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**Assessment of biological remains from 41 Piccadilly, York
(sitecode: 1998.15)**

by

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Summary

Thirty samples of sediment from deposits revealed by excavations at 41 Piccadilly, York, were submitted for an assessment of their bioarchaeological remains.

The plant and invertebrate remains in this set of samples appear to be mostly very sparse and generally rather poorly preserved; the larger assemblages do not have a character which lends itself to a definitive interpretation in terms of human activity

The assemblage of bone from the samples from 41 Piccadilly, has some potential for further work, although unless combined with the hand-collected material, this would be of a very limited nature.

Any remaining sediment from the assessed samples should be processed for the recovery of fish remains and any further well-dated samples should also be processed. Integration of the bulk-sieved and hand-collected assemblages should take place to allow an interpretation of the bone yielding deposits and to gain an understanding of the nature of the assemblage as a whole. Further work should concentrate on the medieval and late medieval deposits as these produced the most material (from the samples). If no integration of the bulk-sieved and hand-collected assemblages takes place then a full archive should be made of the bone recovered from the samples.

KEYWORDS: 41 PICCADILLY; YORK; NORTH YORKSHIRE; ASSESSMENT; PLANT REMAINS; CHARRED PLANT REMAINS; VERTEBRATE REMAINS; HUMAN BONE

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Introduction

An archaeological excavation was carried out by MAP Archaeological Consultancy Ltd. at 41 Piccadilly, York, in mid 1998. Thirty sediment samples ('GBA' and 'BS' *sensu* Dobney *et al.* 1992) were recovered. These samples were submitted to the EAU for assessment of their bioarchaeological potential.

Methods

The sediment samples were inspected in the laboratory and descriptions of their lithologies were recorded using a standard *pro forma*. Subsamples of 2 or 3 kg were taken from seven of the samples and processed, following the procedures of Kenward *et al.* (1980; 1986), to recover plant and invertebrate macrofossils. Nine of the samples were sieved to 500 µm for the recovery of small bones, larger plant macrofossils and artefacts.

A faecal concretion recovered from the bulk sieving of Sample 76 (Context 1421) and sediment from Sample 102 (Context 1566) were examined for the eggs of parasitic intestinal nematodes using the 'squash' technique of Dainton (1992).

Table 1 gives a list of the samples selected for assessment and brief notes on their treatment.

For the vertebrate remains, data were recorded electronically directly into a series of tables using a purpose-built input system

and *Paradox* software. For material from each context and sample, subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, semi-quantitative information was recorded concerning fragment size, dog gnawing, burning, butchery and fresh breakage.

Where possible, fragments were identified to species or species group using the reference collection at the Environmental Archaeology Unit, University of York. Fragments not identifiable to species were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal 1 (assumed to be caprovid, pig or small cervid), medium-sized mammal 2 (assumed to be cat, dog, hare-sized mammals), small mammal, unidentified mammal, unidentified bird and unidentified fish.

Total numbers of fragments by species were recorded, together with the number of measurable fragments and those yielding ageing information. As well as counts of fragments, total weights were recorded for all identifiable and unidentifiable categories.

Results

The results are presented in context number order with archaeological information provided by the excavator given in square brackets.

Context 1215 [?Roman. Fill of pit 1127]
Sample 39 (44 kg bulk-sieved to 500 µm)

Just moist, mid to dark grey-brown, crumbly (working soft and slightly sticky), slightly clay silty sand with occasional patches of red-brown sand. Medium-sized and large stones (>20 mm), flecks of mortar and fragments of brick/tile were present in the sample.

The residue was mostly sand, gravel and stones with a little charcoal (to 15 mm), iron-rich concretions, fragments of pot (to 20 mm), brick/tile (to 150 mm) and animal bone.

A total of 437 fragments of bone (weighing 117.6 g) were recovered from this sample, of which 415 were unidentifiable mammal and fish bones. The rest comprised pig, caprovid, eel (*Anguilla anguilla* (L.)), large clupeid (possibly Allis shad (*Alosa alosa* (L.))), mouse/vole and amphibian bones.

Context 1224 [fill of wattle lined pit - above basal fill 1264]
Sample 40 (3 kg paraffin flotation)

Moist to wet, dark grey to slightly purplish-brown, plastic (working thixotropic and sticky), silty clay sand to sandy clay silt. No inclusions were seen in the sample.

The large residue of about 500 cm³ consisted mainly of concreted silt and sand in clasts (to 10 mm maximum dimension), including probable root-channel casts, with free sand and gravel and traces of brick/tile, charcoal and burnt bone fragments. A few tens of cubic centimetres comprised very decayed wood and some bark, with quite a surprising range of mostly quite well preserved seeds, including taxa typical of waste ground and arable land, notably *Atriplex* (oraches), *Chenopodium album* L. (fat hen), *Lamium* Section *Lamiopsis* (purple and other deadnettles), *Reseda luteola* L. (weld or dyer's rocket), *Stellaria media* (L.) Vill. (chickweed) and stinging and annual nettles (*Urtica dioica* L. and *U. urens* L.). There were also traces of various parts of willow trees: buds, fruits, and twig fragments (and twig epidermis), perhaps from wetland in the vicinity (there were a few other taxa consistent with this, all in very small amounts). Taken overall, however, the recovered plant remains do not point to a particular mode of formation of the deposit or the nature of the fill.

The invertebrate remains were fairly well-preserved and showed a 'background' fauna together with taxa indicating a distinct aquatic influence and some possible human influence in the vicinity. A larger subsample (say, 10 kg) would probably provide a more interpretatively useful assemblage.

Context 1254 [medieval pit fill]
Sample 52 (12 kg bulk-sieved to 500 µm)

Just moist, mid to dark grey-brown, crumbly (working soft), slightly sandy clay silt with abundant angular clasts of mid red-brown silty clay with blue-grey veining.

The residue was mostly sand, gravel and stones with two ?iron nails, a few small pieces of charcoal (to 15 mm), two fragments of pot (to 23 mm) and some animal bone.

Of the 171 fragments of bone (weighing 47.3 g) recovered from this sample, only five were identifiable (two each of cattle and caprovid, and a single amphibian bone), the rest being unidentifiable mammal and fish.

Context 1315 [?post hole fill - sub-circular/ovate feature with steep-sided profile and flattish base]
Sample 581 (12 kg bulk sieved to 500 µm)

Just moist, dark grey-brown, crumbly (working soft and sticky), silty clay sand with small clasts of red-brown sandy clay.

The residue was mostly gravel and stones with a piece of glassy slag, a few small pieces of charcoal (to 12 mm), a single fragment of charred ?nutshell, seven pot sherds (to 35 mm) and some animal bone.

A total of 193 fragments of bone (weighing 21.4 g) were recovered from this sample, of which 182 were unidentifiable mammal and fish. Species identified included sheep, eel and herring (*Clupea harengus* L.).

Sample 582 (12 kg bulk sieved to 500 µm)

Just moist, mid greyish-brown, crumbly (working sticky), sandy, clay silt to silty clay with flecks of mortar and charcoal and medium-sized stones (20 to 60 mm) present.

The residue was mostly gravel and stones with some stones, a few small fragments of pot (to 16 mm), two small beads and some fragments of animal bone

A single eel vertebra was the only identifiable bone fragment from this sample. The remaining 123 fragments (overall weight 10.7 g) comprised unidentifiable mammal bird and fish remains.

Context 1324 [possible industrial waste]

Sample 59 (2 kg washover and 16 kg bulk-sieved to 500 µm)

Just moist, dark greyish-brown, crumbly (working slightly plastic; more plastic and sticky when wet), sandy, silty clay to clay silt. Small stones (6 to 20 mm), pot, charcoal, fish bone and white flecks were present in the sample.

There was a large residue (from the 2 kg subsample) of about 250 cm³ of sand and gravel with traces of bone, brick/tile and charcoal. The very small washover from this consisted of a few cm³ of charcoal and other charred material, including a single small *Vicia* sp. (vetch) seed and two very poorly preserved cereal grains.

A single eel vertebra and two herring fragments constituted the identifiable fraction of vertebrate remains from the 2 kg subsample, the remainder (16 fragments) being unidentifiable mammal and fish. The total weight of bone was 13 g.

The residue from the bulk sieved subsample was mostly sand and gravel with a few stones, a little charcoal (to 12 mm), fragments of pot (to 50 mm), a few fragments of oyster (*Ostrea edulis* L.) shell, and some animal bone.

Of the 126 bone fragments (weighing 69.2 g) recovered from the sample, 95 were unidentifiable mammal bird and fish. The remaining 31 included eel, herring and amphibian.

Context 1326 [truncated Romano-British layers containing residual Romano-British ceramics]

Sample 65.01 (11 kg bulk sieved to 500 µm)

A total of 89 fragments of bone (weighing 25.9 g) were recovered from this sample. Identifiable fragments included those of pig, caprovid, amphibian, gadid and herring. The rest comprised

unidentifiable fish and mammal fragments.

The remainder of the residue was mostly gravel with a little charcoal (to 19 mm) and six pot sherds (to 32 mm).

Sample 65.02 (13 kg bulk-sieved to 500 µm)

The residue was mostly gravel with some sand and stones, an iron nail, a piece of slag (to 55 mm), two fragments of pot (to 35 mm), a few charcoal fragments (to 10 mm), three fragments of charred nutshell and some animal bone.

Single cow, caprovid and thornback ray (*Raja clavata* L.) bones together with 15 herring fragments constituted the identifiable bones from this sample, the rest (106 fragments) being unidentifiable mammal and fish bones. The total assemblage weighed 76.6 g.

Context 1418 [basal fill of late medieval pit]

Sample 73 (12 kg bulk-sieved to 500 µm)

dumped domestic rubbish or slower accumulation

Just moist, mid to dark grey-brown, crumbly (working soft and slightly sticky), sandy slightly clay silt with abundant mid red-brown sandy clay lumps with blue grey veining (appears to be reworked boulder clay). Medium-sized stones (20 to 60 mm), mortar, fragments of brick/tile and pot, were present.

The residue was mostly sand and gravel with some coal (to 32 mm), a piece of brick/tile (to 58 mm), five pot sherds (to 50 mm), an iron-rich concretion, a modern hornbeam fruit, and some bone.

A single human bone fragment was recorded from this sample. Of the 202 remaining fragments (weighing 18.4 g), a further 44 were identifiable and included the remains of caprovid, amphibian, gadid, eel, pleuronectid, and herring. The unidentifiable fraction contained mammal (including small mammal) fish and bird fragments.

Context 1421 [extensive deposit cut by two 15th century pits (1419 and 1438)]

Sample 76 (26 kg bulk-sieved to 500 µm, microfossil 'squash')

Moist, mid brown, unconsolidated, slightly clay

sandy silt with small lumps of buff clay. Small stones (6 to 20 mm), fragments of brick/tile, cinder, charcoal and fragments of marine mollusc were present and fragments of mammal bone were common in the sample.

The residue was mostly gravel with some pot sherds (to 110 mm), pieces of ?daub (to 60 mm), coal (to 35 mm), a ?faecal concretion, two fragments of rotted oyster shell, small fragments of eggshell (to 5 mm), some iron objects and slag, and animal bone.

The microfossil 'squash' on the ?faecal concretion was mostly inorganic material with a trace of organic detritus and a few fungal hyphae. No parasite eggs were seen. The general form and consistency of the concretion suggested that it was formed from dog faeces. The absence of parasite eggs cannot confirm or deny this, but concretions of dog faeces or coprolites rarely yield identifiable parasite egg remains.

Quite a large quantity of well-preserved bone was recovered from this sample, amounting to approximately 1289 fragments (weighing 223.8 g). Mammalian taxa included caprovid, sheep and pig. The only identified avian remains were of domestic fowl. Well-preserved fish remains were numerous, with 432 identified and approximately 580 unidentified fragments. The identified fish remains included ?turbot (cf. *Psetta maxima* (L.)), ?plaice (cf. *Pleuronectes platessa* L.), other Pleuronectidae, eel, thornback ray, herring, whiting (*Merlangius merlangus* (L.)), ling (*Molva molva* (L.)), cod (*Gadus morhua* L.), haddock (*Melanogrammus aeglefinus* (L.)), and other Gadidae. The most numerous remains were those of herring (137 fragments) and haddock (42). The remainder of the fragments were unidentified bird and mammal.

Context 1467 [fill of large late 14th/15th century pit]

Sample 80 (2 kg bulk sieved)

Moist, mid to dark grey-brown, crumbly to unconsolidated (working soft), slightly sandy clay silt. Small and large stones (6 to 20 mm and >60 mm), fragments of brick/tile, charcoal and fragments of burnt mammal bone were present in the sample.

The residue was mostly gravel and sand with a piece of ?brick/tile (to 60 mm), three pot sherds (to 30 mm), a little coal (to 28 mm), small fragments of

eggshell (to 8 mm), iron slag (to 60 mm) and some animal bone.

Quite a large quantity of well-preserved vertebrate remains were recovered from this sample—1082, mostly very small, fragments (weighing 160.8 g). The mammal component comprised the remains of cow, caprovid and rat. The rat bones were a calcaneum and metapodial, not identifiable to species level. Well-preserved fish remains were numerous, with 121 identified and approximately 550 unidentified fragments. The identified fish remains included ?plaice and other pleuronectids, eel, herring, ?salmon (cf. *Salmo salar* L.), whiting, cod, haddock, and other Gadidae. Again, the most numerous remains were those of herring (55 fragments) and haddock (31). The rest of the bones were unidentifiable bird and mammal fragments.

Context 1522 [?]

Sample 88 (7 kg bulk-sieved to 500 µm)

Just moist, mid grey-brown, crumbly (working sticky), sandy clay silt. Medium-sized stones (20 to 60 mm), fragments of brick/tile, fish bone and fragments of oyster shell were present in the sample.

The residue was mostly gravel and sand with a few stones, a little charcoal (to 24 mm), two fragments of rotted oyster shell, and some bone.

A total of 129 bone fragments (weighing 11.8 g), including a single human [bone] fragment, were recovered from this sample. The other mammalian material was unidentifiable. The identifiable fish taxa were sand eel (*Ammodytes* sp.), eel and herring. Amphibian bones were also recovered.

Context 1564 [?cessy deposit]

Sample 100 (2 kg washover)

Moist, dark greyish-brown (lighter in places), crumbly (working plastic and sticky when wet), sandy clay silt. Rotted mortar, a trace of charcoal, fragments of mammal bone and mm-scale voids were present in the sample.

The large residue of about 350 cm³ comprised sand and gravel with some clasts of concreted sediment (to 20 mm) and traces of bone, brick/tile, charcoal, cinders, coal and pottery. The washover from this consisted of 1-2 cm³ of fine (<1 mm) woody and

herbaceous detritus and a few seeds, of which only *Carex* (sedge) nutlets were present as more than trace amounts. A few very poorly preserved invertebrate remains were noted. The identifiable remains are not interpretatively significant.

A total of 29 vertebrate fragments (weighing 1.9 g) were recovered from this sample, of which 25 were unidentified mammal and fish. Herring and whiting were the identified species present.

Forty bone fragments (weighing 2.9 g) were recovered from this sample, including a single small mammal bone, eight unidentified fish and 31 unidentified mammal fragments.

Context 1566 [basal fill of pit or ?well]
Sample 102 (2 kg washover, microfossil 'squash')

Moist, mid to dark grey-brown, crumbly (working slightly plastic), sandy slightly clay silt. Mortar was common and medium-sized stones (20 to 60 mm), charcoal and ?eggshell were present in the sample.

A very large residue of about 500 cm³ of sand and gravel with lumps of mortar and stone (both to 60 mm) was obtained from this subsample, and from it a washover of about 20 cm³ of fine woody and herbaceous detritus (mostly <1 mm). There were a few identifiable seeds, whose state of preservation was rather variable. The presence of moderate numbers of small fragments of seeds of *Agrostemma githago* (corncockle) and traces of wheat/rye (*Triticum/Secale*) 'bran' fragments perhaps suggests some flour-based food was present, maybe from faecal material (though if so, it was extremely heavily decayed). In this regard, the presence of modest quantities of *Sphagnum* (including *S. imbricatum*) leaves may be significant; if these are not remnants of moss brought with peat, they may represent material used for sanitary purposes. The remaining plant macrofossils mainly comprised weeds and wetland plants with no one group predominating.

The invertebrate remains included *Daphnia ephippia* (water flea resting eggs) indicative of standing, though perhaps only very temporary, water. The few other invertebrate remains were of no interpretative value.

The microfossil 'squash' was mostly organic detritus with some inorganic material. A few phytoliths, pollen grains and fungal hyphae were present together with two (possibly three) trichurid eggs (one of which was measurable).

Context 1573 [fill of large medieval pit]
Sample 103 (2 kg washover)

Dark greyish-brown (with local inclusions of dark purplish-brown amorphous organic material), crumbly (plastic and sticky when wet), sandy clay silt. Flecks of rotted mortar, concretions and fragments of mammal bone were present in the sample.

The very large residue of about 700 cm³ was found to consist mainly of sand, coal, and cinders with some brick/tile and traces of gravel and bone. The small washover of about 20 cm³ was of irregularly-shaped charcoal fragments and uncharred herbaceous detritus. The identifiable seeds present were mostly rather strongly decayed; they included plants from disturbed places and one or two probably representing wetland habitats. No indications of cess or burnt seeds were noted.

There were too few invertebrate remains to be of any great interpretative value, although there were some taxa indicative of human occupation (grain pests). A very large subsample (of 20 kg) would provide a useful assemblage.

Context 1583 [?lining of pit]
Sample 107 (2 kg washover)

Moist, dark greyish-brown (locally paler and more grey), crumbly and slightly sticky (working plastic and very sticky when wet), sandy clay silt (locally more sandy and more clay). Small and medium-sized stones (6 to 60 mm), fragments of brick/tile and coal were present in the sample.

The large residue of about 250 cm³ comprised sand with cinders and gravel and traces of brick/tile, coal, mortar and stone. There was a washover of a few cm³ of fine woody and herbaceous detritus, mostly <1 mm; the few seeds present were mostly rather eroded—they included weeds and wetland plants and a single grape (*Vitis vinifera* L.) pip. The single seed of greater celandine (*Chelidonium majus* L.) would be consistent with build-up in the vicinity of buildings as the plant is often found at the foot of walls.

The recovered invertebrate remains were very poorly preserved and too few in number to be of any great interpretative value, although there were some taxa indicative of human occupation and others

characteristic of stable manure. A very large sample (of 20 kg) would perhaps yield an interpretatively useful assemblage.

Of the 27 vertebrate fragments recovered from this sample 21 were unidentified mammal and fish remains. Eel and herring were the species of fish identified.

Discussion and statement of potential

The plant and invertebrate remains in this set of samples appear to be mostly very sparse and generally rather poorly preserved; the larger assemblages do not have a character which lends itself to a definitive interpretation in terms of human activity (although in a few cases, Contexts 1224, 1573 and 1583, larger subsamples may yield interpretable assemblages).

Overall the bones were well-preserved, with fish remains described as 'good to excellent' and other fragments as 'fair to good'. Angularity (appearance of broken surfaces) was described as 'spiky' for the fish remains and variable (a mixture of 'spiky', 'battered' and a few 'rounded' fragments) for other bones. The colour of the fish bones was noted as 'gingery-brown', with other fragments described as gradations of 'fawn' and 'brown'. Fragmentation was extensive, with over 50% of fragments in all samples being below 50 mm in any one dimension. A single sample (Context 1215, Sample 39/BS) contained dog-gnawed fragments, and burnt fragments were present in small quantities in five samples. Butchery was noted on fragments in most samples and fresh breakage was evident in all of the samples to a limited degree. Table 2 shows the numbers of fragments by species, together with the numbers of measurable fragments, those

giving ageing or sexing information, and weights. Table 3 gives the numbers of fragments by period for each species.

Discussion of the vertebrate remains has been limited by the fact that only the bone recovered from the samples was available for assessment. The small numbers of fragments larger than 50 mm suggests that this component may have been removed from the samples, hence they may not be 'whole earth' samples,

Samples 76/BS (Context 1421) and 80/BS (1467) were of particular note as they contained a large number of fish bones, many of which were identifiable to species. The excavators' question regarding the status of the individuals who may have dumped these deposits cannot be addressed by the material from the samples alone, but would require integration with the hand-collected assemblage. Similarly, the excavators' notes suggest that Context 1522 contained 'many large fish bones' in the hand-collected material, so the two assemblages need to be combined for an interpretation to be attempted. Insufficient vertebrate remains were recovered from Contexts 1254 and 1566 to address the excavators' questions.

The excavators noted that Context 1254 contained reworked human material, but it should be noted that Contexts 1418 and 1522 also contained human bone fragments. These fragments suggest the presence of redeposited material which should be borne in mind in any further work.

The assemblage of bone from the samples from 41 Piccadilly, has some potential for further work, although unless combined with the hand-collected material, this would be of a very limited nature.

Recommendations

It does not seem worthwhile to pursue the analysis of further samples unless clear archaeological questions can be posed to which analysis of the plant and invertebrate remains may offer some answers.

Any remaining sediment from the assessed samples should be processed for the recovery of fish remains and any further well-dated samples should also be processed. Integration of the bulk-sieved and hand-collected assemblages should take place to allow an interpretation of the bone yielding deposits and to gain an understanding of the nature of the assemblage as a whole. Further work should concentrate on the medieval and late medieval deposits as these produced the most material (from the samples). If no integration of the bulk-sieved and hand-collected assemblages takes place then a full archive should be made of the bone recovered from the samples.

Retention and disposal

All the samples should be retained pending processing for bone recovery, or until such time that a decision can be made that further analysis is not warranted, at which point disposal can be effected.

Archive

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

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References

Dainton, M. (1992). A quick semi-quantitative method for recording nematode gut parasite eggs from archaeological deposits. *Circaea* **9**, 58-63.

Dobney, K., Hall, A. R., Kenward, H. K. and Milles, A. (1992). A working classification of sample types for environmental archaeology. *Circaea, the Journal of the Association for Environmental Archaeology* **9** (for 1991), 24-6.

Kenward, H. K., Engleman, C., Robertson, A., and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3** (for 1985), 163-72.

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.

Table 1. List of the sediment samples assessed from 41 Piccadilly, York (with notes on their treatment).

Context no.	Sample no.	Context description	Sample type	Notes
1215	39	Basal fill of ?Roman pit 1127	BS	44 kg bulk sieved to 500 µm
1224	40	Fill of wattle lined pit - above basal fill 1264	GBA	3 kg paraffin flotation
1254	52	Medieval pit fill containing animal, and redeposited human, bone	GBA	12 kg bulk sieved to 500 µm

1315	581	?Post hole fill containing Romano-British ceramics	BS	12 kg bulk sieved to 500 µm
	582	as above	BS	12 kg bulk sieved to 500 µm
1324	59	Possible industrial waste	GBA	2 kg washover
1326	65.01	Truncates Romano-British layers with some residual Romano-British ceramics	BS	11 kg bulk sieved to 500 µm
	65.02	as above	BS	13 kg bulk sieved to 500 µm
1418	73	Fill of late medieval pit	BS	12 kg bulk sieved to 500 µm
1421	76	Extensive deposit cut into by two C15 pits (1419 and 1438)	BS	26 kg bulk sieved to 500 µm, microfossil 'squash' on ?faecal concretion recovered from the sample residue
1467	80	Fill of large C14/C15 pit	BS	2 kg bulk sieved to 500 µm
1522	88	?	GBA	7 kg bulk sieved to 500 µm
1564	100	?cessy deposit	GBA	2 kg washover
1566	102	Basal fill of pit or ?well	GBA	2 kg washover, microfossil 'squash'
1573	103	Fill of large medieval pit	GBA	2 kg washover
1583	107	?pit lining	GBA	2 kg washover

Table 2. The vertebrate remains from the residues of bulk-sieved and GBA samples from 41 Piccadilly, York. Key: Total frags = total number of fragments; No. meas = number of measurable fragments; No. teeth = number of isolated mandibular teeth; No. unfused = number of fragments with unfused epiphyses; No. juv = number of juvenile fragments.

Species		No. meas	No. unfused	No. juv	No. teeth	Total frags	Weight (g)
Murine/Microtine	Mouse/vole	-	-	-	-	4	0.1
<i>Rattus</i> sp.	Rat	-	-	-	-	2	0.1
<i>Sus</i> f. domestic	Pig	-	1	2	-	3	36.6
<i>Bos</i> f. domestic	Cattle	-	-	-	-	11	50.8
<i>Ovis</i> f. domestic	Sheep	-	-	-	-	3	1.0
Caprovid	Sheep/goat	1	1	-	2	16	61.0
<i>Homo sapiens</i>	Human	-	-	-	-	2	0.9
<i>Gallus</i> f. domestic	Fowl	-	-	-	-	3	1.8

Amphibian	Amphibian	-	-	-	-	37	0.6
<i>Raja clavata</i> L.	Thornback ray	-	-	-	-	6	1.3
<i>Clupea harengus</i> L.	Herring	-	-	-	-	298	2.0
Clupeidae	Clupeid	-	-	-	-	1	0.1
<i>Salmo salar</i> L.	?Salmon	-	-	-	-	1	0.2
<i>Anguilla anguilla</i> (L.)	Eel	-	-	-	-	25	0.2
<i>Gadus morhua</i> L.	Cod	-	-	-	-	11	17.1
<i>Melanogrammus aeglefinus</i> (L.)	Haddock	-	-	-	-	73	6.4
<i>Merlangius merlangus</i> (L.)	Whiting	-	-	-	-	21	0.5
cf. <i>Merlangius merlangus</i> (L.)	?Whiting	-	-	-	-	1	0.1
<i>Molva molva</i> (L.)	Ling	-	-	-	-	1	1.0
cf. <i>Molva molva</i> (L.)	?Ling	-	-	-	-	3	0.1
Gadidae	Cod family	-	-	-	-	29	0.9
cf. Gadidae	?Cod family	-	-	-	-	3	0.1
<i>Ammodytes</i> sp.	Sand eel	-	-	-	-	10	0.1
cf. <i>Psetta maxima</i> (L.)	?Turbot	-	-	-	-	1	1.8
cf. <i>Pleuronectes platessa</i> L.	?Plaice	-	-	-	-	9	0.2
Pleuronectidae	Flat fish	-	-	-	-	7	0.1
Subtotal		1	2	2	2	581	185.1
Large mammal		-	-	-	-	37	167.3
Medium-sized mammal 1		-	-	-	-	77	101.7
Medium-sized mammal 2		-	-	-	-	8	0.6
Small mammal		-	-	-	-	2	0.1
Unidentified mammal		-	-	-	-	1,790	298.0
Unidentified bird		-	-	-	-	48	11.9
Unidentified fish		-	-	-	-	1,539	37.2
Subtotal		0	0	0	0	3501	616.8
Total		1	2	2	2	4082	801.9

Table 3. The vertebrate remains from the residues of bulk-sieved and GBA samples by date, from 41 Piccadilly, York.

Species		Roman	Anglo- Scandinavian	12th century	13th century	15th century	Total no. fragments
Murine/Microtine	Mouse/vole	4	-	-	-	-	4
<i>Rattus</i> sp.	Rat	-	-	-	-	2	2
<i>Sus</i> f. domestic	Pig	1	-	1	-	1	3
<i>Bos</i> f. domestic	Cattle	-	2	1	-	8	11
<i>Ovis</i> f. domestic	Sheep	2	-	-	-	1	3
Caprovid	Sheep/goat	2	2	2	-	10	16
<i>Homo sapiens</i>	Human	-	-	-	-	2	2
<i>Gallus</i> f. domestic	Fowl	-	-	-	-	3	3

Amphibian	Amphibian	17	1	5	-	14	37
<i>Raja clavata</i> L.	Thornback ray	-	-	1	-	5	6
<i>Clupea harengus</i> L.	Herring	3	-	59	6	230	298
Clupeidae	Clupeid	1	-	-	-	-	1
<i>Salmo salar</i> L.	?Salmon	-	-	-	-	1	1
<i>Anguilla anguilla</i> (L.)	Eel	4	-	9	3	9	25
<i>Gadus morhua</i> L.	Cod	-	-	-	-	11	11
<i>Melanogrammus aeglefinus</i> (L.)	Haddock	-	-	-	-	73	73
<i>Merlangius merlangus</i> (L.)	Whiting	-	-	-	-	21	21
cf. <i>Merlangius merlangus</i> (L.)	?Whiting	-	-	-	1	-	1
<i>Molva molva</i> (L.)	Ling	-	-	-	-	1	1
cf. <i>Molva molva</i> (L.)	?Ling	-	-	-	-	3	3
Gadidae	Cod family	-	-	-	-	29	29
cf. Gadidae	?Cod family	-	-	3	-	-	3
<i>Ammodytes</i> sp.	Sand eel	-	-	-	-	10	10
cf. <i>Psetta maxima</i> (L.)	?Turbot	-	-	-	-	1	1
cf. <i>Pleuronectes platessa</i> L.	?Plaice	-	-	-	-	9	9
Pleuronectidae	Flat fish	-	-	-	-	7	7
Subtotal		34	5	81	10	451	581
Large mammal		6	5	8	-	18	37
Medium-sized mammal 1		21	4	7	-	45	77
Medium-sized mammal 2		-	-	-	-	8	8
Small mammal		-	-	-	1	1	2
Unidentified mammal		647	149	96	39	859	1,790
Unidentified bird		1	-	4	-	43	48
Unidentified fish		45	8	162	46	1278	1,539
Subtotal		720	166	277	86	2252	3501
Total		754	171	358	96	2703	4082