. There was a little food waste which suggests perhaps the presence of faeces, but no very high concentration such as would be interpreted as representing a primary faecal deposit.

A small flot consisted of woody plant fragments and insect remains. The latter were moderately well preserved to rather clearly decayed (E 2.0-3.5, mode 3.0 weak; F 2.0-3.0, mode 2.5 weak). There were modest numbers of beetles, a mixture of decomposer species, mostly associated with fairly foul, moist but open-textured material, and some plant-feeders which may possibly have been brought in cut vegetation (e.g. *Apion*, *Sitona* and *Notaris* species). Some of the decomposers were species regarded as typical of stable manure (see, for example, Kenward and Hall 1997), and this material seems likely to have contributed to the deposit. There were fragments of a single flea, but diagnostic parts were not seen during assessment.

The 'squash' subsample was approximately three parts organic detritus to one part inorganic, with some pollen grains/spores and a few ?phytolith fragments and fungal spores and a single live soil-dwelling nematode. No eggs of intestinal parasites were seen.

A single right oyster valve (13 g) and ten fragments of bone (10 g) were recovered from this sample. Nine of the latter could not be identified, the remaining fragment being a very worn cow premolar.

The invertebrate assemblage would, after full processing of the sample, be worthy of recording, both

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to confirm the identification of the material(s) contributing to it and for site and wider synthesis.

Context 3033 [organic sandy silty clay below 3032, 12th/13th]

Sample 37/T (3 kg processed to 300 microns with paraffin flotation; approximately 44 litres of unprocessed sediment remains)

Just moist, dark grey to black, unconsolidated to crumbly, very humic, slightly sandy silt, with small lumps of light grey clay (to 10 mm) and inclusions of light grey-brown 'pondy' clay silt (to 60 mm). Stones (20 to 60 mm), mortar/plaster, brick/tile, ?wood chips, hazelnuts, bone and shell were present.

There was a large residue of about 1500 ml from which a washover of about 1000 ml of organic material was taken, the rest being sand and gravel with a few fragments of ?faecal concretion (to 20 mm), a right oyster valve (and two other fragments, 15 g) and a little unidentified bone.

The washover was rich in wood fragments, with a rather 'flaky' character in the 4-10 mm fraction (as in the subsample from 3030, see above). The wood was well-preserved and the large fractions also yielded some hazel nutshell. Finer fractions were moderately rich in flax seed (linseed, *Linum usitatissimum* L.), mainly fragments, with a trace of box (*Buxus sempervirens* L.) leaf, and seeds of fig and hop (*Humulus lupulus* L.). Also present were seeds of weld/dyer's rocket (*Reseda luteola* L.), perhaps a representative of the local weed flora, but also a frequently used dyeplant in the past (see below). Several of these taxa were also noted in the small flot.

The small flot consisted mostly of insect fragments of varied preservation (E 1.5-4.0, mode 3.0 weak; F 1.5-4.0, mode 2.5 weak). Some remains showed a distinct trend towards pale yellow (trend to pale yellow 0-3, mode 2, weak), and a proportion were quite fragmented. The numbers of fossils were just sufficient for useful interpretation, although re-processing of the subsample to recover further remains would be advantageous. The predominant ecological grouping was of beetles likely to have occurred together in rather foul decaying matter, but no taxa were especially abundant.

The 'squash' subsample was approximately three parts organic detritus to one part inorganic, with some pollen grains/spores and fragments of plant tissue, a few ?phytolith fragments and diatoms (of one form) and fungal spores and two live soil-dwelling nematodes. Two poorly preserved trichurid eggs were noted.

This deposit would be worth a closer investigation to establish the nature of the food component and in particular to check the proportion of possible faecal material. Detailed recording of the insect assemblage would contribute to reconstruction of site conditions and usage, and to wider synthesis.

Context 3034 [organic sandy silty clay below 3035, 12th/13th century]

Sample 40/T (3 kg processed to 300 microns with paraffin flotation; approximately 14 litres of unprocessed sediment remain)

Just moist, dark grey to black, crumbly to unconsolidated, very humic, slightly sandy silt, with inclusions of pale grey clay (to 10 mm). Mortar/plaster, brick/tile, wood (present to common), twigs, moss, bone and shell were present.

The large residue of 1400 ml contained about 1050 ml of organic material forming a washover, the rest being sand and gravel, with a little shell (single fragments of oyster and mussel) and bone (13 g), which included several pig fragments. There was a large component of 'flaky' (and mostly pale and well-preserved) woody material as in subsamples from Contexts 3030 and 3033, and some fragments gave an impression of having come from worked wood. There were a few quite large moss shoots, though there were rather eroded; they were typical of the hypnoid mosses found in medieval urban deposits. Some clasts of undisaggregated material were observed to consist of fine organic detritus with wheat/rye and oat 'bran' and some leaf epidermis of *Allium*, probably leek (*A. porrum* L.). This material may be faecal in origin, though not necessarily from human sources (pigs are another possibility). There were certainly some remains from edible fruits present in the form of (amongst others) apple (*Malus sylvestris* Miller) endocarp ('core'), blackberry and linseed (mostly fragments). Weld was again present.

The flot consisted of fragments of woody plant tissue, seeds, and herbaceous detritus, with fairly abundant fragments of insects and some mites. There were decomposer beetles representing dryish to foul habitats, with an overall impression of 'compost-heap' like conditions; the presence of faeces is hinted at by fragments of at least four species of *Aphodius* dung beetles. Three aquatic/waterside taxa were present, but there were also other 'outdoor' species, including ground beetles and plant feeders. The significance of these is not clear. A notable record was of a grain weevil, *Sitophilus granarius* (L.), the only one noted during this assessment.

The 'squash' subsample was mostly of organic detritus, with a little inorganic material. Some plant tissue

fragments, pollen grains/spores, ?phytolith fragments and fungal spores were present and there were a few diatoms (of at least two types). A single poorly preserved *Trichuris* egg was also seen.

Further analysis of the plant and invertebrate assemblage may clarify the nature of the materials contributing to this deposit: stable manure is possibly a candidate. It is also worth revisiting this sample to check for the nature of any parasite eggs in an attempt to determine the nature of the faecal component and to check for other food remains.

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Context 3035 [organic clay below 3033, 12th/13th century] Sample 41/T (2 kg processed to 300 microns with paraffin flotation; approximately 0.75 litres of unprocessed sediment remains)

Just moist, mid to dark grey to dark brown to dark grey brown, brittle to crumbly and layered in places (working somewhat soft), very humic, very slightly sandy silt, to amorphous organic sediment, with patches of very decayed wood or peat. Stones (2 to 20 mm), mortar/plaster, brick/tile, charcoal, wood and fish bone were present.

The moderate-sized residue was about 550 ml in volume, of which about 350 ml was less dense organic matter, the remainder sand and gravel with some rather dense wood charcoal. The washover included one rather large piece of wood (to 70 mm in maximum dimension), the rest mainly comprising wood and charcoal. There was a small assemblage of uncharred plant macrofossils, mainly weeds which probably originated in cereal straw. Possible dyeplant material was present in the form of modest numbers of weld seeds and traces of twig epidermis which may well have been dyer's greenweed (*Genista tinctoria* L.), a species rather frequent in some of the deposits from the evaluation intervention examined by Jaques *et al.* (2000).

The small flot consisted of fragments of plant detritus, elder (*Sambucus*) seeds, and a trace of mostly well-decayed and strongly fragmented insect remains (E 1.5-4.5, mode 4.0 weak; F 1.5-5.5, mode 5.0 weak).

The insects had limited potential for further investigation, although a tentatively identified sheep ked (*Melophagus ovinus* (Linnaeus)) from the residue should be revisited in relation to wool-processing. No further study of the plant remains is warranted.

TRENCH D – 3 METRES BY 3 METRES IN THE LOCATION OF THE WESTERN LIFT SHAFT

Context 4007 [fill of pit 4009, 15th-16th century]

Sample 12/T (3 kg processed to 300 microns with washover; approximately 3 litres of unprocessed sediment remain)

Moist, mid to dark grey-brown to mid to dark grey, crumbly to unconsolidated (working soft and slightly sticky), slightly sandy, slightly ashy clay silt, with more clay in places. Stones (6 to 20 mm), brick/tile, coal, cinder, charcoal and bone were present.

This subsample gave a small washover of about 120 ml of cinders, coal and charcoal, with the smallest traces of charred cereal grains.

There was a medium-sized residue (dry weight 0.652 kg) consisting mostly of sand, with some stones (to 25 mm), brick/tile (to 25 mm; 13 g), a sherd of pottery (to 20 mm; 2 g), coal (to 18 mm; 11 g), cinders (to 30 mm; 23 g), mortar/plaster (to 15 mm; 8 g), iron (to 38 mm; 14 g) and charcoal (to 20mm; 5 g). Around forty fragments of mussel shell (~2 g), a few fragments of eggshell (<1 g) and some bone were also recovered.

This sample yielded 146 fragments of bone (weighing 18 g) of which 120 were unidentifiable fragments of mammal bone. Several small bird fragments (Turdidae and passerine-sized) and three fragments of goose (*Anser* sp.), one of which had been butchered, were also identified. Eighteen fragments of fish were recovered, which included herring, flatfish and gadid.

The plant and insect remains from this deposit require no further analysis, but further processing of the remaining sediment would be valuable for the recovery of additional vertebrate material.

TRENCH E – 5 METRES BY 2.5 METRES ORIENTATED NORTH-WEST BY SOUTH-EAST IN THE AREA OF TWO PILE CAPS

Context 5031 [gritty clay silt, 15th century]

Sample 22/T (3 kg processed to 300 microns with washover; approximately 25 litres of unprocessed sediment remain)

Moist, mid grey-brown, crumbly (working soft and slightly sticky), slightly sandy, clay silt. Stones (2 to 6 mm and over 60 mm), mortar/plaster, rotted charcoal and animal bone were present.

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There was a very small washover of about 20 ml of charcoal, with traces of snails, a few well-preserved bread/club wheat grains, and a few scraps of wood (perhaps starting to become mineral-replaced).

The medium-sized residue (dry weight 0.63 kg) consisted of sand, with large numbers of stones (to 15 mm). Six sherds of pottery (to 25 mm; 6 g), charcoal (to 12 mm; 3 g), a land snail (?*Oxychilus cellarius* (Müller)) and cereal grains of barley, oat and wheat (*Triticum*) were present.

This sample also produced 28 fragments of bone (weighing 11 g). A pig tooth and an amphibian bone fragment were identified and the eight fish fragments included herring, haddock and a thornback ray (*Raja clavata* L.) dermal denticle.

This sample does not warrant further examination for plant and insect remains, but additional material should be processed for the recovery of fish remains.

TRENCH G – 2 METRES BY 5 METRES ORIENTATED NORTH-WEST BY SOUTH-EAST IN THE AREA OF TWO PILE CAPS

Context 7015 [silty clay, 15th-16th century]

Sample 24/T (3 kg processed to 300 microns with washover; approximately 5 litres of unprocessed sediment remain)

Moist, light to mid grey to light to mid grey-brown, crumbly (working soft and slightly sticky), slightly sandy clay silt. Stones (2 to 6 mm), pot and rotted charcoal were present.

The small washover (of about 60 ml) comprised charcoal and a very few charred cereal grains (?oats, bread/club wheat and hulled barley, *Hordeum vulgare* L.), the finest (<1 mm) fraction having some very decayed wood fragments.

The medium-sized residue (dry weight 0.65 kg) was of sand with large numbers of stones (to 22 mm). Brick/tile (to 40 mm; 20 g), three sherds of pottery (to 20 mm; 4 g; and another possible sherd, 1 g), mortar/plaster (to 30 mm; 12 g), iron (2 g), charcoal (to 30 mm; 3 g) and a piece of hazel nutshell were recovered. A few fragments of ?oyster shell (<1 g), some unidentified land snail (<1 g), a freshwater mussel valve (~4 g) were also present. In addition, this sample produced four grammes of bone which consisted of 70 unidentifiable fragments and 19 fish bones (including herring and gadid).

For the recovery of additional vertebrate material, the remaining sediment from this sample should be

processed. The plant and insect remains do not warrant further analysis, however.

Context 7016 [clay with decayed wood, 15th-16th century]

Sample 23/T (3 kg processed to 300 microns with washover; approximately 4 litres of unprocessed sediment remain)

Moist, light to mid yellow-grey-brown to light to mid grey to mid grey-brown (colours rather jumbled), stiff to crumbly (working soft and slightly plastic), silty clay. Stones (2 to 6 mm), an ?iron object and charcoal were present.

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There was a small washover of about 90 ml of charcoal which also contained a very few poorly preserved seeds (including weld, elder and charred oat grains) and a trace of ?woodworm elytron.

The small residue (dry weight 0.31 kg) was of sand, with some stones (to 12 mm), three sherds of pottery (to 30 mm; 6 g), mortar/plaster (to 22 mm; 3 g) and charcoal (to 15 mm; 1 g). The bone recovered from this sample amounted to 24 fragments and weighed two grammes. Fragments of pig and amphibian were identified and six fragments of fish included herring and eel.

No further analysis of the remains is considered necessary.

TRENCH H – 6 METRES BY 4 METRES ORIENTATED NORTH-WEST BY SOUTH-EAST IN THE AREA OF THE SOUTHERN LIFT SHAFT

Context 8015 [fill of pit 8008, 12th-13th century]

Sample 2/T (3 kg processed to 300 microns with washover; approximately 2 litres of unprocessed sediment remain)

Moist, light to mid grey-brown to mid grey, crumbly (working soft), very slightly sandy, slightly clay silt. Stones (6 to 60 mm), mortar/plaster, brick/tile, charcoal, wood, marine shell and modern contaminant liverwort and seedlings were present.

This subsample yielded a small washover of about 75 ml (which had 'fermented' quite seriously in store); there was wood, bark, charcoal, cinder, nutshell and some fruitstones as well as some very decayed seeds and fruits and a few decayed beetle fragments. The presence of what are interpreted as 'milled' cornfield weeds together with wheat/rye 'bran', and remains of apple and fig, presumably point to a component originating in faeces or a (largely) flour-based food, but there were also moderate numbers of weld seeds. A few

insect fragments were noted in the washover; they were ecologically mixed.

The medium-sized residue (dry weight 0.55 kg) was mostly stones (to 15 mm) and sand. Two fragments of brick/tile (to 40 mm; 8 g), two sherds of pottery (to 28 mm; 5 g), mortar/plaster (to 22 mm; 2 g), faecal concretions (to 18 mm; 1 g), charcoal (to 20 mm; 6 g) and a *Prunus* fruit were all present. A red whelk (*Neptunea antiqua* (L.), 5 g) and a few other unidentified fragments of shellfish were also recovered as were 59 fragments of bone (weighing 27 g and including ?chicken, herring and gadid remains).

The 'squash' subsample was approximately equal parts organic detritus and inorganic material. Seven rather poorly preserved (none retaining polar plugs) *Trichuris* and two ?*Ascaris* eggs were noted. Other microfossil remains included some pollen grains/spores (and a few fungal spores), a few diatoms (of one type) and two live soil-dwelling nematodes.

There is probably limited value in undertaking further investigation of this deposit.

Context 8024 [organic silt, 12th-13th century]

Sample 7/T (3 kg processed to 300 microns with washover and paraffin flotation; approximately 2 litres of unprocessed sediment remain)

Moist, mid to dark grey-brown to black, crumbly to unconsolidated, moderately humic, slightly sandy silt. Stones (6 to 60 mm), brick/tile, charcoal, wood, twigs, nutshell and fruitstones were present.

This subsample gave a very large residue, of about 1750 ml, of woody and fine herbaceous detritus, of which about 200 ml was sand and gravel. The vertebrate remains recovered included several fragments of fish (including herring and eel) and mammal bone. There was quite a large component of rather dense material which was difficult to separate by means of a washover: this proved to consist largely of fragments of faecal concretion (to 55 mm). There were also some rather large (to 140 mm) ?hazel rods, though barely 10 mm in diameter. The fine fraction was very rich in wheat/rye 'bran' and, together with the range of fruitstones present, clearly marks this out as a largely faecal deposit. The larger fruitstones were sloe (*Prunus spinosa* L.) with some small 'plums' (*P. domestica* ssp. *insititia* (L.) C. K. Schneider) and cherries (*P. Section Cerasus*), and there were also some black mulberry (*Morus nigra* L.), strawberry (*Fragaria* cf. *vesca* L.) and fig seeds and cluster of stone-cells (sclereids) which were probably from quince (*Cydonia oblonga* Miller) or pear (*Pyrus communis* L.). Together with bran, there was ?leek epidermis in the finer fractions and some seed fragments which might have been

pepper (*Piper nigrum* L.) but which need closer examination and a large sample. Both *Ascaris* and *Trichuris* eggs were noted in a microscope slide preparation of some of the *Allium* epidermis. Other remains present were perhaps largely from cornfield weeds, arriving as grain contaminants or with straw, but there were also modest numbers of weld seeds and a trace of dyer's greenweed twig.

The flot was large, consisting of plant detritus, with appreciable numbers of rather to moderately well-preserved insect remains (E 2.0-3.0, mode 2.5 weak; F 2.0-3.0, mode 2.5 weak). There was a mixture of decomposers from drier to fouler decaying matter, and a single *Sitona* (clover weevil). This deposit may have included 'stable manure' although the evidence is by no means clear. Remains of two fleas were observed. Full recording of the fauna of a completely-processed subsample would probably clarify the identification of the deposit, as well as contributing to broader reconstruction of the site and providing useful data for synthesis.

The 'squash' subsample was mostly of organic detritus, with some inorganic material. Fifteen *Trichuris* eggs (three of which retained one polar plug) and a single *Ascaris* egg were seen. The trichurid eggs were better preserved than those seen in any of the preceding samples and some at least would probably be measurable. There were also many diatoms (of at least five forms) and some fungal spores and ?phytolith fragments.

This is a 'classic' deposit of faecal material, almost certainly the fill of a cess pit or drain—the nature of the context as a pit or drain fill not apparently being interpretable in the field. As well as more detailed analysis of plant and invertebrate macrofossils, additional analysis of parasitic worm eggs is highly desirable."

Context 8027 [sandy silt, 12th-13th century]

Sample 8/T (3 kg processed to 300 microns with paraffin flotation; approximately 5 litres of unprocessed sediment remain)

Moist, mid to dark grey-brown to black, lighter grey in places, crumbly to unconsolidated, slightly ashy, sandy silt. Stones (2 to 20 mm), wood, twigs, nutshell and oyster shells were present.

This deposit was most unusual for a medieval occupation build-up in York in containing a large proportion of charred herbaceous plant material. Indeed, the large residue, of about 1100 ml, was mainly charred plant material and the removal of a washover left about 550 ml of sand and gravel, with four fragments of oyster shell (including a fairly intact right

valve, total weight 25 g). On closer inspection, the washover was found to contain both charred and uncharred woody and herbaceous material (though mainly wood charcoal), with some clasts of undisaggregated 'peaty' occupation material which might have been reworked. The charred material was very 'fresh' and there were some 'part-charred' remains—all suggestive of a deposit which formed through the rapid and incomplete burning of a body of plant material such as a thatched roof. Cereal remains were sparse, but included one very well preserved charred rye rachis (ear-stalk) fragment and some grains (mainly oats, including cultivated oat, *Avena sativa* L., but also rye, bread/club wheat and hulled barley). Some charred ?hazel rods might also have originated in roofing. The fruits and seeds of herbaceous plants were often present preserved by both charring and anoxic waterlogging, though the charred specimens were generally rather better preserved, the uncharred often being somewhat eroded. They were mainly taxa likely to have been present in cereal straw and other cut vegetation, including wetland resources (there were some leaf fragments of saw-sedge (*Cladium mariscus* (L.) Pohl as well as fruits and seeds of other wetland taxa) and unidentifiable culm and leaf fragments consistent with such material. Some small fragments of charred 'yarn' seem likely to be of plant origin and might have come from binding of bundles of straw, for example.

The flot, of average size, consisted primarily of charred plant stems. There were rare, variably preserved, invertebrates preserved by 'waterlogging' (E 2.0-3.5, mode 3.0 weak; F 2.5-5.0, mode 3.5 weak), but rather more charred remains. The latter included insect larvae and adults, and mites; there was also a 'toasted' snail. The beetles included a complete (minus appendages) *Helophorus* water beetle, which together with the snails hints at the inclusion of fauna from cut waterside vegetation or imported water. There were also very weak hints of insects perhaps associated with hay at some stage.

Such an unusual deposit requires further analysis of plant and invertebrate remains to help substantiate the preliminary interpretation. A larger subsample is perhaps worth examining.

Context 8029 [silty clay with limestone fragments, 12th/13th century]

Two small 'spot' samples were recovered from this context. One comprised fragments of unidentified wood and bark and the second two pieces of compressed material which included both organic and inorganic components. This last had the appearance of 'trampled' material perhaps from a floor or similar surface.

Context 8032 [organic silt, 12th-13th century]

Sample 13/T (3 kg processed to 300 microns with washover and paraffin flotation; approximately 3 litres of unprocessed sediment remains).

Moist, dark grey-brown to black, crumbly to unconsolidated, moderately humic, slightly sandy silt. Stones (6 to 20 mm), wood, twigs, 'straw', nutshell, fruitstones and fish bones were present.

There was a very large residue of about 1850 ml, mostly coarser woody and finer herbaceous plant detritus; the mineral fraction probably made up barely 200 ml, but there was quite a lot of dense mineral in the form of faecal concretions. Some of the wood fragments indicated an origin with woodworking/construction. There were many fruitstones and much fine 'bran' indicating the largest component of the deposit to be food waste, and probably mostly faeces. Amongst the wide variety of foodplants noted were several seeds of medlar (*Mespilus germanica* L.), perhaps the first record for York (though known from later medieval and early post-medieval deposits elsewhere). As in the subsample from 8024, black mulberry and stone-cell clusters of quince/pear were present, the latter observed embedded in faecal concretions as well as free. Other food remains included seeds of celery (*Apium graveolens* L.), fennel (*Foeniculum vulgare* L.) and opium poppy (*Papaver somniferum* L.—a single specimen); there was also one large and very well preserved grape (*Vitis vinifera* L.) seed, a little fig, and moderate amounts of strawberry, as well as frequent seeds and 'core' fragments of apple. Together with this rich array of food remains were some weld seeds and traces of dyer's greenweed stem and twig epidermis.

The flot was large, with cereal bran fragments, a few seeds and abundant insect remains, although the last were predominantly fly puparia. Preservation was good (E 1.5-2.5, mode 2.0 weak; F 1.5-2.5, mode 2.0 weak). The fairly small group of beetles had mixed ecological origins, with several species associated with foul matter (presumably, like the flies, exploiting conditions *in situ*), but also aquatics, plant-feeders, and species associated with dead wood. A larger subsample would provide a characterisable assemblage of insects.

The 'squash' subsample was mostly of organic detritus, with a little inorganic material. Twenty-four trichurid and five *Ascaris* eggs were noted. The preservation of the *Trichuris* eggs was quite good (one retaining both polar plugs and a further six retaining one plug) and some would certainly be measurable. Small numbers of pollen grains/spores, ?phytolith fragments and fungal spores were also seen.

Deposits rich in plant food remains from this rather early date are rare in York (we have plenty of evidence from earlier and later periods but, with the exception of some unpublished data for certain contexts at The Bedern, almost nothing for the 12th/13th century, insofar as dating has been possible for the large corpus of records collected by AH for the city). A closer inspection of this material is very desirable.

Context 8035 [sandy clay, 12th/13th century]

Sample 16/T (3 kg processed to 300 microns with washover and paraffin flotation; approximately 3 litres of unprocessed sediment remain)

Moist, dark grey to dark grey-brown, crumbly to unconsolidated (working soft), slightly humic, slightly sandy slightly clay silt. Wood fragments, mammal bone, oyster shell and modern contaminant moss and algae were present.

There was a small washover of about 200 ml, yielding rather decayed woody debris and some charcoal. The concentration of identifiable seeds and fruits was modest and both well-preserved and rather decayed material was noted. Many of the nutlets of knotgrass (*Polygonum aviculare* agg.) had been 'holed', perhaps by an insect. All the more frequent remains were of weeds, but there were traces of dyer's greenweed stem fragments, a leaf fragment of bog myrtle (*Myrica gale* L.) and traces of weld seeds, all of these perhaps signifying waste from dyeing (all, as it happens, give a yellow colour) though forming a very small part of the assemblage overall. There were also a few remains probably originating in food, including traces of charred oat and rye grains and a single well preserved fragment of rachis of a free-threshing wheat.

The small flot consisted of charred and uncharred seeds, woody plant fragments and moderately to quite well preserved insect fragments (E 2.0-3.5, mode 2.5 weak; F 1.5-3.0, mode 2.5 weak). The numbers of beetles were borderline for interpretation, although the presence of several *Neobisnius* sp., and two or more *Anotylus complanatus* (Erichson), *A. rugosus* (Fabricius), and *Gyrophypnus fracticornis* (Müller), and of some of the rarer taxa, is a little reminiscent of remains from some pit fills at the 16-22 Coppergate site (Kenward and Hall 1995). There was a small fragment of a puparium which was probably of the sheep ked *Melophagus ovinus* (Linnaeus).

There was a moderate-sized residue (dry weight 0.58 kg) consisting mostly of sand and stones (to 15 mm), with some charcoal (to 12 mm; 5 g), wood (to 23 mm; 4 g), four sherds of pottery (16 g), an oat grain, a right oyster valve (~10 g) and a few other flakes of oyster shell. This sample also produced 111 fragments of bone weighing 88 g. Mammal remains included a cattle metacarpal and loose tooth and a sheep/goat tibia, together with 98 unidentifiable fragments. Three

amphibian bones were noted and seven fish fragments which included some of salmonid.

This material deserves full analysis (particularly of insect remains), to clarify its nature and to provide data for synthesis.

Hand-collected shell

A single box (of approximately 10 litres) of hand-collected shell (with a total weight of 2.762 kg) was recovered representing 47 contexts (one of which was unstratified and 13 were undated or of uncertain date). Trenches D, F and G gave very few remains from few contexts (one from Trench D, two from Trench G and none from Trench F). The other shell-bearing contexts were fairly evenly divided between the remaining trenches—Trench A (11 contexts), Trench B (6), Trench C (8), Trench E (11) and Trench H (7). Most of the shell-bearing contexts were of early medieval date and this period also gave the largest number of remains. Most of the individual deposits gave small amounts of remains with only seven (six of early medieval date and one post-medieval) yielding more than 100 g of shell. Preservation was variable (ranging from very poor to good) but predominantly fair. All of the material was assessed and the taxa identified as closely as possible. Table 1 gives the total number of fragments recorded by context and Table 2 a summary by period.

The remains from almost all of the contexts were either exclusively or predominantly of oyster shell. Occasional fragments of other edible marine taxa were noted from medieval contexts (a single cockle (*Cerastoderma edule* (L.)) valve from Context 2040, and mussel fragments in Contexts 2020, 3034 and 8026).

The oyster shell was, on the whole, of 'fair' preservation (approximately 74% of the valves could be identified as being either left or right valves). Only about one third of the valves for which 'side' could be determined were measurable (measurements were not taken as part of this assessment). Evidence of the oysters having been opened using a knife or similar implement (as shown by 'V'- or 'W'-shaped notches on the shell margins) was noted on 21-33% of the valves. Up to 23% of the valves showed some fresh breakage presumably caused during recovery of the remains (some of the bags of shell from individual contexts also contained small flakes of shell showing that the valves had disintegrated further post-excavation). There was no evidence of damage to the valves from dog whelk boring or encrustation (e.g. by barnacles), but two valves (one each from Contexts 3030 and 5005) showed damage which *may* have been caused by polychaet worm burrowing.

A single ?freshwater mussel valve was recovered from the post-medieval Context 1013. The only recovered land snail remains were of single individuals of *Helix ?aspersa* Müller from Context ?1058 (13th/14th or 14th/15th century) and *Cepaea/Arianta* sp. from Context 5026 (15th century).

Hand-collected vertebrate remains

Five boxes (total volume of approximately 200 litres) of vertebrate remains were recovered from eight trenches, representing 109 deposits. Provisional dating evidence suggested that the deposits dated from the medieval through to the modern period. A number of features produced bone, including pits, postholes, layers and general deposits.

In total, 1,502 fragments of bone were recovered, of which 190 were measurable and 29 were mandibles with teeth *in situ* of use for providing biometrical and age-at-death data. Table 3 shows that 615 fragments date to the early medieval period (12th to 14th century), 341 fragments to the later medieval period (14th to 16th century) and 180 fragments are of post-medieval date. Deposits which either could not be dated or were of mixed date produced 366 fragments of bone. Details of fragments by trench are shown in Table 4.

Preservation of remains was fair to good, with only six deposits including material recorded as poorly preserved (Contexts 1016, 1115, 2025, 3045, 5007 and 7016). Fragments with rounded edges were noted from three deposits (Contexts 1101, 5021 and 8027), whilst evidence of both dog gnawing and burning were observed on the material throughout the assemblage. Butchery marks were common, particularly on the cattle remains.

Trench A

Trench A produced 440 fragments of bone from 42 deposits which represented all periods of activity. One deposit (Context 1051) contained burnt material while five (Context 1013, 1040, 1046, 1088 and 1125) included bones which had been gnawed by dogs.

The material from this trench was dominated by the remains of cattle, although caprovid and pig bones were also fairly common. Differentiating between the bones of sheep and goat is notoriously difficult; however, a horncore (from Context 1020) was identified as from a ram whilst a metacarpal and a horncore (from Context 1058) were identified as goat. Smaller numbers of cervid, dog and horse fragments were also present, with birds represented by several goose and chicken bones.

Cattle metapodials and phalanges were well represented in these deposits. These are likely to represent primary butchery refuse as typically these elements were discarded during the initial processing of the carcasses. Several bones had been chopped, especially scapula blades and pelves, and there were a number of long bone shafts which had been split. A worked cattle metatarsal was recovered (Context 1058) which had had a hole made in the proximal end and the shaft worked to a point.

The 'unidentified' fraction formed the largest proportion of the assemblage from this trench and included mainly large and medium-sized mammal fragments. Some of these bones had been heavily butchered including vertebrae which had been chopped longitudinally (in Contexts 1034, 1040, 1074, 1132).

Context 1040 included part of the leg (tibia, astragalus and a tarsal) of a fallow deer, which were still articulated. Additionally, a calcaneum and another tarsal appeared to belong to the same animal.

Trench B

This trench yielded 215 fragments of bone from 15 contexts, representing all phases of activity. Many of the bones from this trench also showed evidence of butchery including split shafts (Contexts 2010, 2018, 2027 and 2043), vertebrae chopped longitudinally (Context 2018) and heavily chopped bones (Contexts 2013, 2021, 2027 and 2043). There was no dog gnawing noted on the material, suggesting that these remains were quickly incorporated into the deposits.

Cattle were the most common species identified from this trench, although, a single deposit (Context 2017) produced the majority of these fragments. Remains from this context were exclusively cattle horncores and cranium. Many of these had either been chopped at the base to separate them from the skull, or had pieces of skull still attached which had been split along suture lines. Three examples which had skull attached exhibited holes in the nuchal region of the occipital portion of the skull. The aetiology of this condition is unknown but has been discussed by Brothwell *et al.* (1996) who suggest that the cause is either congenital or caused by yoking pressure.

Caprovid and pig remains were also identified, together with a few fragments of goose. Unidentifiable fragments were the most numerous category and represented large and medium-sized mammals.

Trench C

Thirteen deposits produced 211 fragments of bone. Pottery suggested dates of the 12th and 13th centuries for

some deposits, whilst others were of modern date or undated. Remains from this trench were well preserved, many fragments were dark brown in colour, and there was no evidence of dog gnawing. One deposit included burnt material (Context 3045). Many of the long bone shafts had been chopped and a single sheep/goat scapula showed evidence of possible 'hook' damage to the blade.

Similar numbers of cattle and sheep/goat remains were recovered from this trench, whilst pigs were less well represented. Fragments of cervid, cat and chicken were also identified.

Trench D

This trench produced 135 fragments of bone from five deposits, three of which could be dated to the later medieval period. Burning and fresh breakage were noted but were not common. A sheep horncore had been chopped at the base to remove it from the skull (Context 4011), while a number of large and medium-sized mammal fragments also showed evidence of butchery.

Cattle and sheep/goat were again the most commonly represented species, with pig remains being less frequent. Single fragments of dog and cat were identified, together with several goose and chicken bones. Unidentified fragments accounted for a large proportion of this assemblage and were mostly of large and medium-sized mammal fragments. One large mammal rib showed evidence of a healed fracture (Context 4011).

Trench E

Fourteen contexts from this trench produced 90 fragments of bone, most of which were from deposits dating to the later medieval period. There was no evidence of burning and only one fragment had been gnawed (Context 5031). Butchery was noted from several deposits and included mostly chops on the shafts of bones, particularly cattle limb bones (Contexts 5011 and 5027).

The assemblage from this trench was rather small but included the remains of cattle, caprovid and pig, together with several fragments of cat. Birds were represented by goose, fowl and a single wader bone. Unidentified fragments were again the largest category and consisted of large and medium-sized mammal fragments.

Trench F

This trench produced 30 fragments of bone from five deposits, all of which were fairly well-preserved. A single fragment showed evidence of dog gnawing (Context 6004) while fresh breaks were noted from three deposits (Contexts 6003, 6006 and 6007). Butchery marks were noted on material from two deposits (Contexts 6003 and 6007) and consisted of two scapulae with possible hook damage and a cattle humerus which had been chopped towards the distal articulation. Cattle, sheep/goat and pig remains were identified from this trench.

Trench G

This trench gave 54 fragments of bone from three deposits all dating to the later medieval period (Contexts 7006, 7007 and 7015). Preservation was reasonable, although some fresh breakage was noted on material from all deposits. Several fragments of mammal shaft showed evidence of having been split and a cattle skull had been split through the suture below the horncore (Context 7015). Cattle, sheep/goat, pig, fowl and goose remains were identified although all species were represented by only a few fragments.

Trench H

This trench produced 326 fragments of bone from 12 deposits of which all but one contained fragments of pottery dating to the early medieval period. Preservation was generally good, with the material from just two deposits being recorded as 'fair' (Contexts 8013 and 8028). There was evidence of dog gnawing on the remains from four deposits (Contexts 8010, 8026, 8030 and 8033) and burning from two (Contexts 8027 and 8029). Butchery was noted on material from all deposits except one (Context 8028). Bones from Context 8010 included several pig and cow humeri which had been chopped at the distal end, two cattle metatarsals which had been split longitudinally and a goose humerus with knife marks on the distal end.

Cattle remains predominated within this trench, although caprovid and pig bones were also quite well represented. Three fragments of horncore were identified as goat. Cervid, cat, chicken and goose remains were also present in smaller numbers whilst fish were represented by five fragments although these could not be identified to species. Cattle head and foot bones were prevalent, suggesting that these deposits included the waste from initial carcass preparation.

The unidentified fraction made up a large part of this assemblage and consisted of mostly large and medium-sized mammal fragments, many of which had been chopped (Contexts 8010, 8015, 8026 and 8033).

Evidence for a healed fracture was observed on a large mammal rib fragment from Context 8015.

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Discussion and statement of potential

Sediment samples

It is clear that deposits encountered in this intervention varied enormously in their content of plant and invertebrate macrofossils, some (with the characteristics of medieval cess pit fills) being extraordinarily rich, and containing very well preserved material, whilst others yielded little more than wood charcoal and were barren of identifiable invertebrates. One deposit (Context 8027) proved to contain an unusual mixture of charred, part-charred and uncharred remains tentatively interpreted as partly-burnt roofing thatch.

The samples from this site have substantial potential for bioarchaeological analysis which should produce a range of information concerning environment, hygiene, waste disposal activities and (crucially) roofing. Moreover, given the limited extent to which context type has been determined in the field (perhaps as a result of very small-scale excavation and difficult working conditions) bioarchaeological studies may go some way towards interpreting deposits (e.g. as pit fills containing human or livestock faeces). Of particular importance is the fact that much of the well-preserved material represents deposits dated (at least at this stage) to the 12th-13th centuries, a period for which we have remarkably little bioarchaeological evidence.

Eggs of intestinal parasites were seen in six of the seven 'squash' subsamples examined (Context 3030 gave no remains). In half of these cases (from Contexts 1115, 3033 and 3034) only one or two poorly preserved

trichurid eggs were noted indicating a minor faecal component (which might be attributed to a 'background' level) to each of the deposits but of no further interpretative value. The subsamples from Trench H (Contexts 8015, 8024 and 8032) gave greater numbers of better preserved *Trichuris* eggs and also contained small numbers of *Ascaris* eggs indicating a significant faecal component. For two of these (Samples 7 and 13, Contexts 8024 and 8032, respectively) some at least of the trichurid eggs would be measurable. Comparison of these eggs (via a few spot measurements) with data for modern trichurids (Ash and Orihel 1984; Kassai 1998) indicated that the eggs seen were almost certainly of either *Trichuris trichiura* (Linnaeus) or *T. suis* (Schrank), the whipworms of humans and pigs respectively, or perhaps of both. It is particularly difficult to distinguish these two species purely by visual examination of their eggs as the normal size range for the eggs of *T. trichiura* is a wholly contained subset of that for *T. suis*. When, as here, numbers of measurable trichurid eggs are present, a statistical approach to their identification, or the determination of the presence of more than one population, may be attempted, but this is beyond the constraints of this assessment. Similarly, the eggs of the ascarids *Ascaris lumbricoides* (Linnaeus) and *A. suum* (Goeze), the roundworms of humans and pigs, respectively, (though some parasitologists believe that there is just one species of *Ascaris* that infests both humans and pigs) are morphologically almost identical. Taylor (1955) has remarked, on other medieval remains, that a high ratio of *Ascaris* to *Trichuris* eggs may indicate pig rather than human faeces. Conversely, the ratios observed in the Trench H deposits here may suggest their faecal content to be of primarily human origin.

Hand-collected shell

The small hand-collected shell assemblage was, overall, of fair preservation, predominantly recovered from early medieval

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deposits and dominated by oyster valves. Most of the shell bearing contexts were only identified as 'deposits', but a few could be determined as pit and other feature fills. The oyster valves (and the very few other edible shellfish remains) probably all represent human food waste—though clear evidence of their having been opened using tools was a little sparse. It is possible that some of the oyster valves were used in construction (for levelling of joints, as discussed by Salzman 1997, pp. 89), e.g. in the early medieval floor/hearth deposit Context 1029.

From current evidence, the oysters would most likely have been imported to the site from the Kent, Essex or Suffolk coasts or the Firth of Clyde (Winder 1992 and pers. comm.). However, Kenward (1998) has speculated that exploitation of local (but as yet unlocated) oyster beds may well have been more widespread along the east coast of England.

The only hand-collected land snails were single representatives of two catholic taxa (*Cepaea/Arianta* sp. and *Helix ?aspersa*), perhaps of modern origin and of no interpretative value.

The shell assemblage is rather too small to be of any great interpretative value in isolation. However, given the general lack of bioarchaeological evidence from the early medieval period in York, it may be worth fully recording the oyster remains from deposits of this date at Skeldergate to provide records in space and time for use in synthesis.

Hand-collected vertebrate remains

Excavations at Skeldergate produced a medium-sized assemblage of mostly well preserved vertebrate remains. Dog gnawing was present but not extensive and it seems likely that most of the remains were fairly quickly incorporated into the deposits. Little reworking of the material was apparent.

Many of the deposits contained material which has been heavily butchered, although this was more common for the cattle remains than for those of caprovids or of pigs. These, together with the cattle horncores from Trench B suggest the presence of waste associated with initial carcass preparation and possibly with some craft activity, such as hornworking. However, domestic/household refuse was also indicated by the caprovid and pig remains and those of birds and fish. This accords well with data from previous excavations undertaken at this site (Jaques *et al.* 2000), although remains from that intervention showed a greater emphasis on domestic refuse. Similar remains were recovered from 58-9 Skeldergate (O'Connor 1984) and, together, these assemblages point to the use of the area around Skeldergate for minor industrial enterprises associated with initial carcass processing and small scale craft activity such as hornworking and tanning. It also seems to have been a convenient area for the disposal of domestic refuse.

Seventeen, of the 24 samples processed, produced fish remains, including marine, migratory and freshwater species. The assemblage is characteristic of medieval urban deposits and a comparable range of marine and migratory species were recovered from the evaluation excavation at this site (Jaques *et al. op. cit.*). Additionally, this assemblage included freshwater taxa, such as cyprinid and salmonid. Fish remains from other sites (O'Connor 1991) in York have shown shifts in the exploitation of different species (e.g. an increase in the consumption of deep sea fish) through time, however, supply networks and trade in fish between coastal fisheries and urban settlements during the medieval period are still poorly understood.

Recommendations

The samples from this site clearly have potential to provide valuable information and should therefore be investigated further.

Particularly interesting are the samples from Contexts 2040, 3030, 3033, 3034, 3035, 8024, 8027, 8032 and 8035. Three of the samples (those from deposits in Trench H, Contexts 8015, 8024 and 8032) gave sufficient well-preserved *Trichuris* eggs to warrant further attention. Measurements of the better preserved eggs might allow a determination of the likely source (or sources) of the faecal content of these deposits to be attempted via statistical means. The remainder of the bulk sediment samples, which were not subsampled for this assessment, may also be worth examining and they should certainly be reviewed with reference to the results presented here.

A data archive, including measurements, of the oyster remains from all those deposits securely dated as early medieval (12th-13th century) should be prepared.

Further analysis of the vertebrate assemblage would provide useful archaeological and zooarchaeological data, however, a tighter dating framework for some of the deposits would be essential. Additionally, many of the samples, particularly those from Trench 1, produced well-preserved fish remains. Additional sediment from these deposits should be processed for the recovery of the fish bone and these, together with the current material should be analysed more fully.

A previous investigation undertaken as part of the evaluation of this development in 1999-2000 (site code 1999.844) also produced a group of samples which can be identified as warranting re-examination (*vide* Jaques *et al.* 2000); a further group of samples were not examined at that time but brief inspection of the whole sediment suggests they may be worthy of study if dating and archaeological context interpretation are sufficiently good. Similarly, the vertebrate assemblage from this intervention has not been studied but would provide additional useful data.

On the basis of the comments above, it is felt that further analysis of the biological material

from this current excavation would be considerably enhanced by the inclusion of the samples and vertebrate material from the evaluation intervention.

Retention and disposal

All of the current material should be retained for the present.

Archive

All material is currently stored by Palaeoecology Research Services (Unit 8, Dabble Duck Industrial Estate, Shildon, County Durham), along with paper and electronic records pertaining to the work described here.

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Table 1. Hand-collected shell from NCP car park, Skeldergate, York (YORYM2003.282) by context. Key: U/S = unstratified; 'Cn' = Context number; Tr = Trench; Date = provisional dating (underlining indicates the more likely of two dates if known); 'med' = medieval; 'pm' = post-medieval; 'l' = number of left (or lower) valves; 'r' = number of right (or upper) valves; 'i' = number of valves of indeterminate side; 'e' = average erosion score for valves; 'f' = average fragmentation score for valves; 'meas' = estimated number of valves intact enough to be measured; 'kn' = number of valves showing damage characteristic of the oyster having been opened using a knife or similar implement; 'fr' = number of valves showing fresh breakage; wt = total weight of shell (in grammes).

Cn	Tr	Date	Oyster valves									Notes	wt	
			l	r	i	e	f	meas	kn	fr	worm			
1013	A	pm	0	0	0	0	0	0	0	0	0	0	1 ?freshwater mussel valve	2
1019	A	13/14	1	0	0	1	2	0	?1	1	0	0		7
1029	A	late 13/14	0	2	2	2	2	1	0	?1	0	0		41
1040	A	-	3	7	2	3	2	0	?1	2	0	0	many mm-flakes	72
1051	A	13/14	0	1	0	2	2	0	?1	1	0	0	some mm-flakes	13
?1058	A	13/14 or 14/15	1	2	1	2	2	2	0	0	0	0	1 <i>Helix ?aspersa</i>	42
1070	A	13/14	0	1	0	1	1	1	0	0	0	0		19
1112	A	14/15	0	1	0	2	1	1	?1	?1	0	0		7
1115	A	13/14	0	2	0	2	1	1/?2	2	?1	0	0		51
1127	A	13/14	1	0	0	2	1	?1	1	0	0	0		14
1133	A	12/13	0	1	0	2	1	?1	?1	1	0	0		10
2017	B	-	0	2	0	2	2	?1	1/?2	1	0	0		28
2020	B	15	3	4	1	1	1	4	3/?4	1	0	0	1 left and 1 right valve fused; 1 mussel valve	63
2021	B	pm	1	0	0	2	1	?1	?1	1	0	0		9
2025	B	12 or 19	1	0	0	1	1	1	?1	?1	0	0		5
2026	B	15/16	1	1	0	1	1	1	1/?2	1	0	0		14
2040	B	med	0	0	0	0	0	0	0	0	0	0	1 cockle valve	2
3014	C	19	0	1	1	3	3	0	1	2	0	0		27
3015	C	19	3	2	3	3	3	0	1/?2	1/?2	0	0		101
3018	C	13 or ?19	0	1	1	3	3	0	?1	1	0	0		15
3028	C	-	3	5	6	3	3	0	3/?4	3	0	0	a few mm-flakes	89
3030	C	12	4	6	1	1	2	2/?4	4	2	?1	0		203
3033	C	12/13	2	6	3	1	3	4	1/?2	1	0	0	A few mm flakes; 1 '1/2' hazelnut shell	126
3034	C	13	4	5	9	3	3	4	1/?2	2	0	0	1 mussel valve fragment; 1 '1/2' hazelnut shell	207
3045	C	12/13 or 15/16	0	0	1	3	3	0	0	0	0	0		4
4004	D	16-18	0	1	0	1	1	1	0	0	0	0		21
5004	E	-	5	6	2	2	1	6	3	2	0	0	a few mm-flakes	89

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Cn	Tr	Date	Oyster valves									Notes	wt
			l	r	i	e	f	meas	kn	fr	worm		
5005	E	16	0	1	0	3	1	0	?1	1	?1		5
5006	E	-	0	0	1	3	3	0	0	0	0		5
5008	E	-	1	0	0	3	1	0	?1	0	0		20
5010	E	15/16	0	2	0	1	1	2	1	0	0		56
5011	E	15/16	1	2	2	1	2	1	?1	1	0		59
5019	E	15/16	0	1	0	1	1	1	?1	?1	0		7
5022	E	12/13	0	1	0	2	1	?1	1	1	0		26
5026	E	15	4	1	0	3	2	0	2	3	0	1 <i>Cepaea/Arianta</i> sp.	83
5027	E	12/13	1	0	0	1	3	0	?1	1	0		10
5028	E	12/13	0	0	1	3	3	0	0	0	0		6
7004	G	-	0	0	1	1	3	0	0	1	0		5
7015	G	15	3	0	0	3	1	1/?2	1	2	0		57
8010	H	12	0	1	2	2	3	0	1	1	0		22
8013	H	12/13	4	1	0	2	1	3	2/?3	2	0	right valve freshly broken into 2 pieces	87
8026	H	12/13	3	3	2	3	2	1/?2	2/?3	1	0	1 right and 1 left valve fused; 1 mussel valve	97
8027	H	12	4	5	3	2	2	3/?5	4	2	0		160
8029	H	12/13	8	10	7	2	2	10/?12	5/?6	4	0	some mm-flakes	393
8033	H	12/13	3	3	3	2	1	2/?3	1	1	0	1 right and 1 left valve fused	97
8035	H	12/13	3	6	2	2	2	3/?5	5/?6	1	0	another oyster valve in bag labelled ?Context 8035 was not recorded	217
U/S	H		1	1	0	2	2	0	1	0	0	from Trench 8	69
Total/ Average			69	95	57	1.9	1.7	56/?73	48/?72	45/?51	0/?2		2762

Table 2. Hand-collected shell from NCP car park, Skeldergate, York (YORYM2003.282) by period. Key: as for Table 1 (above) plus, No. = number of contexts; early medieval = 12-14th centuries; late medieval = 15th-16th centuries; post-medieval = 17th-19th centuries; undated = undated and mixed deposits.

Period	No.	l	r	i	e	f	meas	kn	fr	worm	wt
early medieval	21	38	55	35	1.9	1.9	36/?50	30/?41	22/?25	?1	1813
late medieval	8	12	12	3	1.8	1.3	10/?11	8/?13	9/?10	?1	344
post-medieval	4	4	3	4	2.7	2.3	0/?1	2/?4	4/?5	0	139
undated	13	14	24	15	2.3	2.1	10/?11	7/?13	10/?11	0	397
unstratified	1	1	1	0	2	2	0	1	0	0	69

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Table 3: Hand-collected vertebrate remains from NCP car park, Skeldergate, York (YORYM2003.282) by period. Key: early medieval = 12-14th centuries; late medieval = 15th-16th centuries; post-medieval = 17th-19th centuries; undated = undated and mixed deposits.

Species		early medieval	late medieval	post-medieval	undated	Total
<i>Canis</i> f. domestic	dog	2	1	1	-	4
<i>Felis</i> f. domestic	cat	1	4	1	-	6
<i>Equus</i> f. domestic	horse	-	2	-	-	2
<i>Sus</i> f. domestic	pig	36	21	8	19	84
Cervid	cervid	2	-	-	5	7
<i>Bos</i> f. domestic	cow	134	51	45	114	344
Caprovid	sheep/goat	57	36	27	22	142
<i>Capra</i> f. domestic	goat	3	-	-	2	5
<i>Ovis</i> f. domestic	sheep	-	-	1	-	1
<i>Anser</i> sp	goose	16	7	2	6	31
<i>Gallus</i> f. domestic	chicken	19	7	3	7	36
Wader	wader	-	-	-	1	1
Fish		6	-	-	5	11
Unidentified		339	212	92	185	828
Total		615	341	180	366	1502

Table 4: Hand-collected vertebrate remains from NCP car park, Skeldergate, York (YORYM2003.282) by trench."

Species		A	B	C	D	E	F	G	H
<i>Canis</i> f. domestic	dog	3	-	-	1	-	-	-	-
<i>Felis</i> f. domestic	cat	-	-	1	1	4	-	-	1
<i>Equus</i> f. domestic	horse	2	-	-	-	-	-	-	-
<i>Sus</i> f. domestic	pig	21	8	10	11	4	1	5	24
Cervid	cervid	4	-	2	-	-	-	-	1
<i>Bos</i> f. domestic	cow	101	89	28	23	15	8	9	71
Caprovid	sheep/goat	28	21	25	21	6	2	5	35
<i>Capra</i> f. domestic	goat	2	-	-	-	-	-	-	3
<i>Ovis</i> f. domestic	sheep	1	-	-	1	-	-	-	-
<i>Anser</i> sp.	goose	10	2	-	2	4	-	3	10
<i>Gallus</i> f. domestic	chicken	7	-	5	3	5	-	1	15
Wader sp.	wader	-	-	-	-	1	-	-	-
Fish		2	-	2	-	-	-	-	5
Unidentified		260	95	138	73	51	19	31	161
Total		440	215	211	135	90	30	54	326