

Reports from the Environmental Archaeology Unit, York 95/17, 17pp.+ 23pp. Appendix

Assessment of biological remains and sediments from excavations at the Magistrates' Court site, Hull (site code: HMC94)

by

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Summary

Samples of sediment, various 'spot' finds, residues from bulk-sieving, and bone from site-riddling and hand collection from deposits of late medieval to modern date, but primarily associated with the house of the Austin Friars, in the Old Town in Hull, have been assessed for their potential for further bioarchaeological analysis.

A good proportion of the GBA samples examined gave assemblages of plant and insect remains indicating the presence of various kinds of organic material, but often cut grassland vegetation (perhaps from hay, or in some cases, from stable manure). Especially interesting were assemblages from grave- and coffin-fills of the burials in and around the priory church and some of the spot finds associated with burials also gave evidence for plant remains, some of them clearly of ritual significance. Some of the human burials contained remains of what are thought to be brains; the mechanism of preservation of these requires investigation.

The corpus of hand-collected shell was found to be quite rich and worthy of further investigation, affording an opportunity to study oysters, in particular, from a north-eastern coastal context.

The bones from this site consist of a small assemblage with most of the material being of C14-17th date and a wide range of species being present. Rabbit and chicken were particularly common in the post-medieval deposits and these may be associated with refuse from the three public houses occupying parts of the site at this period. Some remains of very large cattle and sheep were also noted from the post-medieval deposits; these may be from improved 'modern' breeds. Somewhat surprisingly, few fish bones were recovered. Some remains of black rat were recovered and further work may elucidate whether brown rat was also present in the town.

The biological remains from this site have considerable potential for recovery of information of archaeological significance; questions to be addressed and a recommended programme of research are presented.

Keywords: Hull; Magistrates' Court site; priory; late medieval; post-medieval; early modern; grave fills; sediments; plant remains; timbers; parasite eggs; insect remains; molluscs; vertebrate remains; human remains

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30 March 1995

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Introduction

A variety of samples for biological analysis, together with hand-collected bone and shell, were recovered from deposits of late medieval to modern date during excavations at the site of the proposed Magistrates' Court in the Old Town of Hull during 1994.

As well as GBA samples (*sensu* Dobney *et al.* 1992), many small 'spot' samples of biological material were taken. Amongst these (but originally designated as different sample types for this site) were some timbers for species identification and a large number of samples of sediment from the 'pelvic region' of many of the human interments recorded during the excavation. (The latter were originally taken at the request of the palaeopathologists but were subsequently considered by them not to be of further value.) BS and SR samples were sieved on site, the BS to 1 mm (with a 500 :m washover), and the SR to 11 mm. BMcK was employed throughout the period of excavation as an on-site 'environmental' assistant and this has resulted in a very detailed and accurate record of samples on which to base this assessment.

Methods

Sample selection

The budget available for assessment of the 'environmental' component of the archive resulting from these excavations has constrained the scale of work that could be undertaken and, in particular, only a very few GBA samples could be examined for some phases of the site.

GBA samples

An initial selection of samples for inspection was made on the basis of context type, the

numbers selected for each phase reflecting the total numbers of samples available (cf. Table A1). From this group of samples representing 61 contexts, 32 were subsequently chosen for subsampling, using as a guide the sediment descriptions made on by BMcK at the time the samples were documented on site. Selection was weighted towards those contexts considered inherently likely to contain biological remains; it was not practicable to include a random component from amongst these samples within project constraints.

BS samples

Except for a few samples which could not be processed on site, all the residues and washovers for the BS samples were examined by BMcK during excavation and a record of the components (on a three-point scale of abundance) was available from the start of the assessment. In this case, the number of contexts represented by the samples was only 51 (Table A1) and it was possible to examine one sample from each context further to provide a check.

Pollen samples

Three samples from a sequence taken from a section by AH from a presumed buried soil were selected for assessment of their content of pollen and spores; they represented the top, middle and lower parts of the band of sediment of bluish colour (within brown silts and clays) interpreted as the old ground surface.

Practical methods

Sediment monoliths

The three samples (monoliths) of sediment taken in aluminium tins from sections during

excavation were dried in the laboratory using silica gel. Their macromorphology was described and they have been sliced in readiness for impregnation prior to sectioning for micromorphology.

GBA samples

Subsamples (usually of 1 kg) from selected GBA samples were processed following methods of Kenward *et al.* (1980; 1986). Plant remains were examined in both the flots (or, in some cases, washovers) and residues, the latter being dried before inspection in a few cases. The flots and washovers were examined for insect remains and some other material was recovered from the residues during recording of plant remains. Squashes for examination of parasite eggs were made following Dainton's (1992) technique.

Pollen samples

Pollen was prepared for examination using a standard sequence of treatments with dilute hydrochloric acid (to remove carbonates), hydrofluoric acid (to remove silts and clays), and an acetolysis mixture of acetic anhydride and concentrated sulphuric acid (to remove soluble cellulose). Preparations were stained using 0.1% safranin and mounted in silicone oil. Traverses were made at 1 mm intervals of the stage micrometer and notes taken of the numbers and kinds of taxa present, with no attempt at full quantification or close identification.

BS residues

All the BS residues were examined briefly and a check made on BMcK's scores for the abundance of components. For a few samples with many snails in the washovers the whole washover was examined for these remains; generally, however, no detailed examination of plant or invertebrate macrofossils was made.

The bone from residues from a total of thirty-five contexts was recorded in more detail: a

single sample from Phase 1, fourteen from Phase 2, thirteen from Phase 3 and seven from Phase 5. Almost half (17) were from deposits described by the excavator as 'layers', whilst 15 represent those described as 'fills'. The remainder (three) were from grave-fills. All the residues were unsorted and, for the purposes of this assessment, the bone component of each was recorded using a simple abundance scale (i.e. present—10% or less of the total assemblage; common—10% to 50%; and abundant—greater than 50%).

'Spot' samples

There were 87 'SPOT' samples, of which only one (Sample 15, Context 124) could not be located. All the samples were checked quickly in the laboratory and a brief description or identification of the material made as appropriate. On the basis of this, the groupings shown in Table A5 could be made. In addition, there was a further bag of 'potsherds with residue' from Context 2010 (no sample number) and three isolated snails from known contexts but also without sample numbers. Three of the samples consisting of probable plant material in a sediment matrix were chosen for further examination.

A total of 40 timber samples, the majority of them (26) from a single 18th century context (554, piles from pit 477) had been collected for species identification. Of the 40 samples, 11 had been inadvertently included with timber samples submitted for assessment by the Dendrochronology Laboratory at the University of Sheffield (where they were identified).

A group of 83 samples of sediment from the pelvic region of 82 of the skeletons excavated at this site was not covered by the project design for this assessment since it was thought that they were no longer required. They are considered further below.

A further group of 15 samples collected by Prof. D. R. Brothwell were of sediment associated with four skulls containing what are thought to

be the remains of brains (Dobney and Brothwell 1994). These are intended to provide material for analysis of compounds which may have influenced preservation; no work on them has been carried out within this assessment.

Hand-collected molluscs

Eleven boxfuls of shell were recovered from a total of 388 contexts. The material from each context was examined very briefly. Oysters were recorded following an abbreviated version of the method of Winder (1992, 27-49), and other species were identified, counted, and where more abundant, weighed.

Hand-collected bone and SR samples

A total of 48 boxes (30 x 38 x 15 cm) of hand-collected and SR material was recovered from this site, all of which were, initially, scanned. Material from 56 contexts was selected for further examination on the basis that sufficient numbers of fragments were present and that the assemblages typified the different periods and the range of deposits excavated. Of the 56 assemblages, 33 were recorded in some detail, whilst brief notes were made on material from the remainder.

SR samples were under-represented from the site, with only three deposits (Contexts 868, 973, 1038) having been sampled. None of these contained sufficient numbers of fragments to be worth recording further.

Results

Pollen

Pollen was sparse in all three samples examined (-29 cm, -34 cm and -40 cm) and the counts obtained were insufficient to permit useful interpretation other than to remark that tree pollen was generally rare (apart from sample -40 cm in which there were modest amounts of *Pinus*, a taxon which might in any case be

expected to be over-represented where preservation was poor) and subordinate in abundance to non-arboreal pollen. Only one sample gave a moderately large number of grains of any one herbaceous taxon, however: Chenopodiaceae in sample -29 cm. This might either reflect the presence of plants of this family growing as nitrophile weeds on a disturbed urban site or brought with, for example, stable manure, or the presence of halophyte communities in the vicinity (which would not be surprising in an area so close to the tidal Humber).

GBA samples

Preservation of macrofossils by anoxic 'waterlogging' varied from excellent to nil, with a trend towards poorer preservation in the later phases. Charred plant remains (other than charcoal) were extremely sparse throughout. About two-thirds of the subsamples selected yielded useful assemblages of plant and invertebrate macrofossils, and the richer subsamples were remarkably consistent across the phases in usually having fossils interpreted as remains from hay, straw and peat, and in some cases apparently stable manure. Many of these richer assemblages were from the coffin- and grave-fills of Phase 2 and offer an unusual opportunity to study what may, in at least some cases, have been materials used with corpses within coffins as packing or absorptive layers.

The deposits from Phase 1 examined in this assessment were all ditch fills and appeared to be dumps including organic refuse, with some evidence from the insects for a marine influence. These, and some assemblages from Phase 2, included appreciable numbers of aquatic insects. Aquatic plants, though limited in diversity, were also regularly present (they may to a large extent have originated in peat, as may at least a few of the insect remains).

Fly puparia were numerous in a small number of samples.

Table A3 shows the priorities assigned for further work on the GBAs from this site.

Spot samples

The results of the examination of three selected spot samples are presented at the end of the Appendix.

Wood identification samples

All the samples examined at York had been double-bagged, usually with plenty of free water, and all except one (Sample 142, Context 479, which was very soft) were firm and could undoubtedly be sectioned for the purposes of identification. In most cases only one fragment was present; however, Samples 341, 342, 636 and 713 consisted of several stems or small branch fragments.

BS samples

Plant remains preserved either by charring or 'waterlogging' were generally rather sparse in these samples; however, many contained material thought to be peat.

In general, the land and freshwater shell was not well preserved. In the samples selected for assessment, the shell survived mostly as tiny fragments, but the assemblages are of interest, containing a mixture of species from estuarine and brackish water, fresh water and terrestrial habitats. One context (794, the fill of the construction trench for the E wall of the W range of the Priory, Phase 2) was particularly rich in shell. Marine shell was generally sparse in the BS residues; certainly no assemblages were rich enough to warrant detailed examination.

A concretion from one of the BS residues from Context 456 (the lower fill of cut 455, Phase 2) was examined for parasite eggs; it gave seven *Trichuris* (some of them quite well preserved) and one ?*Ascaris*. Also recorded from this deposit was a range of foodplants including fig,

grape, sloe and blackberry/raspberry (evidently a layer containing human faeces).

Hand-collected shell

Of the 388 groups of shells, most were very small and were not examined further. There were 32 groups sufficiently substantial to deserve more detailed assessment (Table A7). Fifty further contexts yielded moderate amounts of shell, but were not assessed because they were of a phase and context type for which other contexts had produced more material, or they were grave fills.

The shell was well-preserved and quite abundant, and there were some very large individuals of both oyster (*Ostrea edulis* L.) and whelk (*Buccinum* spp.). Remains of oyster, mussel (*Mytilus edulis* L.), periwinkle (*Littorina* sp.), whelk, and cockle (*Cerastoderma* sp.) were identified; oyster, whelk and cockle were the most commonly occurring species. Some fragments of crab carapace were also noted.

Hand-collected bone

Of the twenty-five context types described by the excavator, most of the animal bones were from only three: layers, fills and grave-fills. Pits and dumps contained few vertebrate remains. A total of 1861 identifiable (29,056 g in weight) and 2287 unidentifiable (17,590 g) fragments were recorded from those contexts selected.

Preservation of material from most contexts was recorded as fair to good (19 fair and 9 good). Only material from Phase 3 (a total of four contexts) was recorded as showing variable preservation, a possible indication of mixed or reworked deposits. There was no apparent relationship between preservation and context type or period. The appearance of broken surfaces was mostly recorded as 'spikey' (sharply angular: 15 contexts), although some contexts contained bones that were battered (8 contexts) or variable (10 contexts) in appearance.

Colour ranged from dark brown to fawn, although a significant number of groups (15) were recorded as variable within single contexts. Those with dark brown colouring showed mostly good preservation, a single context (2332) from Phase 1 showing excellent preservation. Several fragments from Phase 3 deposits (Contexts 437, 476) and a single bone from Phase 2 (Context 798) appeared to be very light in colour and exhibited a somewhat 'greasy' texture. These could possibly represent modern intrusive material.

Dog gnawing was observed on material from all periods but was limited in extent, affecting only a few bones (i.e. 0-10% from each context). More interesting was the evidence of rodent gnawing on bones from a number of groups—Contexts 438 and 507 from Phase 2; 12 and 476 from Phase 3; 61 from Phase 4; and especially extensive (20-50%) on bones from Context 234, Phase 5. In addition, Contexts 12 (a floor deposit) and 61 (a fill) yielded bones which showed characteristic damage attributable to cat gnawing. Both rat and cat gnawing was almost entirely restricted to bird elements, particularly chicken, whilst the numerous rabbit remains from these contexts appeared unaffected.

Butchery was recorded from most of the assemblage at frequencies of 0-10% and 10-20%. Most occurred on the remains of major domestic mammals (cattle, caprines, and pig) although knife marks were noted on a small number of bird fragments. Few bones from the entire assemblage showed evidence of fresh breakage.

The results of the examination of the hand-collected bone are presented in Tables A8-13. Fish species were not consistently identified and have therefore been amalgamated under one general category in these tables. Table A14 shows the representation of different taxa and their relative proportions and—in the case of medium and small mammals, birds, and fish—the potential diversity within each sample.

Phase 1

From this small assemblage only the remains of major domestic mammals were identified (Table A8), of which cattle was most abundant. A single large cattle radius was noted from Context 2332. Few measurable elements and mandibles with teeth were noted.

A single BS residue (Context 1061, Sample 483) contained small quantities of fish only, identified as Cyprinidae and ?sandeel (cf. *Ammodytes tobianus* L.).

Phase 2

Totals of 547 identifiable (11,718 g) and 1,064 unidentified (8,866 g) fragments were recorded from Phase 2 deposits. A broad range of species was represented, with the remains of cattle and caprines being most frequent, followed by pig, chicken, goose and fish. It was noted that the caprine remains included some particularly large individuals. Also, a sheep skull fragment (Context 2010) appeared to have been naturally polled. Of the three dog elements identified, one pelvis fragment (Context 456) had been chopped through the ilium.

Goose elements from this period were dominated by *carpometacarpi*, which represented 21 of the 39 fragments. Most were greylag-sized, although several from Context 798 appeared slightly smaller. A single duck femur (Context 144) was identified as teal (*Anas crecca* L.).

The identification of a single turkey (*Meleagrus gallopavo* L.) element from this phase may be interesting in that this species was only introduced into Britain during the early post-medieval period. Unfortunately Phase 2 represents a particularly broad time period (1316-1600) which includes material of both late medieval and early post-medieval date.

Fish included mainly cod (*Gadus morhua* L.), saithe (*Pollachius virens* L), and other material identified only as large Gadidae, as well as a single flatfish vertebra.

Those fragments which could be measured totalled 130, most being from caprines (40), cattle (23), chicken (27) and goose (21). Twenty-six mandibles with teeth were recorded, 10 each for cattle and caprines and six for pig.

Fourteen residues representing deposits from six contexts contained small numbers of large mammal fragments and no medium-sized mammals (i.e. cat, canid, lagomorph, etc.). Small mammal remains occurred only in two residues from a single context (1075), whilst bird fragments were slightly more numerous, occurring in nine of the fourteen residues. Of interest is the fact that eggshell occurred in three of the five residues which contained no bird remains. Fish were present throughout, being recorded as both common and abundant and showing moderate and high diversity. The material from Context 456 consisted mainly of faecal concretions from which were identified numerous small and eroded fish vertebrae. Other remains included those of flatfish (Contexts 945 and 540) and thornback ray (*Raja clavata* L.) from Context 1038.

Phase 3

Vertebrate remains from this period comprised 962 identified (13,820 g) and 931 unidentified (7,300 g) fragments. The remains of common domesticates were dominated by caprines, followed by cattle, chicken and goose. It is interesting to note that juvenile cattle fragments were proportionally more abundant during this phase, a phenomenon noted from other post-medieval assemblages, e.g. Launceston Castle, Cornwall (Albarella and Davis 1994) and Lincoln (Dobney *et al.*, forthcoming). Pig remains were less abundant than from Phase 2, whilst dog was present in moderate numbers (38 fragments). Dog humeri from Context 1733 and 1722, and a scapula from Context 1722, exhibited knife marks consistent with defleshing. Additional bones from these individuals were greasy and somewhat fresh in appearance. A horse radius from Context 135 had been chopped through mid-shaft, and two caprine scapulae showed characteristic damage to the blade consistent with perforation by a butcher's hook.

Rabbit (*Oryctolagus cuniculus* L.) bones were exceptionally well represented from deposits of this

phase, as were those of duck and fish. However, most of the fish bones were from one context and probably represent the remains of a single thornback ray (*Raja clavata* L.). Unusually, these remains (which showed excellent preservation) were all vertebrae, which are not normally recovered (surprisingly, no dermal denticles of thornback ray were present). Other fish species present included large Gadidae, particularly haddock (*Melanogrammus aeglefinus* L.) and ling (*Molva molva* L.), together with salmon (*Salmo salar* L.), plaice (*Pleuronectes platessa* L.), pike (*Esox lucius* L.) and perch (*Perca fluviatilis* L.).

Remains of duck were mainly represented by wing elements, with scapulae and coracoids being prevalent. Most were from large individuals similar in size to shelduck (*Tadorna tadorna* L.) or domestic varieties.

Remains of geese included a wider range of elements than from Phase 2 and, although most appeared to represent greylag-sized or larger domestic individuals, three carpometacarpi (Context 1721) were identified as possibly Brent goose (*Branta* cf. *bernicla* L.).

Remains of wild mammals included three fallow deer (*Dama dama* L.) and three brown hare (*Lepus europaeus* Pallas) fragments, whilst remains of wild birds included coot (*Fulica atra* L.), snipe (*Gallinago gallinago* L.), woodcock (*Scolopax rusticola* L.), pigeon (Columbidae), barn owl (*Tyto alba* (Scopoli)), various corvids, and a single crane (*Grus* sp.) fragment.

A total of 246 measurable elements were present, most from caprines, chicken, duck and goose. Few (20) mandibles with teeth were noted.

The thirteen bulk-sieved residues (from six contexts) examined all contained fragments of large mammal, whilst a single context (208, Samples 78-81, fill of cellar 140) contained the only rabbit remains from this phase. Small mammals (i.e. rat and mouse/vole) were present in five residues from two contexts (447 and 1722), whilst bird (chicken) was present in seven. Fish remains were identified in every residue and were common in residues from Context 208; the latter were recorded as small ?cyprinids. Other fish remains included thornback ray (*Raja clavata* L.),

Gadidae and Pleuronectidae, all identified from Context 1721. Fish scales were present in material from Context 376. Abundant eggshell fragments were also only present in Context 208.

Phase 4

A small but diverse assemblage of animal bones was present in deposits dated to Phase 4: 68 (1,267 g in weight) identified and 78 (494 g) unidentified fragments. Caprine remains were again the commonest of the principal domestic mammals, with the remains of cat (at least four individuals, two of them juveniles) present in similar numbers. A proximal ulna fragment appeared to have been chopped. Although few (12) measurable bones were present, some elements of cattle, caprines and pig were from very large individuals.

One very large flatfish vertebra was also identified.

No residues from this phase contained sufficient numbers of animal bone to warrant further study

Phase 5

The bone assemblage from Phase 5 was also of small size: 98 identified and 123 unidentified fragments, of which most were from Context 234 (fill of well 236). No cattle or caprine remains were present and chicken remains were most numerous, with some large individuals present. Rodent gnawing was particularly apparent on many of the chicken bones and, doubtless no coincidence, twelve black rat elements were identified (all probably representing a single individual).

BS residues from this period totalled seven, representing only two contexts (233, 234, both fills of well 236). Large mammal and medium mammal fragments were present in all residues, whilst remains of small mammals and fish were common from all. Fish remains included thornback ray (*Raja clavata* L.) and ?cyprinid fragments (Context 234). Bird bones were common only from Context 234, and eggshell fragments were abundant in all the residues. Sea urchin (Context 233) and crab (Context 234) were also noted.

Phase 6

The single large assemblage, from Phase 6 (Context 104), was dominated by remains of rabbit and chicken. Again, no cattle or caprine remains were recorded.

The chicken remains possibly represented only two individuals, of a size slightly larger than the red jungle fowl skeleton in the EAU comparative collection. One of the archaeological specimens showed spur development on the tarsometatarsi, suggesting that this may have been a cockerel. The very small size of this pair of birds may be evidence of a miniature 'fancy' breed.

Numerous bones of hedgehog (*Erinaceus europaeus* L.) were also present in this group, representing at least three individuals.

Discussion and potential

GBA samples (and pollen/soil samples)

A good proportion of the GBA samples yielded sufficient biological remains to merit further investigation, although considerably larger subsamples would need to be processed for insect assemblages adequate for interpretation to be recovered. The remains have clear potential to address a wide range of questions concerned with environment and living conditions at the site and various aspects of human activity (see below). The sediment monoliths may help to identify the presumed 'buried soil' by means of micromorphology—in particular through examination of the organic content of the sediment and evidence for waterlogging.

BS samples

The generally low content of plant remains in the BS residues means that few of them warrant more detailed study for their content of fruits and seeds; the presence of peat in many contexts may be very significant in terms of the collection and use of this resource at this site and

those samples recorded during assessment as containing peat certainly require further examination. Deposits with likely evidence of human faeces should also be targeted for further examination.

Examination of a selection of residues rich in shells of non-marine molluscs will provide an opportunity to study some deposits which seem likely to have been imported. It will be necessary to process any available GBA material from contexts which gave significant assemblages of non-marine molluscs from BS samples in order to recover undamaged shells in useful numbers.

For comments on bone from BS samples, see below.

Spot and timber samples

Amongst the samples taken as 'spots', there was clearly some excellent preservation of plant material in rather unpromising deposits and the presence of remains of plants of 'ritual' significance is particularly exciting.

Although the 'pelvic parasite' samples have been disregarded in this assessment, work on the spot samples from deposits associated with the interments suggests that some organic preservation can be expected and it is argued, below, that some further work on these samples should be undertaken.

The samples from skeletons with preserved 'brains' may offer an opportunity to determine whether there were substances associated with the interments which prevented decay of soft tissues. It is just possible that simple toxic compounds were present, having been used during life as medicine or for treating the corpse (for example cosmetic materials). The first stage of investigation of these samples is to search for elements with many toxic derivatives—among which might be mercury, lead, arsenic, copper, cadmium, chromium, zinc, cobalt, antimony and silver. Salts of most of these would have been available to medieval apothecaries (and

undertakers!).

The small total number of timbers and the archaeologically scattered nature of many of them means that identifications are probably of rather limited value to the interpretation of the site, regarding such matters as the exploitation of timber. However, Hull's role as port must not be forgotten and identifications should be made to establish whether foreign, imported timber was finding its way onto the site; this is particularly the case for the piles used for the 18th century pit; at this period, it might be predicted that foreign timber supplies were important and might be picked up in the archaeological record.

Bone

The animal bone assemblage recovered from all periods from this site is fairly small, with few deposits producing large assemblages of animal bones.

The material from the pre-friary deposits, although very well preserved, is of very limited value, since few fragments were recovered.

The assemblage from Phase 2 is of modest size, but the broad dating of this phase, and the fact that numerous human fragments were present in all but grave-fills, suggests the deposits to be of possibly mixed origin. A more clearly defined dating framework for the friary occupation will be needed before decisions regarding the potential of further detailed work can be made. However, should this information be available, then limited amounts of information may be gleaned regarding monastic diet and the transition from medieval to post-medieval traditions in Hull, a subject highlighted by English Heritage as a major academic objective (English Heritage 1991, 37).

The assemblage from Phase 3 is of moderate size, whilst those from Phases 4, 5 and 6 are small by comparison. However, all may be quite tightly dated within the post-medieval and early modern periods and, as such, are of considerable

academic significance. The post-medieval period and its related urban development has also been highlighted by English Heritage as a research priority (English Heritage 1991, 37).

The known presence of three public houses (*The Tiger Inn* [the earliest], *The Cross Keys* and *The Marrow Bone and Cleaver*) on the site allows for the possibility of relating some of the animal bone assemblages to particular catering establishments. Therefore, detailed study of this material would provide a limited but important insight into aspects of Georgian and Victorian Inn fare from this part of the city.

Some bones of very large domestic animals are present from the post-medieval deposits, which will provide a limited biometrical data set with which to address the important question of livestock improvement which occurred during the Agricultural Revolution.

Hull was an important port in the later medieval and post-medieval periods and, as such, saw much shipping trade from other parts of the world. The introduction of the brown rat (*Rattus norvegicus* Berkenhout) to Britain is historically accepted as occurring in the early 18th century. Detailed studies of the rat remains from this site may provide more specific information regarding the date and place of its introduction.

Questions to be addressed

Particular aspects of site environment and activity which might be addressed using evidence from the analyses recommended in Table 1 are:

- (i) what was the nature of the succession of ditch cuts at the west end of the site in Phase 1 and in particular is there evidence of marine influence?
- (ii) what was the means of infilling of those cuts—was there natural silting as well as dumping of organic and other refuse?
- (iii) can the 'buried soil', stratigraphically beneath the large ditch cut 2158, be identified

with certainty? Can anything be determined of surface conditions and site utilisation during Phase 1 from the 'buried soil' and ditch fills?

(iv) what was the nature of land-use and human activity during Phase 2 (with particular reference to evidence for horticultural and craft activity)?

(v) what was the precise nature of the organic materials which appear to have been deliberately used within graves or coffins (including plants of possible ritual significance)? The presence of hay-like material in some of the fills is particularly intriguing.

(vi) can human parasites or food remains from stomach contents be identified from grave and coffin fills?

(vi) are the 'brains' from certain of the burials indeed such? If so, what was the mechanism of their preservation and was it a result of unusual ground conditions or the presence of deliberately applied preservative?

(vii) what evidence is there for the diet of the friars at this priory from plant remains and bone in pit fills and other refuse deposits?

(viii) what can be determined of activity, diet, and living conditions at the site during Periods 3 and 4 (C17-18th)?

(ix) can anything be inferred about life at this site during the 19th and 20th centuries from the few sampled deposits available?

(x) Is there evidence for Hull's role as an international port throughout the period represented by these deposits? Do the deposits give any evidence concerning the arrival dates of alien pest (and other) species.

Recommendations (see Table 1)

GBA and sediment samples

It is recommended that further analysis of the biota of the GBA samples proceeds in two stages. Firstly, selected samples from each of Phases 1-5 should be processed and reviewed for their content of biological remains. On the basis of this review, a smaller number of samples should be targeted for more detailed analysis, directed towards the questions outlined above. A careful record of the sediments should be made for the reviewed samples as the sedimentological data may be crucial to an understanding of some of the deposits. It is particularly important that the various analyses carried out on GBA samples should be co-ordinated and the results closely integrated since answers to many of the questions posed are much more likely to be obtained where this is done.

The sediments associated with the preserved 'brains' should be subjected to a range of analyses to establish whether there is any evidence concerning the means of preservation of this soft tissue. Thin sectioning and micromorphological examination of the monolith samples from the 'buried soil' should be undertaken to attempt an interpretation and identification of this feature.

BS samples

Selected BS residues should be examined variously for plant remains (including peat), shell, and fish bone (see below).

Spot samples

'Spot' samples in those categories marked '*' in Table A5 (other than the three already investigated) would need to (and certainly should) be examined by disaggregating some or all of the sediment present; those marked '+' need to be checked carefully for the presence of macroscopic food or other organic remains, but

are probably best considered by a biochemist with a view to extraction and analysis of organic molecules present in the residues or the pottery fabric. A small amount of time would be needed to check the identifications of fish bones and the faecal concretions should be checked for their content of biological remains, especially gut parasite eggs and foodplant fragments.

A review should be undertaken of a selection of the 'pelvic parasite' samples for their content of parasites and foodplant remains.

The timbers should be identified to determine whether any evidence for importation of foreign material can be detected.

Hand-collected shell

The material from the pre-friary and friary phases and from selected contexts from the later phases of the site should be recorded fully. Little is known of the early exploitation of shellfish in the north of England, and this unique body of evidence will help to identify aspects of trade, and perhaps commercial farming of shellfish in the area. All the oysters from well-dated primary contexts on the site should be measured, and aged, and other characteristics should be recorded.

Bone

It is recommended that

- (i) all tightly dated hand-collected material be recorded in detail.
- (ii) selected BS residues are sorted and all the bone recorded, with particular emphasis on small mammal (especially rat) and fish remains.
- (iii) a biometrical archive should be made of all cattle, sheep and pig, rabbit, chicken and goose bones from well dated deposits.
- (iv) a detailed morphological study of the rat remains should be undertaken in order to

determine whether brown rat was present in deposits of Phases 2, 3 and 4.

Retention/disposal

All the material should be retained for the present.

Archive

All bones, shell, timbers, residues, flots, washovers and paper and electronic archives relating to the work described here are currently stored at the EAU, York. The unprocessed sample material will be returned to Humberside Archaeology Unit awaiting decisions concerning further work.

Acknowledgments

The authors are grateful to Dave Evans (Humberside Archaeology Unit) and his excavation team (especially Gail Drinkall) for their efforts in sampling and in the provision of the site record.

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Table 1. Time estimates for investigation of biological remains from at the site of the Magistrates' Court, Hull. Recording includes data entry. Costs are provided separately.

Task	Staff	Time required (days)	Cost
General			
General laboratory tasks, sample movement, etc.	Tech.	10	
Maintain databases	Tech. RA x 2 (plants, insects)	5 2 x 0.5	
Administration, project meetings, obtaining and organising archaeological information	Tech. RA plants RF plants RA insects RF insects (including project management) RF molluscs RA bones RF bones	3 2 4 2 4 2 3 2	
Soils/sediments			
Preparation of thin sections, micromorphological analysis	RF soils/sediments University of Stirling (section preparation)	2 to be established	
GBA Review			
Select 134 samples from 291 for description and processing	Tech. RA x 2 (plants, insects) RF x 2 RF (soils/sediments)	4 2 x 1 2 x 1 4	
Process subsamples	Tech.	54.5	
Review plant remains	RA plants RF plants	16 2	
Survey parasite eggs	Tech.	4	
Review insect remains	RA insects RF insects	6 2	
Further work on GBA samples chosen on the basis of review			
Select samples	RF x 2 (plants, insects)	2 x 0.5	
Process further subsamples	Tech.	90	

Task	Staff	Time required (days)	Cost
Record plant remains	RA plants RF plants	36 6	
Record parasite eggs	Tech.	3	
Record insect remains	RA insects RA (puparia) RF insects Consultant (puparia)	67 13 11 11	
Contingency for mite analyses	Tech. Consultant	2 10	
Contingency for diatom analysis	Tech. Consultant	2 5	
Pollen analysis of selected samples	Tech. RF plants	3 10	
Contingency for non-marine molluscs from GBA samples	RF molluscs	2	
Contingency for bulk-sieving of selected GBA samples for artefact recovery	Tech.	10	
BS and SR samples and hand-collected material			
Sort 30 selected BS residues for bone	Tech.	30	
Scan and sort 30 additional residues for small mammal remains	Tech.	15	
Sort and record plant remains from approx. 20 selected BS residues	RA plants RF plants	5 1	
Sort and record non-marine molluscs from 10 selected BS residues	RF molluscs	9	
Record hand-collected shell	RF molluscs	15	
Record vertebrate remains from selected BS residues	RA bones RF bones	10 5	
Record selected groups of hand-collected bone	RA bones RF bones	15 5	Spot samples

Task	Staff	Time required (days)	Cost
Inspect, process and record selected spot samples (mostly from grave fills)	Tech. RF plants RF insects RF molluscs RF bones RF soils/sediments	15 18 5 0.5 2 2	
Survey of 20 selected pelvic parasite samples for parasite eggs and macrofossil remains	Tech. RF plants RF insects	10 3 1	
Contingency: particle size analysis of selected 'spot' and GBA samples	RF (soils/sediments)	5	
Identification of 29 timber samples	RF plants	1	
Contingency: analysis of pot residues	Consultant (biochemistry)	to be established	
Element analysis of 15 samples associated with preserved human brains	Consultant, NRM, Bracknell (spectroscopy)	to be established	
Lipid analysis of 'brains'	Consultant	to be established	
DNA analysis of 'brains'	Consultant	to be established	
Co-ordination of 'brain' investigations	Prof. D. Brothwell	5	
Reports and contingency			
Data analysis and Technical Report preparation	Tech. RA plants RF plants RA insects RF insects RF molluscs RA bones RF bones RF soils/sediments	3 15 5 12 5 7 20 5 5	

Task	Staff	Time required (days)		Cost
Preparation of publication report, including graphics, etc.	Tech. RF plants RF insects RF molluscs RA bones RF bones RF soils/sediments	3		
Contingency	Tech. RA plants RF plants RA insects RF insects RF molluscs RA bones RF bones RF soils/sediments	10		
Totals (days column) Weeks column: allows for leave and rounded to nearest 0.5 weeks	Tech. RA plants RF plants RA insects RF insects RF molluscs RA bones RF bones RF soils/sediments Consultant (fly puparia) Consultant (mites) Consultant (diatoms) Consultants (biochemistry, spectroscopy, lipid analysis, DNA analysis) Prof. D. Brothwell	Contact days 276.5 80.5 68.5 106.5 46.5 42.5 58 29 31 11 10 5 tbe 5	Working weeks 62.5 18 15.5 24 10.5 10 13 6.5 7 2.2 2 1 1	

Table 2. Consumables required for work on biological remains from deposits from excavations at the site of the Magistrates' Court, Hull. Costs are provided separately.

Item	Cost (£)
Reagents	
Safety and protective equipment	
Glass specimen tubes	
Microscope slides and cover slips	
Computer consumables and maintenance	
Beatson jars	
Stationery, including photocopying	
Postage	
Telephones/faxes	
Polyethylene bags	
Labels and markers	
Miscellaneous, including repairs to equipment	
Photographic materials and processing costs	
Preparation of sediment thin sections	
Analysis of sediments for toxic compounds	
Travel	
Total	

Appendix

Table A1. Magistrates' Court site, Hull: numbers of samples and contexts which they represent, by sample type and phase.

Sample type/ Phase	GBA	BS	SR	SPOT	Parasite	Mono- liths	Wood id.
1 (Pre-friary occupation: pre-1316/17)	43/20	7/3	-	1/1	-	1	1/1
2 (Monastic occupation and dissolution deposits: 1316-1600)	177/ 128	54/14	8/2	71/38	83/82	1	8/7
3 (C17th occupation)	36/35	56/17	-	9/9	-	-	3/3
4 (C18th occupation)	21/19	27/8	5/1	1/1	-	-	26/1
5 (C19th occupation)	12/10	36/8	-	3/3	-	-	2/2
6 (C20th occupation)	2/2	4/1	-	1/1	-	-	-
Totals	291/ 217	184/51	13/3	86/53	83/82	2	40/14

Table A2. GBA samples from the Magistrates' Court site, Hull. Results from the assessment analyses for the plant and invertebrate groups are presented in note form, together with a priority for further work (the first figure in each cell, where 1 is high, 3 low and 0 barren), and estimates for times (in hours) for further work, coded as follows: P—processing (for plant remains, no time is given if processing of more material is indicated for insect remains); R—recording; S—sorting; for further work on puparia, 'C' indicates time needed for work by a consultant; NFA: no further analysis recommended.

Phase	Sample	Context and context type	Priorities		
			Plants	Parasites	Insects
1 (pre-friary)	660	2184; primary fill of cut 2182	1/2; R2/P; R3 rather large group, though preservation only moderately good; peat, <i>Sphagnum</i> moss, ?straw; some hemp seeds; some annual nitrophile weeds abundant	0 (barren)	1; R2/P3; R4 aquatics, decomposers, a marine-littoral <i>Cercyon</i> sp., some synanthropes (mainly grain pests); abundant well preserved insects but larger subsample needed to see rarer taxa.
	661	2181; fill of cut 2176	2; R1.5/P; R2.5 small group with poor to moderately good preservation; hints of peat; linseed and 'bran' present (from faeces/dung?)	0 (barren)	2; R0.3/P3; R1 very few insects: traces of aquatics, marine-littoral <i>Cercyon</i> ; <i>Apion</i> spp.; conceivably stable manure; larger subsample needed for interpretation
	677	1626; fill of cut 2176	1/2; R2/P; R3 smallish group, with quite good preservation; peat and ?hay	0 (barren)	2; S2; R1/P3; S6; R3 large flot, part examined; probably interpretable group if larger subsample processed but interpretation not clear from material seen
	683	2175; fill of cut 2176	1/2; R2/P; R3 moderately large group with quite good preservation; peat, ?straw, ?hay	3 ?1 very poorly preserved <i>Trichuris</i>	1; R3/P3; R4 numerous insects; aquatics, some phytophages, decomposers (hints of foulness), grain pests; ??stable manure

Phase	Sample	Context and context type	Priorities		
			Plants	Parasites	Insects
2 (friary occupation and dissolution)	139	456; organic patch within lower fill of cut 455	1/2; R2/P; R3 modest-sized assemblage; many fig seeds with strawberry, grape and apple; some grassland taxa; faecal material with ?hay	0 (barren)	1; R4/P3; R6; puparia 8+8C modest-sized assemblage: decomposers, especially staphylinines; <i>Anobium</i> and <i>Lyctus</i> ; abundant fly puparia; interpretation not clear, but presumably plant debris present
	262	815; coffin fill, adjacent to lower right leg	1; R2/P; R3 rather large assemblage of rather well-preserved remains; hay and peat; ?hint of possible garden plants/flowers	3 1 <i>Trichuris</i> (no polar plugs)	2; R2/P3; S4; R4 few insects, including aquatics and ?hay taxa; interpretation would depend on much larger subsample
	281	696; lower fill of coffin	1; R2/P; R3 modest-sized assemblage, quite well preserved; ?straw and hay	0 (barren)	1; R3/P3; S4; R5 rather small group, giving hints of cut vegetation; decomposers, house fauna, and grain pests; ??stable manure; larger subsample required
	289	864; organic patch within grave fill	1; R2/P; R3 modest-sized assemblage, quite well preserved; ?straw; peat	0 (barren)	1; R2/P3; S5; R4 modest-sized group with hints of foul material such as stable manure; larger subsample required
	299	614; fill of brick-lined grave, under coffin 824	1; R2/P; R3 smallish group, moderately well preserved; peat, ?hay (including salt-marsh)	0 (barren)	1; R1/P3; R3 modest-sized group, including aquatics and decomposers (probably rather foul); larger subsample required
	310	873; fill of coffin of skeleton 873	1; R2/P; R3 large and well preserved assemblage; hay, straw; peat	0 (barren)	2; S4; R2/P6; S8; R4 large flot with dilute insects; ?stable manure and hay phytophages; large subsample required

Phase	Sample	Context and context type	Priorities		
			Plants	Parasites	Insects
	355	973; primary fill of pit 972	1; R2/P; R3 moderate-sized group; straw, hay, peat	0 (barren)	1; R1/P3; R4 smallish group, including house fauna and phytophages, with hints of foul matter; larger subsample required
	400	1038; floor deposit: West Range	3; R0.5 moderate numbers of <i>Juncus</i> seeds	0 (barren)	3; R2/P4; R6 preservation poor, few remains; much larger subsample
	511	630; burnt layer; floor deposit	3; R1 small assemblage, preservation very poor— ?reworked material; some peat; not especially rich in charcoal	0 (barren)	1; R2/P3; R6 a small group, including aquatics, decomposers ranging from dry to foul; remains rather fragmentary; larger subsample needed
	529	1457; layered 'straw' above fill 1424 in cellar	1/2; R1.5/P; R2.5 moderate-sized group with rather good preservation; hay, ?peat and ?straw	0 (barren; but many phytoliths)	1; S4; R2/P6; S8; R6; puparia 8+8C very large flot with a modest-sized group of insect remains on the borderline of interpretability, although numerous puparia
	589	220; floor deposit	3; R0.5 barest traces of plant remains, but <i>Juncus</i> seeds present	0 (barren)	0 (barren)
	602	1788; fill of coffin of skeleton 1789	1/2; R1.5 small group including some aquatics; peat	0 (barren)	2; R2/P3; R8 small group, preservation poor; interpretation unclear; larger subsample required
	612	1820; floor deposit	1; R2 small group, variable preservation; wetland; ?turf/grassland	0 (barren)	1; S4; R1/P6; S8; R2 large flot with dilute insect remains; flea; worth processing larger subsample

Phase	Sample	Context and context type	Priorities		
			Plants	Parasites	Insects
	630	2030; fill of coffin	1/2; R1.5/P; R2.5 small group, but some taxa abundant; traces of peat; weeds and perhaps wet grassland	0 (barren)	2; R1/P3; R3 modest-sized group, with aquatics, decomposers, phytophages, burrowers and ground-beetles; larger subsample needed
	649	144; floor deposit	3; NFA small numbers of <i>Sphagnum imbricatum</i> leaves and <i>Juncus</i> seeds only	0 (barren)	0 (barren)
	653	2208; floor deposit	3; 0.5 abundant <i>Juncus</i> seeds and moderate numbers of poorly preserved <i>Hyoscyamus</i>	0 (barren)	3; R1 a few pale traces of arthropod cuticle, some identifiable
3 (C17th)	22	187; fill of well 15	0 (barren)	0 (barren, but a few phytoliths)	0 (barren)
	62	253; fill of well 195	3; NFA barest traces of plant remains	0 (barren, but many phytoliths and some plant detritus)	3; <0.5R traces of insect remains only
	126	447; layer associated with oven 175	2; R1/P; R1 small assemblage, but hints of ?grassland and <i>Sphagnum</i> moss present (?from peat)	0 (barren, but many phytoliths and much organic matter)	3; R1/P6; S8; R4 small number of insect remains in large flot; much larger subsample needed for interpretation
	128	360; lowest fill of brick-lined pit 282	3; NFA barest traces of plant remains	0 (barren)	2; R1/P4; S8; R4 insects dilute, wood-feeders and ?subterranean forms; much larger subsample essential

Phase	Sample	Context and context type	Priorities		
			Plants	Parasites	Insects
	150	503; fill of pit 450	1; R1.5/P; R2.5 small assemblage; hints of straw; flax capsule fragments present	0 (barren, but many phytoliths)	1; S4; R3/P6; S8; R5; puparia 8+8C modest-sized assemblage, with puparia and decomposer beetles, mainly 'dry'; larger subsample required
	458	1165; fill of pit 1136	1/2; R1/P; R2.5 smallish group suggesting mixture of hay, peat, ?wood chips	3; 2 <i>Trichuris</i> (no polar plugs; some phytoliths)	1; R3/P3; R6 modest-sized group, with aquatics and decomposers (interpretation uncertain; larger subsample required)
4 (C18th)	155	505; fill of pit 477	3; NFA barest traces of plant remains	0 (barren)	0 (barren)
	371	1001; fill of well 865	1; R2/P; R3 rather large group with unusual preservation, including some mineral replacement; ?hay, peat	0 (barren, but some phytoliths)	1; R3/P3; R6 smallish group which might represent clean stable manure or yard debris; larger subsample required
	487	1317; primary fill of small well 371	2; R1.5 small group with hints of peat, some ?burnt	0 (barren, but a few phytoliths)	1; R2/P4;R4 aquatics, phytophages, ground-beetles, <i>Tachys</i> sp.; ?outdoor weed association; larger subsample required
5 (C19th)	30	234; fill of well 236	0; NFA barest traces of plant remains, including fig and raspberry	0 (barren, but a few ?phytoliths)	0 (barren)
	49	182; internal layer, Building II	3; R0.5 modest numbers of <i>Juncus</i> seeds	0 (barren, but some phytoliths)	0 (barren)
6 (C20th)	5	128; internal layer	3; NFA barest traces of plant remains	0 (barren)	0 (barren)

Table A3. Phase summaries for times required for work on plant and insect remains from assessed GBA samples from the Magistrates' Court site, Hull. First figure is for all samples, figure in parentheses is for priority 1 and 2 samples. Processing time includes sorting for insects where appropriate. Times for processing, sorting and recording only; note that figures do **not** represent time needed for project execution, but are used mainly as a basis for estimating that figure.

Sample type/ Phase	Plants	Insects	
	Record	Process	Record
1 (Pre-friary occupation: pre-1316/17)	8.5	18	12
2 (Monastic occupation and dissolution deposits: 1316-1600)	32	86 (82)	62 (55) puparia: 16+16C
3 (C17th occupation)	6	43 (31.5)	20 (16) puparia: 8+8C
4 (C18th occupation)	4.5	7	10
5 (C19th occupation)	0.5	0	0
6 (C20th occupation)	0	0	0
Totals	51.5	154 (138.5)	104 (93) puparia: 24+24C

Table A4. Estimates for time needed for more work on GBA samples from the Magistrates' Court site, Hull. Processing time includes sorting for insects, where appropriate. Key: Pr - technician time for processing more subsamples; P - time for work on plant remains; I - time for work on insect remains. Pup: time for work on puparia (cf. Tables A2-3)

Sample type/ Phase	Nos. GBA samples/ contexts	No. contexts assessed (nos. P1+P2 samples for plants/insects)	Time required for analysis of assessed P1 and P2 material			Estimated number of samples requiring review	Times required for review			Estimated number of samples requiring detailed analysis	Estimated time required for selected samples		
			Pr	P	I		Pr	P	I		Pr	P	I
(Pre-friary occupation: pre- 1316/17)	43/20	4 (4/4)	18	8.5	12	16	48	15	5	20	90	43	60
2 (Monastic occupation and dissolution deposits: 1316-1600)	177/128	16 (11/11)	82	32	55 pup: 16+ 16C	80	240	60	25	50	373	145	250 pup: 40+ 40C
3 (C17th occupation)	36/35	6 (3/3)	31.5	6	16 pup: 8+8 C	25	75	20	9	15	79	30	80 pup: 40+ 40C
4 (C18th occupation)	21/19	3 (2/2)	7	4.5	10	10	30	8	4	10	35	23	50
5 (C19th occupation)	12/10	2 (0/0)	0	0.5	0	3	9	1	1	1	4	2	2
6 (C20th occupation)	2/2	1 (0/0)	0	0	0	0	0	0	0	0	0	0	0
Totals	291/217	32				134	402	104	44	96	581	243	442 pup: 80+ 80C

Table A5. Numbers of 'spot' samples of different kinds from excavations at the Magistrates' Court site, Hull. See text p. 11 for explanation of '*' and '+'.

unknown material	2*
?iron pan	1*
dog coprolite	8
eggshell	2
faecal concretions	1
fish bone	9
mollusc	3
nutshell	2
pot with residue	10+
pot with sediment	2*+
sediment with organic matter, typically described by the excavator as 'straw', 'leaves' or 'plant fibres'	44*
wood	2*

Table A6. Magistrates' Court site, Hull: Numbers of contexts examined from fills and layers in each phase, for hand-collected molluscs.

Phase	1	2	3	4	5	6
Fills		3	7	1	5	1
Layers	2	9	1	2	1	
Total	19	233	57	23	37	19
Total examined	2	12	8	3	6	1
% examined	10.5	5	14	13	16	5

Table A7 (pp. A10-13). Hand-collected shell from the Magistrates' Court site, Hull.

Context		2272	2273	2	144	438	456	466	788
Phase		1	1	2	2	2	2	2	2
Context type		Layer	Layer	Layer	Layer	Layer	Fill	Fill	Layer
Ostrea	(upper)	13	3	42	87	10	7	14	140
Ostrea	(lower)	14	6	57	78	6	6	22	131
Ostrea	measurable	19	8	72	63	10	8	23	79
Ostrea	ageable	8	3	36	40	7	3	11	52
Ostrea	weight (g)	400	170	800	1650	159	200	540	2440
	knife marks	y		y	y	y		y	y
	infestations	y		y			y	y	y
Mytilus	(upper)			3		p	1		5
Mytilus	(lower)			1			1		4
Mytilus	measurable			1					4
Mytilus	weight (g)								
Littorina	sp.								2
Buccinum	sp.		1	1	3	1			25
Buccinum	weight (g)								380
Cerastoderma	sp.	1		1	3	2	3	1	78
Cerastoderma	weight (g)								170
Crab								p	
Crab	weight (g)								

/contd.

Table A7. continued

Context		798	818	905	1038	1109	2102	14	37
Phase		2	2	2	2	2	2	3	3
Context type		Layer	Layer	Layer	Layer	Layer	Pit fill	Layer	Fill
Ostrea	(upper)	92	29	27	38	10		18	64
Ostrea	(lower)	71	24	13	39	12		19	88
Ostrea	measurable	71	17	18	25	12		29	99
Ostrea	ageable	46	9	14	16	8		15	52
Ostrea	weight (g)	1820	570	310	570	230		580	1940
	knife marks	y	y		y	y		y	y
	infestations	y	y			y			y
Mytilus	(upper)	10	3	2	p				
Mytilus	(lower)	12	5	3					
Mytilus	measurable	10	3	1					
Mytilus	weight (g)	40							
Littorina	sp.	1							
Buccinum	sp.	28		3	3		199	2	
Buccinum	weight (g)	300		15	15		2380		
Cerastoderma	sp.	67	12	9	1	13	1	2	2
Cerastoderma	weight (g)	150		10		10			
Crab		p	p						
Crab	weight (g)	40							

/contd.

Table A7. continued

Context		135	233	437	462	1561	1721	430	651
Phase		3	3	3	3	3	3	4	4
Context type		Fill	Fill	Fill	Fill	Fill	Fill	Layer	Layer
Ostrea	(upper)	4		54	17	17	6	8	43
Ostrea	(lower)	13		43	12	13	7	5	42
Ostrea	measurable	16		50	23	18	12	2	32
Ostrea	ageable	4		34	13	11	5		18
Ostrea	weight (g)	540		1220	370	290	410	158	900
	knife marks			y					y
	infestations			y	y	y	y		y
Mytilus	(upper)		13	1					
Mytilus	(lower)		15	1					
Mytilus	measurable		14	1					
Mytilus	weight (g)		90						
Littorina	sp.								
Buccinum	sp.							1	3
Buccinum	weight (g)								
Cerastoderma	sp.		18	3				2	5
Cerastoderma	weight (g)		60						
Crab			p						
Crab	weight (g)		120						

/contd.

Table A7. continued

Context		868	31	224	354	1753	1874	1889	1134
Phase		4	5	5	5	5	5	5	6
Context type		Fill	Layer	Fill	Fill	Fill	Fill	Fill	Fill
Ostrea	(upper)	4	8	31	15	5	7	28	27
Ostrea	(lower)	4	15	26	12	3	6	25	49
Ostrea	measurable	6	18	41	14	5	12	25	48
Ostrea	ageable	3	6	29	9	3	7	16	20
Ostrea	weight (g)	480	450	600	430	320	530	470	4450
	knife marks		y	y	y		y	y	y
	infestations	y	y				y	y	y
Mytilus	(upper)					1			
Mytilus	(lower)								
Mytilus	measurable								
Mytilus	weight (g)								
Littorina	sp.								
Buccinum	sp.		2			1			
Buccinum	weight (g)								
Cerastoderma	sp.	4				1	2	3	
Cerastoderma	weight (g)								
Crab						p			
Crab	weight (g)								

Table A8. Magistrates' Court site, Hull: hand-collected vertebrate remains from Phase 1.

Species		Total fragments	No. measurable	No. mandibles
<i>Equus</i> f. domestic	horse	1	-	1
<i>Sus</i> f. domestic	pig	4	1	1
<i>Bos</i> f. domestic	cattle	9	3	-
Caprinae	sheep/goat	5	2	3
<i>Sub-total</i>		19	6	5
Unidentified		15	-	-
<i>Sub-total</i>		15	-	-
Total		34	6	5

Table A9. Magistrates' Court site, Hull: hand-collected vertebrate remains from Phase 2.

Species		Total fragments	No. measurable	No. mandibles
Pisciformes	fish	29	-	-
<i>Anser</i> sp.	goose	39	21	-
cf. Duck	?duck	13	1	-
<i>Anas</i> sp.	duck	2	2	-
<i>Anas crecca</i> L.	teal	1	1	-
<i>Gallus</i> f. domestic	chicken	45	27	-
<i>Meleagrus gallopavo</i> L.	turkey	1	-	-
<i>Larus canus</i> L.	common gull	1	1	-
Columbidae	pigeon	3	3	-
<i>Corvus</i> spp.	crow/rook	3	1	-
<i>Oryctolagus cuniculus</i> (L.)	rabbit	5	-	-
<i>Rattus</i> cf. <i>rattus</i> (L.)	?black rat	5	3	-
Canidae	canid	2	1	-
<i>Canis</i> f. domestic	dog	3	-	-
<i>Felis</i> f. domestic	cat	12	4	-
<i>Equus</i> f. domestic	horse	1	-	-
<i>Sus</i> f. domestic	pig	55	2	6
<i>Bos</i> f. domestic	cattle	143	23	10
Caprinae	sheep/goat	126	40	10
Human		58	-	-
<i>Sub-total</i>		<i>547</i>	<i>130</i>	<i>26</i>
Unidentified bird		14	-	-
Unidentified		1050	-	-
<i>Sub-total</i>		<i>1064</i>	-	-
Total		1611	130	26

Table A10. Magistrates' Court site, Hull: hand-collected vertebrate remains from Phase 3.

Species		Total fragments	No. measurable	No. mandibles
Pisciformes	fish	120	-	-
<i>Anser</i> sp.	goose	63	24	-
<i>Branta bernicla</i> (L.)	Brent goose	1	1	-
<i>Anas</i> sp.	duck	45	33	-
<i>Gallus f. domestic</i>	chicken	93	41	-
<i>Meleagrus gallopardo</i> L.	turkey	6	4	-
<i>Grus</i> sp.	crane	1	1	-
<i>Fulica atra</i> L.	coot	2	2	-
<i>Gallinago gallinago</i> (L.)	snipe	2	1	-
<i>Scolopax rusticola</i> L.	woodcock	3	-	-
Columbidae	pigeon	2	2	-
<i>Tyto alba</i> (Scopoli)	barn owl	3	-	-
<i>Corvus monedula</i> L.	jackdaw	4	3	-
<i>Corvus</i> spp.	crow/rook	4	4	-
<i>Oryctolagus cuniculus</i> (L.)	rabbit	103	15	-
<i>Lepus europaeus</i> Pallas	brown hare	3	2	-
Canidae	canid	1	-	-
<i>Canis f. domestic</i>	dog	38	13	-
<i>Felis f. domestic</i>	cat	4	1	-
<i>Equus f. domestic</i>	horse	2	1	-
<i>Sus f. domestic</i>	pig	35	3	-
<i>Dama dama</i> (L.)	fallow deer	3	2	-
<i>Bos f. domestic</i>	cattle	182	15	7
Caprinae	sheep/goat	232	79	13
Human		10	-	-
<i>Sub-total</i>		962	246	20
Unidentified bird		31	-	-
Unidentified		900	-	-

Species		Total fragments	No. measurable	No. mandibles
<i>Sub-total</i>		931	-	-
Total		1893	246	20

Table A11. Magistrates' Court site, Hull: hand-collected vertebrate remains from Phase 4.

Species		Total fragments	No. measurable
Pisciformes	fish	3	-
<i>Anser</i> sp.	goose	1	1
<i>Anas</i> sp.	duck	2	-
<i>Gallus</i> f. domestic	chicken	9	4
<i>Meleagrus gallopardo</i> L.	turkey	1	-
Columbidae	pigeon	1	-
<i>Oryctolagus cuniculus</i> (L.)	rabbit	5	-
<i>Lepus europaeus</i> Pallas	brown hare	1	-
<i>Felis</i> f. domestic	cat	19	-
<i>Sus</i> f. domestic	pig	1	-
<i>Bos</i> f. domestic	cattle	7	-
Caprinae	sheep/goat	18	7
<i>Sub-total</i>		68	12
Unidentified		78	-
<i>Sub-total</i>		78	-
Total		146	12

Table A12. Magistrates' Court site, Hull: hand-collected vertebrate remains from Phase 5.

Species		Total fragments	No. measurable
Pisciformes		2	-
<i>Anser</i> sp.	goose	5	2
<i>Anas</i> sp.	duck	8	3
<i>Gallus</i> f. domestic	chicken	48	18
<i>Meleagrus gallopavo</i> L.	turkey	3	1
<i>Corvus corone</i> L.	crow	1	-
<i>Oryctolagus cuniculus</i> (L.)	rabbit	8	4
<i>Rattus rattus</i> (L.)	black rat	12	7
<i>Sus</i> f. domestic	pig	11	-
<i>Sub-total</i>		98	35
Unidentified bird		24	-
Unidentified		99	-
<i>Sub-total</i>		123	-
Total		221	35

Table A13. Magistrates' Court site, Hull: hand-collected vertebrate remains from Phase 6.

Species		Total fragments	No. measurable
<i>Anser</i> sp.	goose	1	
<i>Gallus</i> f. domestic	chicken	42	24
<i>Erinaceus europaeus</i> L.	hedgehog	19	
<i>Oryctolagus cuniculus</i> (L.)	rabbit	97	
<i>Lepus europaeus</i> Pallas	brown hare	1	
<i>Rattus</i> cf. <i>rattus</i> (L.)	?black rat	2	
<i>Felis</i> f. domestic	cat	1	
<i>Sus</i> f. domestic	pig	4	
<i>Sub-total</i>		167	24
Unidentified		76	-
<i>Sub-total</i>		76	-
Total		243	24

Table A14. Bone from recorded bulk-sieved samples

Key: P = present (i.e <10% of total assemblage), C = common (10-50%), A =abundant (>50%). Letters in parentheses: for large mammals (LM), (F) = few measurable bones (i.e.<10%). For medium (MM) and small mammals (SM), birds, and fish, (L)= low diversity (i.e. 1 species present), (M)= moderate diversity (2-4 species) and (H)= high diversity (>4 species).

Phase	Context	Context type	Sample	LM	MM	SM	Bird	Fish	Egg-shell
1	1061	Layer	483	-	-	-	-	C(H)	-
2	456	Fill	137	P	-	-	P(L)	A(M)	-
2	456	Fill	199	P	-	-	P(L)	A(M)	-
2	614	Grave fill	300	P	-	-	-	C(M)	P
2	614	Grave fill	301	P	-	-	-	A(H)	P
2	614	Grave fill	302	P	-	-	-	C(M)	P
2	945	Layer	359	P	-	-	-	A(H)	-
2	945	Layer	360	P	-	-	-	A(H)	-
2	1038	Layer	403	P	-	-	P	C(M)	-
2	1038	Layer	404	P	-	-	P	C(M)	-
2	1038	Layer	423	P	-	-	P	C(H)	-
2	1075	Layer	451	P	-	P(L)	P(L)	C(M)	-
2	1075	Layer	456	P	-	P(L)	P(L)	C(L)	-
2	1591	Layer	539	P	-	-	P(L)	A(H)	-
2	1591	Layer	540	P	-	-	P(L)	A(H)	-
3	376	Fill	124	C(F)	C(L)	-	-	P	-
3	376	Fill	125	C(F)	C(L)	-	-	P	-
3	384	Fill	95	P	P(L)	-	P(L)	P(M)	-
3	447	Layer	127	P	-	P(L)	P(L)	P(L)	-
3	447	Layer	134	P	-	P(L)	P(L)	P(L)	-
3	447	Layer	135	P	-	P(L)	P(L)	C(M)	-
3	1721	Fill	559	P	-	-	-	P(M)	-
3	1722	Fill	567	P	-	P(L)	P(L)	P(L)	-
3	1722	Fill	570	P	-	P(L)	P(L)	P(L)	-

Phase	Context	Context type	Sample	LM	MM	SM	Bird	Fish	Egg-shell
3	208	Layer	78	P	C(L)	-	C(M)	C(M)	A
3	208	Layer	79	P	C(L)	-	C(M)	C(M)	A
3	208	Layer	80	P	C(L)	-	C(M)	C(M)	A
3	208	Layer	81	P	C(L)	P(L)	C(M)	C(M)	A
5	233	Fill	28	P	P(L)	C(M)	-	C(H)	A
5	233	Fill	29	P	P(L)	C(M)	-	C(H)	A
5	234	Fill	32	P	P(L)	C(L)	C(M)	C(M)	A
5	234	Fill	40	P	P(L)	C(L)	C(M)	C(M)	A
5	234	Fill	56	P	P(L)	C(L)	C(M)	C(M)	A
5	234	Fill	57	P	P(L)	C(L)	C(M)	C(M)	A
5	234	Fill	58	P	P(L)	C(L)	C(M)	C(M)	A

Notes on spot samples from grave fills

Context 697, Sample 233, 'leaves on & near to right hand of skeleton'

Glossy greenish or yellow leaves were observed on some surfaces of the 220 g lump of sediment and on disaggregation many more whole leaves and fragments were recovered, together with fragments of green twig and some other plant macrofossils. The leaves and twigs are undoubtedly box (*Buxus sempervirens* L.) and the archaeological context suggests a ritual use of the plant within the coffin of the deceased. Representative specimens from this material should be photographed to make a proper record and further work will be necessary on the small numbers of fruits and seeds present (at least four nutlets of the herb hyssop, *Hyssopus officinalis*, were noted, for example). There were also a few insect remains with no clear implications.

The other four spot samples identified by the excavator as containing leaves (samples 231, 235 and 238 from other parts of the same deposit) should certainly be checked for their content of plant (and other) remains.

Context 873, Sample 314, 'matted straw from between left leg & coffin side'

About 50% by volume of this small (190 g) sample consisted of short lengths (to about 10 mm) of plant detritus, probably grass or cereal straw. There was some chaff, including a wheat rachis fragment and a small range of other plant macrofossils, amongst them leaves of *Sphagnum imbricatum*.

Context 1368, Sample 505, 'fibrous plant material from above right side rib-cage'

The very small sample of approximately 25 g contained a pad of compressed plant detritus in a matrix of silt and clay. This pad was up to about 40 mm across and 5-10 mm thick and appeared to consist almost exclusively of *Sphagnum* sp. moss stems and leaves.