Ancient Monuments Laboratory
Report 61/89

PLANT REMAINS FROM EXCAVATIONS AT 58-9 SKELDERGATE (BISHOPHILL I), YORK.

Philippa Tomlinson BSc

AML reports are interim reports which make available the results of specialist investigations in advance of full publication They are not subject to external refereeing and their conclusions may sometimes have to be modified in the light of archaeological information that was not available at the time of the investigation. Readers are therefore asked to consult the author before citing the report in any publication and to consult the final excavation report when available.

Opinions expressed in AML reports are those of the author and are not necessarily those of the Historic Buildings and Monuments Commission for England.

Ancient Monuments Laboratory Report 61/89

PLANT REMAINS FROM EXCAVATIONS AT 58-9 SKELDERGATE (BISHOPHILL I), YORK.

Philippa Tomlinson BSc

Summary

Fifty-one samples, from thirty-six contexts, from the fills of nineteen pits, were processed and forty-two 'tests' were carried out. Thirty-five samples, from thirty-three contexts, from a variety of other features, such as layers, drain/culvert fills, fire-pits and floors, were also processed. It is thought that most of these samples probably date from the early medieval period. Copies of the Appendices are held at the Ancient Monuments Laboratory and the Environmental Archaeology Unit.

YAT Code Site: 1973-5.14

Author's address :-

Philippa Tomlinson BSc

Environmental Archaeology Unit
University of York
Heslington
YORK
YO1 5DD

© Historic Buildings and Monuments Commission for England

Introduction

The site at Skeldergate (Bishophill I) was excavated between 1973 and 1975 within an area of the Roman colonia. The excavation lay 30m south-west of the river Ouse, on the river terrace. Most of the Roman evidence came from a single machine-cut trench (this material has been dealt with elsewhere - see Hall et al. (1980) and Carver et al. (1978). On the main part of the site there was a sequence of Anglo-Scandinavian buildings which suggested that the area had been re-organised in later Anglian or Anglo-Scandinavian times.

In the 12th century there was a large timber structure at the Skeldergate end of the site. Behind this was an area of open ground used for rubbish disposal and minor industrial activities in the late 11th and 12th centuries. Fifteen or more pits from 1m to 3m in diameter and up to 2m deep were identified. The variety of organic material which they contained appeared to have great potential for biological analysis. Some had been re-cut and re-used, one had a timber lining. There was also a complex of three wicker-lined pits described by Addyman (1984).

In the 13th century, property boundaries dating back to the 10th century were apparently still maintained. There were two phases of stone building fronting onto Skeldergate. In the south-west area there was a sequence of occupation levels overlying the earlier pits, with numerous post-holes.

Stone buildings existed on the street frontages in the 14th century. There was a rectangular building based on mortar-and-cobble pads over deeply-driven timber piles which apparently went out of use in the mid 15th century. Associated with it, on the north-west side, was a well-constructed stone-lined cess-pit (676) which was filled in during the first part of the 15th century.

History of analyses

The potential number of samples to be analysed was approximately 200 excluding those from Roman deposits in the machine trench. Eighteen samples were processed by Steven Manifold, a Bradford University student (Manifold, unpub.). During 1987-8, sixty-eight samples were described and processed for biological remains using the standard procedures used in the Environmental Archaeology Unit (see below). Time limitations have prevented further samples being analysed. A discussion of selected groups of bones from this site is given in O'Connor (1984).

Several samples were processed, by bulk-sieving, in the 1970s. These are listed on page 21. Virtually no documentation exists for these samples. Bulk-sieved samples which have been examined for plant remains have been included in the text where possible.

General laboratory and interpretative methods

Laboratory methods used by the Environmental Archaeology Unit are described in detail elsewhere (Kenward et al 1980, Kenward et al 1986, Hall forthcoming). In brief, the GBA (general biological analysis) samples were examined by two or more of the EAU Fellows when they were first brought to the laboratory from the store. The sediment and its inclusions were described using a standard recording sheet. This description is given for each sample in the results section below. A decision was then made on the nature of the processing required (also indicated below).

Apart from samples which were subject to no further action (NFA), the majority where processed for insects using a one kilogramme 'test' sample (T) (Kenward et al. 1986). Selected samples were analysed for parasites (P) and loss on ignition (S). Plant remains were examined from the wet residues (in water) and flots (in alchohol) left after insect processing. They were recorded using the 'rapid scanning' technique and a four point scale of abundance (1 = 1-5; 2 = 6-50; 3 = 50-200; 4 = 200+).

Interpretation of the botanical material follows the system which Dr. Allan Hall has developed (Hall forthcoming). This analyses the plant taxa according to ecological and use groups taking into consideration the semi-quantitative scoring of each taxon in a sample, as well as the strength of the affinity of the taxon to each of the ecological groups to which it has been assigned. The results of this analysis are shown in the Appendix 2. The abbreviations of the ecological and use groups which are used are listed in Appendix 3. Complete lists of taxa and other material for each sample are given in Appendix 1.

Results

The results are given below in context number order because at the moment there is no phasing or dating information from the excavators. The samples have been divided into two main groups consisting of:-

Group 2 includes features such as floors, drain fills, layers and other features not defined on the sample sheets. Where possible, samples from the same pit are grouped together. If the context number of the pit itself is known, from the sample sheets, this is given. Otherwise the samples are listed in sample number order.

The sediment description is given first, followed by any notes from the sample sheets of the nature of the context and letters indicating the kind of processing carried out on that sample (see abbreviations in previous section). The next paragraph describes the results from the examination of the plant remains plus any additional

notes on other inclusions.

Samples which were processed by Steven Manifold (unpub.) were also analysed by him for human gut parasites. His results, included here, are expressed in ova per gramme of sediment (opg). The full results of the parasite analyses will be in a separate archive report.

The top three ecological groups from the computer analyses of the plant remains are given in square brackets at the end of the description of each sample, with their 'Group Score x Amount Total' score. See Appendix 2 for explanations of these figures.

GROUP 1: Pit fills

Context 566, sample 24

Light grey, dry, indurated, homogeneous, clay with very small and small stones present. A clay pit lining. NFA.

Context 745, sample 27

Mid orange-brown, dry, crumbly, homogeneous, humic, silty fine sand. ?Pit fill. TPS.

There were only two plant taxa in this sample, Rubus fruticosus and Rubus idaeus, but there was a fairly large quantity of mammal and fish bone as well as mineralised material.

Two samples from the fill of a ?stone-lined pit

Context 696, sample 47

Mid-yellow grey-brown, dry to moist, plastic to crumbly, homogeneous, sandy silty clay, with small limestone fragments, charcoal, bone, fish bone, eggshell all present and mortar abundant. Pit fill. TPS.

There were only two taxa in this sample but mineralised material scored 3. The taxa, Ficus carica and Prunus sp(p). which were also mineralised, suggest faecal material which, presumably, has not been preserved by waterlogging.

Context 697, sample 48

Mid varicoloured grey-brown to orange-brown, moist, plastic, slightly heterogeneous, sandy clay, with charcoal, bone <2cm and ?faecal concretions present. Pit fill. TPS.

Most of the material in this sample was mineralised (score 3). The plant taxa were all food plants, except perhaps Sambucus nigra. There

were mineralised cereal caryopses, a Vicia fragment and a Pisum hilum as well as waterlogged Ficus carica seeds. No wheat/rye 'bran' fragments were identified.

Context 1003, sample 51

Light/mid orange-brown, moist, plastic to crumbly, homogeneous, sandy clay, with limestone chips and tile fragments abundant, and charcoal present. Pit fill, upper layer of the fill of pit 1006. TPS.

There were no plant remains or other organic material in this sample.

Context 1285, sample 54

Mid grey, moist, plastic to crumbly, homogeneous, sandy silty clay, with small and very small stones and bone fragments >2cm, both present. ?Pit fill. TPS.

There was nothing in this sample apart from Sambucus nigra and some mammal bone fragments.

Two samples from a cesspit

Context 1287, sample 57

Mid brown, moist, crumbly, homogeneous, clay silt, with medium stones, small limestone fragments and >2cm bone all present. ?13th century pit fill, upper layer from cesspit. T.

There were 200 opg (all Trichuris). There were very few plant taxa in this sample which were mostly mineralised or charred weeds. [CHEN 10].

Context 1287, sample 58

Light/mid brown, moist, crumbly, homogeneous, silty sand, with limestones and bone fragments present. ?13th century pit fill, lower layer of cesspit. T.

This sample was not analysed for plant remains.

Context 1482, sample 161, bag 1

Very dark grey to black, moist, crumbly with some laminated lumps, slightly heterogeneous, silt, with minor matrix component of brown and grey clay lenses, with faecal concretions common. Pit fill, lower layer of the pit. TPS.

There were a large number the ova of the two genera of intestinal

parasite in this sample: Trichuris 8,300, Ascaris 4,400, Total 12,700 opg. Although there were several food plants it included several arable weeds such as Chrysanthemum segetum and various wasteland weed taxa. [CHEN 16, FOOS 15, SECA 6].

Context 1482, sample 161, bag 2

Black to dark grey brown to mid grey, moist, brittle and layered, very heterogeneous, amorphous organic and herbaceous detritus 2mm, with minor matrix component of silt, with very small stones present. Pit fill. NFA.

Two samples from Pit 1503

Context 1503, sample 64

Mid brown, moist, plastic to crumbly, slightly heterogeneous, sandy silty clay with small and very small stones and tile present. Pit fill. TP.
There was a single charred Triticum grain in this sample.

Context 1507, sample 83

Light grey, dry, crumbly, homogeneous, sandy silt, with mortar common. Fill of pit, context 1503. P.

Context 1588, sample -

Dark brown, moist, layered, homogeneous amorphous organic material. Probably a pit fill. TPS.

This sample contained a fair amount of waterlogged faecal material both 'bran' and faecal concretions scored 3. There was a very high proportion of food plants. Notable taxa included Allium cf. porrum (leaf epidermis fragments), Vicia sp. hila, and amongst the arable weeds, Anthemis cotula. [FOOS 48, CHEN 30, SECA 24].

Samples from Pit 1727

The following samples are from contexts infilling, or possibly forming the lining or very bottom of the pit whose context number is 1727. See site sections 3, 4 and 5.

Context 1742, sample 104/2

Mid/dark brown, dry to moist, crumbly to slightly brittle, silty fine sand, with medium stones and bone <2cm present, redder clay silt lumps also present as inclusions. Pit fill. TPS.

Although there was only one plant taxon in this sample, Sambucus nigra, there was quite a lot of charcoal and some fish and mammal bones. There were no parasite ova.

Context 1746, sample 105

Mid grey-brown, moist, plastic to crumbly, homogeneous, slightly humic?, slightly sandy silty clay, with bone <2cm and tile present. Pit fill. TPS.

Only two taxa were represented in this sample, Sambucus nigra and Urtica dioica. There were a few bone fragments and a moderate amount of charcoal. There were 100 opg of Trichuris. This means that only one ova was actually found on the slide.

Context 1747, sample 88

Mid/dark grey moist, crumbly to brittle, slightly heterogeneous, very humic silt. Pit lining or fill. TPS.

The plant taxa in this sample were mostly weeds and these were few. There was a small amount of faecal concretion. Parasites totalled 6,500 opg (Trichuris 5,400, Ascaris 1,100). Many of the weeds were from arable land for example Chrysanthemum segetum. [SECA 13, CHEN 11].

Context 1748, sample 39

Very dark, grey-brown, moist, plastic to crumbly, homogeneous, humic silt, with tile present, ?faecal concetions common and grey silty clay inclusions. Pit fill. TPS.

Faecal concretions scored 3 in this sample. There were several food plants and some arable weeds, including Anthemis cotula. Some of the seeds were mineralised but there was also fairly good waterlogged preservation, including wheat/rye 'bran' fragments and Allium sp. leaf epidermis. [SECA 28, CHEN 24, FOOS 19]

Context 1749, sample 90

Dark brown, moist, crumbly to plastic, heterogeneous, amorphous organic with herbaceous detritus < and >2mm, with minor matrix component of paler silt patches, with snail shell. Lining or fill of pit. T.

Parasites totalled 11,200 opg, with 7,900 Trichuris and 3,300 Ascaris. There was a large amount of mineralised faecal material in the sample, as well as fish bone and animal bone and a large amount of eggshell and shellfish fragments. Despite these strong indications of cess, however, there were no food plant remains, apart from some 'bran'. The

seeds consisted almost entirely of arable and wasteland weeds. Agrostemma githago scored 2 and may have come from cess. One notable taxa was Bupleurum sp. (thoro-wax or hare's-ear), probably an arable weed. [CHEN 26, SECA 19, ARTE 7].

Context 1750, sample 91/2

Dark grey, moist, crumbly, slightly heterogeneous, humic silt with amorphous organics, faecal concretions common. Pit fill. TPS.

A total of 6,900 opg comprised 4,800 Trichuris and 2,100 Ascaris. No 'bran' was identified although there was a moderate amount of faecal concretion. Foodplants included Vicia faba (field bean), Papaver somniferum (opium poppy), Prunus spinosa (sloe) fruit stones and Malus (apple) and Rubus fruticosus (blackberry) pips. The usual assemblage of arable and wasteland weeds with, in addition, Dipsacus sp. (teasel) and Descurainia sophia (flixweed). ['Test': ARTE 13, CHEN 10, FOOS 9; A bulk-sieved sample was processed in 1983 and produced a slightly different assemblage: CHEN 17, FOOS 13, SECA 11]

Context 1751, sample 92

Dark grey, moist, crumbly, homogeneous, humic slightly sandy silt. Pit lining or fill. TPS.

Although parasites totalled 9,400 opg (Trichuris 3,700 and Ascaris 5,700) there was no mineralised faecal material and few food plants were recorded. There were only the relatively robust sloe stones and apple pips, but no 'bran'. Perhaps this sample was particularly poorly preserved. There was, however, the usual variety of arable and wasteland weeds. It is noteworthy that from a total of 17 taxa there were 18 different ecological groups represented. This variety was added to by such taxa as Anthriscus sylvestris, Dipsacus sp. and Chrysanthemum segetum. [CHEN 15, ARTE 11, SECA 9]

Context 1758, sample 96

Dark grey-brown, moist, crumbly, homogeneous, humic slightly sandy silt, with bone fragments >2cm and faecal concretions present. Pit fill or lining. T (and T*) PS.

Two 'test' samples (T and T*) produced large amounts of faecal concretions. Wheat/rye 'bran' scored 3 and there was a variety of food plants, including Allium sp., fruitstones, legumes. Notable taxa included Satureja hortensis, a possible food-flavouring seed, and Scandix pecten-veneris a less common arable weed. [T: FOOS 16, CHEN 15, SECA 9; T*: SECA 24, CHEN 23, FOOS 21]

Context 1765, sample 99

Dark grey-brown, moist, crumbly, slightly heterogeneous, silt with laminations and herbaceous detritus, with limestone 1cm and faecal concretions. Pit fill. TPS.

This sample had very high proportion of 'bran' and faecal concretions and some Allium porrum epidermis. Some of the plant material, for example the fruitstones, Avena grain and some weed seeds, was mineralised. Taxa such as Lamium Section Lamiopsis, Scandix pecten-veneris and Chrysanthemum segetum are notable. There were also some plant fragments described as 'limpets' which have latterly been identified as the basal scar from the inside of an apple pip, underlying its dark 'skin'.

Mineralised 'tail' fragments of rat-tailed (Eristalid) maggots also occurred and seem to characterise several of the samples in this pit. They may suggest the watery nature of the fill of the pit at some stage in its history. [FOOS 31, SECA 27, CHEN 25].

Context 1766, sample 100

Dark grey-brown, moist, crumbly, homogeneous, humic silt. Lining of pit. TPS. Timber identified by Dr. A. R. Hall from this sample was of Quercus planks.

Apart from a mineralised pea (Pisum sp.) there was no wheat/rye 'bran' or other food taxa in this sample. Parasites, however, totalled 31,500 (13,800 Trichuris, Ascaris 17,700); perhaps this high level of parasites, in a sample which did not appear to contain a great deal of faecal material, is due to sedimentation of the eggs through a sewage slurry into non-faecal layers. [CHEN 10, SECA 8].

Context 1767, sample 101

Dark grey, moist, plastic, homogeneous, sandy silty clay, with small and very small stones, limestone 1cm, charcoal and tile all present. Pit fill. TPS.

There were only eight plant taxa in this sample, including charred indeterminate cereal and Avena sp. grains. Parasites totalled 900 opg (Trichuris 400, Ascaris 500). There was a variety of rubbish material including brick/tile, plaster, shellfish, slag and a fair amount of charcoal.

Three samples from Pit 1771

Context 1773, sample 112

Mid/dark grey-brown, moist, plastic to crumbly, slightly heterogeneous, sandy clay silt, with small and medium stones present. Layer in pit fill. BS.

Context 1773, sample 113

Dark grey-brown, dry to moist, crumbly, heterogeneous, slightly sandy clay silt, with limestone <1cm, charcoal, tile and patches of amorphous organic ?rotted wood fragments all present. Pit fill, this

sample is from the bottom of pit 1771. TPS.

There were only four plant taxa represented in this sample. [FOOS 6].

Context 1775, sample 163

Dark grey-brown, moist, layered and fiberous, slightly heterogeneous, humic, slightly sandy compressed herbaceous detritus (< and > 2mm), with hair abundant. Basal fill of pit 1771. TPS.

A total of 43 plant taxa were identified in this sample, which is the third richest sample from this site. There were a large number of fibres of animal hair. Some of the animal hairs, which most closely resembled horse hair, were embedded in the faecal concretion. There were many wheat/rye 'bran' and Agrostemma githago (corncockle) fragments and faecal concretions, which all scored 3. There were several species of moss which occurred in quite large quantities. The usual range of food plants was represented, as well as many wasteland and arable weeds. There were mineralised rat-tailed maggot (Eristalid) 'tails' together with their respiratory processes. Unusually, there was a large number of Arctium sp. achenes which scored 2. There were some hints of grassland with taxa such as Hypochoeris sp. and Picris hieracioides, and a fragment of legume pod and a legume petal. One notable taxon was Cannabis sativa. [CHEN 40, FOOS 33, SECA 32].

Three samples from a pit

Context 1799, sample 128

Mid/dark grey, moist, crumbly, homogeneous, slightly clay sandy silt, with very small stones, shellfish, pot and white flecks, all present. Pit fill. TPS.

There were only three taxa in this sample. [FOOS 6].

Context 1799, sample 129

Mid/dark grey-brown, moist, plastic to crumbly, slightly heterogeneous, slightly sandy clay silt. Pit fill. TPS.

There were only six taxa in this sample. [FOOS 15].

Context 1799, sample 139

Spot sample - not described. Alnus charcoal and indetermined bark. Pit fill. T (2kg).

Although there was quite a large quantity of charcoal there was also a range of waterlogged plant remains and a large amount of animal hair (which scored 3). There was some 'bran' and faecal concretions (which scored 2). The seeds were mostly fragmentary and poorly preserved. Food plants included Papaver somniferum, Malus sp. (endocarp),

Satureja hortensis and charred Hordeum and Avena grains. Other notable taxa were Marrubium vulgare, Anthemis cotula and Chrysanthemum segetum. [FOOS 21, CHEN 17, ARTE 10].

Context 1908, sample 162

Very dark brown, dry, crumbly and layered, very heterogeneous, humic slightly sandy compressed amorphous organic with minor matrix component of grey sandy silty clay, with very small stones, charcoal, twig fragments and leather, all present. (?cess pit - very much decayed.) Pit or trench fill from pit context 1929. TPS.

This sample contained faecal concretions, Agrostemma githago fragments and a few other food plants, including Ficus carica. There was a range of wasteland and arable weeds including cf. Silybum marianum and Valerianella dentata, but there was not a large number of plant taxa. Some seeds were mineralised and there were rat-tailed maggot (Eristalid) 'tails'. There was some Reseda luteola, which is probably associated with wasteland plant communities rather than the plant being used. [ARTE 25, SECA 16, FOOS 15].

Context 1946, sample 120

Light grey, dry, crumbly, homogeneous, sandy silt with tile and pot present. Pit fill. NFA.

Context 1956, sample 122

Mid grey-brown, dry, crumbly, homogeneous, sandy silt, with medium stones, limestone <1cm and bone 2cm, all present. Fill at bottom of pit. BS.

Plant remains have not been recorded for this sample.

Four samples from the same pit:

Context 2007A, sample 150

Very dark brown, moist, crumbly, homogeneous, amorphous organic material with (faecal) concretions common. Pit fill. TPS.

Faecal concretions, animal hair, 'bran' and Agrostemma githago fragments, a variety of food plants including several fruit stones and pips, mosses and wasteland and arable weeds characterise this sample and show its similarity with most of the other 'cess' samples from this site. [FOOS 40, CHEN 32, SECA 29].

Context 2007B, sample 151

Very dark grey-brown, moist, crumbly, homogeneous, amorphous organic ?cess. Pit fill. TPS.

A very similar assemblage of plant remains to the previous sample. Notable was the large quantity of Agrostemma githago seed fragments, which scored 3. These two samples have the second largest number of plant taxa (46) after sample 61. [FOOS 47, CHEN 32, ARTE 14].

Context 2020, sample 152

Mid grey-brown, dry, crumbly, homogeneous, sandy silt, with small stones, >1cm limestone, mortar and fish bone, all present. Pit fill. P.

Context 2020,sample 158

Mid to dark grey, moist, plastic, homogeneous, slightly sandy clay, with <1cm limestone fragments, charcoal, shellfish and tile, all present. Pit fill. TPS.

Only Sambucus nigra was found in this sample.

Samples from the fills of Pit 2122

Context 2108, sample 142

Mid/dark grey-brown, moist, plastic, slightly heterogeneous, humic clay silt, with charcoal and <2cm bone present. Pit fill. TPS.

Preservation in this sample did not appear to have been very good There was a fair amount of charcoal (score 3). but there were few identified plant taxa, mostly weeds, Fragaria vesca was virtually the only food plant. [CHEN 11, FOOS 9, RHPR 8, ARTE 8].

Context 2108, sample 147

Avian eggshell and Quercus sp. (oak) wood from pit. NFA.

Context 2115, sample 140

Very dark, red-brown to black, moist, crumbly, homogeneous, humic silt, with faecal concretions common. Pit fill. TPS.

Mineralised material, wheat/rye 'bran' and a few food plants, such as a mineralised pea hila and Satureja hortensis, suggest cess but there was not a large number of taxa in this sample. One notable plant was black mustard (Brassica cf. nigra), perhaps used as a condiment. [FOOS 18, CHEN 12, SECA 11].

Context 2115, sample 143

Dark grey-brown, moist plastic to crumbly, homogeneous, humic silt, with very small stones, grit and moss present. Pit fill. TPS.

There was a large number of Fragaria vesca achenes in this sample which scored 3. Fruitstones, mineralised material and 'bran', all suggest cess but there were only a small number of taxa. Notable plants include Thalictrum flavum, Lamium Section Lamiopsis and Verbena officinalis (vervain). [FOOS 24, CHEN 16, ARTE 16, RHPR 10].

Context 2118, sample 144

Very dark brown, (Munsell: 5YR 3/2, fresh), moist, plastic, homogeneous, amorphous organic, with faecal concretions. Smelly. Pit fill. TPS.

This sample again contained the usual mixture of food plants wasteland and arable weeds found in medieval cesspits. There were unusually large quantities of Agrostemma githago seed fragments which scored 4. The reasons for this may be a concentration of the corncockle due to differential preservation. All these samples were in store for several years so perhaps there was some deterioration during this time although it would be difficult to prove this. It may be significant that there appeared to be large quantities of corncockle even within the faecal concretions. It depends, however, on what the concretions themselves actually represent. Did they become solidified after some mixing and/or decaying of the material?

This sample was otherwise similar to the others in this group, with a relatively few taxa representing quite a variety of ecological groups, dominated by weeds. [FOOS 24, CHEN 16, ARTE 16, RHPR 10].

Context 2121, sample 145

Dark red-brown, moist, plastic, crumbly and layered, homogeneous, herbaceous detritus, > and <2mm, with faecal concretions present. Described as "classic cess". Pit fill. TPS.

This is a very similar assemblage of plant remains to sample 144. [FOOS 31, SECA 21, CHEN 16].

Context 2124, sample 149

Very dark grey brown, dry to moist, crumbly, homogeneous, humic sandy silt. Layer at base of pit 2122. TPS.

Although there were many wood fragments which may, perhaps, represent the remains of a pit lining, there were few other plant remains. The quantity of ?gypsum crystals may be related to the seepage of mineral-rich water through the pit. [CHEN 21, SECA 12].

Context 2156, sample 164

Large lump of Quercus sp. wood from fill of pit, approx. half trunk, original diameter >15cm.

Fills from a probable 13th century Pit (contexts 2170-2175) within the Machine Cut Trench

Context 2170, sample 267

Dark grey-brown, moist, crumbly, homogeneous, humic slightly sandy silt. Pit fill, probably 13th century. TPS.

Only nine plant taxa in this sample and fairy low numbers of parasite eggs (Total 300 opg, Trichuris 100 opg, Ascaris 200 opg). [CHEN 8, FOOS 6].

Context 2170, sample 268

Dark grey-brown, moist, crumbly, homogeneous, silt. Pit fill. TPS.

Total number of parasite eggs in this sample was 6300 opg (5,200 Trichuris and 1,100 Ascaris. There were more weed taxa than food remains although there was a small amount of 'bran' but no faecal concretions. [CHEN 22, FOOS 16, SECA 11, BIDE 11].

Context 2170, sample 269

Dark grey-brown, moist, crumbly, homogeneous, humic clay silt, with very small stones, wood fragments and ?faecal concretions, all present. Pit fill. TPS.

There were considerable quantities of mosses and fish bones in this sample, a few food remains such as Malus sp. (apple) pips, Linum usitatissimum (flax) seeds, Satureja hortensis (summer savory) seeds and Prunus spinosa (sloe) stones. Several of the moss species are typically found in cesspits. They are of the type which can be gathered in large handfuls from local woodland floors and which are absorbent, which suggests their use for hygienic purposes. [CHEN 28, SECA 19, FOOS 13].

Context 2172, sample 270

Dark grey, moist, crumbly, homogeneous, humic silt, with ?ash and faecal concretions present. Pit fill. TPS.

This is a very similar assemblage to sample 269, notably eight different moss species. There were 9200 opg with 8,000 Trichuris and 1,200 Ascaris. Humulus lupulus (hop) and Daucus carota (carrot) were

two notable species, the latter perhaps more likely from wild carrot rather than food plant. [CHEN 24, FOOS 21, LIGN 12].

Two samples from the same pit

Context 2205, sample 168

Dark grey, moist, plastic to crumbly, homogeneous, humic silt with abundant fibres. Pit fill. T.

The majority of the plant remains in this sample suggested food, including, for example Vaccinium sp. (bilberry) pistil bases. There was also a variety of wasteland and cultivation weeds. There were many faecal concretions as well as large numbers of parasite ova (total 21000 opg, comprising 12,200 Trichuris and 8800 Ascaris). [FOOS 22, SECA 13, RHPR 10].

Context 2206, sample 169

Dark grey to grey-brown, moist, crumbly to plastic, homogeneous, humic amorphous organic, with modern contaminant of mould. Pit fill. T.

There was wheat/rye 'bran' and two species of moss in this sample. The full record is apparently missing.

GROUP 2: Samples from contexts in features other than pit fills:

Context 215, sample 10

Very dark grey, moist, plastic, homogeneous, slightly clay silt. Silt from dainage channel. Silt from drainage channel. TPS.

There were no plant remains in this sample which was mostly composed of mineral material.

Context 241, sample 14

Mid grey, dry crumbly, homogeneous, sandy silt. ?Occupation layer. P.

Context 275, samples1 and 4

Light grey, dry clumbly, homogeneous, silty clay. Floor of drain. The two samples were amalgamated. P.

Context 359, sample 21

Light yellowish grey mortar. Loose mortar. NFA.

Context 432, sample 11

Light yellow-grey, dry, crumbly, homogeneous, slightly silty fine sand, with limestone, bird bone and coal present. Silt from bottom of drain. P.

Context 440, sample 16

Dark grey, dry, crumbly, homogeneous, silty fine sand. Burnt material from corner of wall. NFA.

Context 446, sample 19

Mid-dark grey-brown, dry, crumbly, homogeneous, silty fine sand, with small, medium and large stones, mortar and tile all present. Silt from well. TPS.

There were no plant remains in this sample.

Context 745, sample 22

Light-mid yellow-brown, dry, crumbly to brittle, homogeneous, silty fine sand with abundant very pale coloured, ?faecal concretions. Perhaps lime/mortar used to purify 'cess'; described as an 'organic pan' by the excavator. NFA.

Context 768, sample 43

Light grey, dry, crumbly, homogeneous, slightly silty fine sand, with limestone, mortar/plaster and leather abundant and charcoal, bone, snail and shellfish present. Fill from culvert floor. TPS.

There were no plant remains in this sample.

Context 768, sample 45

Mid purplish grey-brown, dry, moist, homogeneous, silty fine sand, with small and very small stones common and gravel present. Floor of drain/culvert. TPS.

There were no plant remains in this sample.

Context 805, sample 138

Mid/dark grey-brown, moist, crumbly, homogeneous, silty sand, with very small, medium and large stones present and small stones abundant, bone and shellfish present. Drain fill. T.

There were only two plant taxa in this sample, Rubus fruticosus agg. and Polygonum lapathifolium.

Context 930, sample 46

Mid grey-brown, dry to moist, crumbly, homogeneous, silty fine sand. Soil over ?occupation layer. TPS.

There were only two plant taxa in this sample, Conium maculatum and Polygonum persicaria.

Context 931, sample 68

Mid orange-brown, dry, crumbly, homogeneous, slightly silty fine sand, with small and very small stones and lumps of ashy clay silt present. ?Flood deposit, associated with a hearth and cobbled area. TPS.

A charred legume and some Lemna sp. seeds were the only taxa in this sample. The duckweed is perhaps consistent with this deposit having been formed by flooding.

Context 1055, sample 71

Light yellow, dry, flowing, homogeneous, fine sand, with silty clasts. ?River flood. This sample has been incorporated in the EAU sediment reference collection. NFA.

Context 1060, sample 109

Mid/dark grey-brown, moist, crumbly, slightly humic sandy silt. Soil from between the tiles (cf. sample 108). TPS.

There were only two plant taxa in this sample: Sambucus nigra seeds and a charred Triticum sp. grain.

Context 1063, sample 108

Mid grey-brown, dry, crumbly, homogeneous, sandy silt, with limestone <1cm and mortar present. Described by the excavator as dark soil from between tiles. TPS.

There were four taxa in this sample, which contained charcoal and bone fragments, Ficus carica, Sambucus nigra, a charred hazelnut shell and a cereal grain.

Context 1210, sample 180

Light/mid yellow, dry to moist, crumbly, homogeneous, fine sand, with small stones. Layer. NFA.

Context 1299, sample 56

Mid brown, dry, crumbly, homogeneous, silty fine sand, with mortar and pot present. Post-hole. NFA.

Context 1596, sample -

Dark grey-brown, moist, plastic to crumbly, homogeneous amorphous organic material, with silt as a minor matrix component. PS.

Context 1609, sample 179

Light brown, dry to moist, crumbly, homogeneous, fine sand, with small clay and silt inclusions. Layer. TPS.

One charred Anthemis cotula achene was all the plant material in this sample.

Context 1623, sample 116

Mid grey-brown, moist, crumbly, homogeneous, slightly silty fine sand, with minor matrix component of mid orange-brown silty clay and black organic matter. Fill of fire pit. T (2kg) PS.
There were only three plant taxa in this sample, two of which, Corylus avellana nutshells and Triticum sp. grains, were charred. The third was Sambucus nigra.

Context 1648, sample 153

Mid brown, dry to moist, crumbly and layered, heterogeneous, humic, sandy silt, with woody detritus <2mm and charcoal present. Finely laminated on 0.5-2cm scale and banded on 2cm scale. Woody remains from beam slot. TPS.

There was some mineralised material in this sample, but it was not necessarily faecal. There were some hints of food remains such as Ficus carica and 'bran' fragments. The weed seeds were from plants which typically grow in nitrogen rich soils, for example Hyoscyamus niger (henbane), Solanum nigrum (black nightshade), or weeds, such as Aethusa cynapium (fool's parsley), Eleocharis palustris (common spike-rush) and Juncus bufonius (toad rush), which might have entered the deposit via muddy boots. [CHEN 16, FOOS 15, SECA 6].

Context, 1794, sample 124

Mid grey, dry, crumbly to brittle, homogeneous, silty fine sand. Layer. NFA.

Context 1850, sample 72

Mid brown, moist, plastic to crumbly, slightly heterogeneous (some parts more clayey than others), sandy clay silt, with charcoal and ?modern rootlets present. ?River flood deposit. TPS.

Only four plant taxa were found in this sample. These were charred grains of Avena spp. and Bromus spp. and Sambucus nigra (elder) and Rubus fruticosus agg. (blackberry) seeds. The only notable feature of this sample was the presence of mineralised ?faecal material which scored 3, a large quantity of fish bone, also scoring 3 and many Elasmabranch dermal denticles indentified by Andrew Jones.

Context 1908, sample 110

Very dark brown, moist, layered to fibrous, herbaceous detritus <and >2mm. Floor. TPS.

This was one of the richest samples with sixty-one taxa represented, including many wheat/rye 'bran' and Agrostemma githago fragments which both scored 4, faecal concretions and a variety of food plants including leek (Allium porrum) leaf epidermis fragments. There was also a variety of vegetative stem material, including Cyperaceae stems with the papillae over their stomata, possible Cladium mariscus (saw sedge) epidermis and Phragmites australis and Genista tinctoria stems.

Notable food plants included Vaccinium spp., Fragaria vesca, Malus, Prunus sp(p)., Linum usitatissimum, Papaver somniferum, Ficus carica and Vitis vinifera. There were a few botanically interesting taxa such as Bupleurum rotundifolium, a Crucifer which looked much like Cheiranthus cheiri (wallflower), Scandix pecten-veneris and cf.Silybum marianum. The last of them being an introduced, naturalised wasteland species.

The presence of two dyeplants, Genista tinctoria (stems) and Reseda luteola (seeds), as well as some wool fragments, might suggest textile processing, but they are only in very small quantities.

The fact that this sample is from a floor and not a cess pit is significant, especially as the material is so rich and well preserved. Was the material deposited when it was in use as a floor or dumped to make up a new floor level? There were several plant remains perhaps suggesting hay and/or straw, (for example Rhinanthus sp., Danthonia decumbens, Trifolium pratense and cereal straw fragments) and several ?mouse droppings. [FOOS 62, SECA 38, CHEN 32, MOAR 24].

Context 1908, sample 111

Mid/dark grey, moist, crumbly and layered, very heterogeneous, slightly humic sandy silt, with bone <2cm and concretions present. Floor. TPS.

This sample was from the lower 3cm of a floor layer. It is interesting to compare with sample 110 as it had only 7 plant taxa, all of which were mineralised or poorly preserved. There were also mineralised faecal concretions. If this was truly material from the same context as sample 110, why was it so poorly preserved, especially as it was stratigraphically underlying it? [FOOS 15, RHPR 6].

Context 1994, sample 160

This very small 'spot' sample consisted of a cache of between 50 and 100 Sambucus nigra seeds in a grey sandy soil.

Context 2139, sample 156

Dark brown, dry to moist, crumbly with a few layered lumps, homogeneous, slightly sandy amorphous organic material, with (faecal) concretions common. Wood surface - ?floor. TPS.

There were many faecal concretions in this sample (score 4) and the excavator appears to have mistaken them for wood. There were also large numbers of Rubus fruticosus seeds which scored 3 and some wheat/rye 'bran'. [FOOS 21, RHPR 12, QUFA 10, ARET 10].

Context 2350, sample 196

Light grey, very dry, crumbly to dusty, homogeneous, slightly sandy silt, with very small and small stones, charcoal and 2cm bone, all present. Machine Trench. NFA.

Context 2452, sample 8066 (spot)

Mid grey clay, with very rotted wood, common. ?Wattle. T.

The only plant taxon, apart from the wood, in this test sample, was Urtica dioica. The wood fragments were identified as Quercus.

Context 2800, sample 262

Wood in a matrix of dark grey-brown, moist, plastic, organic, slightly sandy silt. Described on sample sheet as wood fragments from dark grey ashy soil. NFA.

Approximately ten years ago, the following samples were processed for insects and some were also processed for plants, but no sediment descriptions were made and some of the record have apparently been lost.

Sample number:	Context number:	
273		Pit fill from machine tench
272		" "
271		" "
195	1210	?Flood deposit, ?13th C
193	2335/37/43	River silt?
154	2040	Ashy, ?occupation layer
126	1795	?Pit fill
103	1725/33/39	Pit fill, pit 1727 (JJC processed
97	1760	" " in 1983)
94	1756	" " "
93	1752	" " "
89	1748	" " "
85	1507	Clay layer at base of pit
84	1507	" "

Acknowledgements

Various members of the Environmental Archaeology Unit staff and of the Manpower Services Commission Scheme were involved in sample processing. Steve Manifold from Bradford University processed many of the samples including the parasite samples. Allan Hall supervised the botanical work, checked the identifications and set up the computer database and ecological analysis program. He also carried out the wood identifications. This work was funded by Historic Buildings and Monuments Commission (England) through York Archaeological Trust.

Bibliography

Addyman P. V. (1984) The Archaeology. p 10-11, in: T. P. O'Connor, Selected groups of bones from Skeldergate and Walmgate. The Archaeology of York. 15/1.

Carver M. O. H., Donaghey S. and Sumpter A. B. (1978) Riverside structures and a well in Skeldergate and buildings in Bishophill. The Archaeology of York 4/1.

Hall A. R., Jones A. G. K., Kenward H.K., and O'Conner T.P. Environmental evidence from the Colonia: Rougier Street and Tanner Row. The Archaeology of York. 14/6.

Hall A. R., Kenward H. K. and Williams D. (1980) Environmental evidence from Roman deposits at Skeldergate. The Archaeology of York 14/3.

Kenward H. K., Hall A. R. and Jones A. K. G. (1980) A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. Science and Archaeology **22**, 3-15.

Kenward H. K., Engleman C., Robertson A. and Large F. (1980) Rapid scanning of urban archaeological deposits for insect remains. Circaea **3**, 163-72.

Manifold S. K. (unpub.) Preliminary report concerning biological samples obtained from Bishophill I, 1973-5.14. (completed 1987).

O'Connor T. P. (1984) Selected groups of bones from Skeldergate and Walmgate. The Archaeology of York. 15/1.

LIST OF APPENDICES

Copies of these Appendices are held at the Ancient Monuments Laboratory and on the University of York Vax mainframe computer at the Environmental Archaeology Unit, York.

Appendix a) Complete list of plant taxa for each sample, arranged in context number order.

Appendix b) List of ecological/use groups for each sample, arranged in context number order.

Appendix c) List of the ecological/use groups codes used in the analysis, showing their meanings.

Plant remains from excavations at 58-9 Skeldergate (Bishophill I), York.

YAT Site Code: 1973-5.14

APPENDICES