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**Assessment of biological remains from excavations
at Vicars' Court, Lincoln (site code: VC93)**

by

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Summary

Nine sediment samples and twelve boxes of animal bones were submitted for assessment of their potential for bioarchaeological analysis.

Small numbers of invertebrate remains of limited interpretative value were recovered. The plant remains present were of no interpretative value. The deposits submitted as '?cess' may contain low concentrations of parasitic nematode eggs.

A modest assemblage of animal bone from deposits of 17th to 19th century date of some interpretative value.

It is recommended that a limited amount of further work be carried out on this material both for site interpretation and for broader synthesis.

Keywords: Vicars' Court; Lincoln; 17th to 19th centuries; medieval; garderobe; invertebrate remains; insects; molluscs; plant remains; parasitic nematode eggs; animal bones

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Introduction and methods

Nine 'environmental' samples (GBAs, *sensu* Dobney *et al.* 1992), and a modest assemblage of animal bone were submitted for assessment of their bioarchaeological potential. This material was from the garderobe of the site and was selected by the excavator to answer specific questions as to the nature of the deposits.

The nine samples ('GBAs' *sensu* Dobney *et al.* 1992) were inspected in the laboratory and a description of their lithology recorded using a standard *pro forma*. Subsamples of 2 kg were taken from two of the samples for extraction of macrofossil remains, following procedures of Kenward *et al.* (1980; 1986).

The washovers and residues resulting from processing were examined for plant and invertebrate macrofossils.

All of the samples were examined for the eggs of parasitic nematodes using the methods outlined by Dainton (1992).

A total of twelve boxes (30 x 30 x 10cm) of animal bone was submitted for assessment, all of which were, initially, scanned. Material from 20 contexts (13 contexts dating to the 17th and 18th centuries and seven to the 18th and 19th centuries) was selected for further examination and recorded in some detail. None of the material dated to the medieval period contained sufficient numbers of fragments to be worth recording further.

Results

The sediment samples

The results of the investigations are presented in context order, with information provided by the excavator in square brackets.

All of the samples were dry when described, and proved to be highly calcareous when tested with dilute hydrochloric acid.

Context 105 [?cess]

Sample 7

Light grey-brown, unconsolidated, (working slightly plastic and slightly sticky when wet) slightly clay sand, with traces of ?plaster, pot and cinder. Small stones (6-20mm) were present.

The parasite squash gave a single poorly preserved *Trichuris* sp. (whipworm) egg, and was mostly inorganic with much organic detritus and a few fungal hyphae.

Context 110 [?cess]

Sample 14

Mid yellowish-grey, unconsolidated, silty sand, with traces of pot, ash, coal and cinder. Very small, small and medium sized stones (2-60mm) were common in the sample.

The 'squash' was mostly inorganic, with some organic detritus, a few fungal hyphae and a small number of possible pollen grains.

Context 111 [?cess]

Sample 15

Mid to dark grey-brown, unconsolidated (working slightly plastic when wet), silty sand, with traces of tile, cinder and medium sized (20-60mm) stones.

No parasite eggs were identified from the 'squash', which was mostly inorganic, with some organic detritus.

Context 112 [?cess]

Sample 16

Soft and unconsolidated (working plastic when wet), silty sand, with very small, small and medium sized stones (2-60 mm) present and large stones (>60 mm) present. The material seen in the 'squash' was mostly inorganic with a large amount of organic detritus.

Context 113 [?cess]

Sample 12

Light brown, soft, unconsolidated (working slightly sticky when wet), slightly silty, clay sand, with abundant mortar/plaster. Some concretions within the sample were possibly faecal.

However no parasite eggs were seen in the 'squash', which was mostly inorganic, with some organic detritus.

Context 116 [?cess]

Sample 13

A mid to dark grey, unconsolidated mixture of coal, ash and cinder with some mortar/plaster.

The parasite 'squash' was mostly inorganic with some organic detritus.

Context 117 [old floor surface]

Sample 18

Light to mid buff, very unconsolidated (working slightly sticky when wet), slightly clay, slightly silty sand.

The wash-over was mostly coal and charcoal with some sand and modern leaf fragments and a little ?modern woody root tissue. A modest invertebrate assemblage, typical of those associated with stone buildings (e. g. barns, houses etc.), was also present.

The large residue (1.3 kg from 2 kg) was almost entirely stone (to 60 mm) with a single fragment of shell

The parasite 'squash' was almost entirely inorganic.

Context 119 [?cess]

Sample 17

Mid orange-brown, unconsolidated (working slightly plastic when wet), silty sand with small stones (6-20 mm) and fragments of coal present.

Two parasite 'squashes' were performed on this sample - one on the sediment matrix and one on fragments of discrete calcareous concretion. The former was mostly inorganic with much organic detritus, one modern soil nematode, a single *Trichuris* sp. egg and a ?*Ascaris* (roundworm) egg. The parasite eggs were poorly preserved. The 'squash' from the concreted material was of broadly similar composition with the addition of a few fungal spores and hyphae, but contained no parasite eggs.

Context 121 [beneath old floor surface]

Sample 19

Light yellowish-brown, unconsolidated, crumbly (working sticky and plastic when wet), very stony (limestone or chalk) sandy clay. The sediment's appearance suggested that this may have been tilled or disturbed unless its condition was the result of trowelling.

The small washover was mostly charcoal (to 5 mm) with some sand, fragments of snail shell, a few invertebrates (of no interpretative value) and a few plant remains. The latter were mostly modern woody root fragments with a few fragments of *Conium maculatum* L. (hemlock) and *Fumaria* sp. (fumitory) and a single *Sambucus* sp. (elder) seed.

The Mollusca represented in this sample include *Carychium* sp., *Cochlicopa lubrica* (Müller), ?*Columella* sp., *Pupilla muscorum* (L.), *Vallonia costata* (Müller), *Vallonia* sp., *Punctum pygmaeum* (Draparnaud), *Discus rotundatus* (Müller), *Vitrea* sp., *Oxychilus alliarius* (Miller), *Trichia hispida* (L.) and the modern burrowing snail *Ceciliodes acicula* (Müller). Most of the species are represented by several individuals.

Cochlicopa lubrica, *Punctum pygmaeum*, *Discus rotundatus*, *Vitrea*, *Oxychilus alliarius* and *Trichia hispida* are species characteristic of damp, well-vegetated places, such as leaf litter, moss, herbage and (mostly vegetable) rubbish. *Vitrea* and *Oxychilus alliarius* can tolerate more acidic conditions and also feed on animal matter. *Pupilla muscorum* and *Vallonia costata* are species usually more closely associated with a wide range of drier habitats, such as dry calcareous grassland, but which includes walls.

The parasite 'squash' was entirely inorganic.

The moderate-sized residue (940 g from 2 kg) was mostly stones (to 85 mm) with some sand and gravel, fragments of unidentified snail shell, three fragments of pot and a single piece of metal slag (to 35 mm).

Bone

Preservation of material from most contexts was recorded as good to fair, with only material from Context 116 being recorded as showing poor preservation. The appearance of broken surfaces was mostly recorded as 'spikey' (sharply angular) although three contexts (31, 116, 183) contained bones that were battered in appearance.

Colour overall was fawn with little variation apparent within the material from single contexts. Dog gnawing was observed on the material but was limited in extent, affecting only a few bones (i.e. 0-10% in each context). Characteristic damage attributable to cat gnawing was

present on bird and rabbit bones from four contexts (53, 107, 112, 151). In addition, Contexts 53, 107 and 113 yielded a small number of bones showing evidence of rodent gnawing. This suggests that the material was not immediately incorporated into the deposit.

Butchery was recorded from most of the assemblage at low frequencies (0-10%), most occurring on cattle and caprine remains, although knife marks were noted on some of the bird fragments. Few bones, from the entire assemblage, showed evidence of fresh breakage. Fragments from eight contexts showed varying degrees of burning, most appearing scorched, possibly from having been deposited among hot ashes.

A total of 857 identifiable (10,315g) and 978 unidentified (6,293g) fragments were recorded (Tables 1 and 2) from those contexts selected for examination. Both periods were represented by a broad range of species, with the remains of common domesticates being dominated by caprines, followed by cattle, chicken and pig. The caprine remains included some particularly large individuals, especially from the later deposits.

A high proportion of juvenile and immature cattle was identified, a phenomenon noted from other post-medieval assemblages such as St Paul-in-the-Bail, Lincoln (Dobney *et al.*, forthcoming) and the Magistrates' Court site, Hull (Carrott *et al.* 1995).

The incomplete skeleton of a cat from Context 113 accounts for the high fragment total for this species. Rat (*Rattus* sp.) bones were also recovered from five contexts (107, 111, 112, 113, 114), whilst two mouse (*Mus* sp.) metapodials were present in Context 53.

Rabbit (*Oryctolagus cuniculus* (L.)) bones were well represented, especially from from 17th and 18th century deposits, as were the remains of duck.

Most of the duck fragments were wing elements, although a small number of skulls were also present. The remains were

mainly from 'mallard-size' birds, with no larger, domestic, individuals represented in the assemblages. Three coracoids and a humerus (Contexts 151 and 153) were identified as teal (*Anas crecca* L.).

The bones of geese are present in small numbers. Although these were identified as larger species of grey geese (*Anser* spp.), it was not possible to conclude whether they represent domestic or wild individuals.

Remains of wild mammals included a single cervid (?red deer (cf. *Cervus elaphus* L.)) pelvis and thirteen brown hare (*Lepus europaeus* Pallas) fragments.

A diverse assemblage of wild birds was identified which included partridge (*Perdix perdix* (L.)), snipe (*Gallinago gallinago* (L.)), woodcock (*Scolopax rusticola* L.), plover (*Pluvialis* sp.) and ?lapwing (cf. *Vanellus vanellus* (L.)). Similar assemblages have been recorded from other Lincoln sites (*Dobney et al.* forthcoming; O'Connor 1982) and probably represent the exploitation by wildfowling of the local fens and estuaries.

Also present were the remains of ?thrush (cf. *Turdus philomelos* Brehm), jackdaw (*Corvus monedula* L.) and seventeen Columbidae (pigeon) fragments, all of which were juvenile, twelve representing a single individual.

It is also interesting to note the recovery from Context 29 of sixteen tortoise (Testudines) fragments. Fifteen of these were from the plastron (bony plates on the underside of the shell), whilst the remaining fragment was a femur. This curiosity, although difficult to place within the rest of the assemblage, may represent an unusual pet or a collector's specimen.

Fish remains, although fairly numerous, were mostly unidentifiable spine fragments. Those which could be identified included seven Gadidae (cod family) fragments (six vertebrae and an articular), three salmon (*Salmo salar* L.) and eleven flatfish (Pleuronectidae) vertebrae and a single eel (*Anguilla anguilla* (L.)) dentary.

From the the whole assemblage, 211 measurable bones and only 8 mandibles with teeth were recorded. Most of the measurable fragments were from caprines (60), chicken (39) and duck (30).

Discussion

Sediment samples

With the exception of Samples 13, 18 and 19 (Contexts 116, 117 and 121 respectively) all of the sediments had the appearance of a mixture of decayed cess and ash or lime, though only two yielded eggs of parasitic nematodes.

The molluscs from Context 121 (Sample 19) suggest a midden-like deposit composed of decaying plant and animal matter contained by a stone wall. Other invertebrate remains were too few in number to allow definitive interpretation of the deposits. However, Context 117 (Sample 18) gave a group of insects typical of somewhat damp buildings.

Bone

Deposits from Vicars' Court yielded a small, diverse assemblage of animal bones. Most of the material was probably derived from household/kitchen waste, the remains of the main domesticates reflecting a consumer rather than a producer economy.

Statement of potential

Sediment samples

The samples processed indicate that there has been some preservation of organic material. Processing of additional material from Contexts 117 and 121 (Samples 18 and 19 respectively) including disaggregation using dilute acid, may yield invertebrate assemblages with clearer significance. The deposits submitted as 'cess' may contain small numbers of parasitic nematode eggs which could be concentrated by a simple sedimentation technique.

Bone

This reasonably tightly dated, well-preserved assemblage produced modest numbers of measurable bones which could provide a limited but significant data set. This would add to the recently obtained data from post-medieval deposits from Hungate, and St Paul-in-the-Bail, Lincoln (Dobney *et al.* forthcoming). Whilst these two assemblages represent a discrete deposit of tanners' waste and a dump of civil war material in a Roman well, the composition of the material from Vicars' Court appears to have a somewhat more domestic nature and a wider timescale.

Similar post-medieval assemblages have also been recovered from the Magistrates' Court site, Hull (Carrott *et al.* 1995), and further afield from Aldgate, London (Armitage 1984) and Launceston Castle, Cornwall (Albarella and Davis 1994). Detailed studies of bone from this period may add useful information with which to address the question of livestock improvement (suggested by a size increase) around the time of the Agricultural Revolution.

Recommendations

Sediment samples

The remaining material from Contexts 117 and 121 (Samples 18 and 19 respectively) should be processed to recover invertebrate remains. The other seven samples should be examined further for both parasite eggs and invertebrate (primarily molluscs) remains. In order to investigate the parasitic nematode eggs they would need to be concentrated from a larger subsample of material.

Bone

It is recommended that all tightly dated material be recorded in detail and that a biometrical archive be made of all cattle, sheep, pig, rabbit, chicken and duck bones from well-dated deposits.

Retention and disposal

All material should be retained for the present.

Archive

All extracted fossils from the test subsamples, the residues, washovers and the animal bone are currently stored in the Environmental Archaeology Unit, University of York, along with paper and electronic records pertaining to the work described here.

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Table 1. Recorded animal bone from 17th - 18th century deposits.

Species		No. fragments	No. measurable
Pisciformes	fish	39	-
<i>Rana</i> sp.	frog	1	-
<i>Anser</i> sp.	goose	11	7
<i>Anas</i> sp.	duck	53	26
<i>Anas crecca</i> L.	teal	1	-
<i>Gallus</i> f. domestic	chicken	48	26
<i>Meleagrus gallopardo</i> L.	turkey	2	1
Charadriidae	wader	1	1
cf. <i>Vanellus vanellus</i> (L.)	?lapwing	1	1
<i>Pluvialis</i> sp.	plover	2	2
<i>Gallinago gallinago</i> (L.)	snipe	1	1
<i>Scolopax rusticola</i> L.	woodcock	1	-
Columbidae	pigeon	17	-
cf. <i>Turdus philomelus</i> Brehm	?thrush	4	1
<i>Passer</i> sp.	sparrow	1	1
<i>Corvus monedula</i> L.	jackdaw	3	1
<i>Oryctolagus cuniculus</i> (L.)	rabbit	97	29
<i>Lepus europaeus</i> Pallas	brown hare	5	1
<i>Rattus</i> sp.	rat	11	-
<i>Felis</i> f. domestic	cat	43	12
<i>Equus</i> f. domestic	horse	4	1
<i>Sus</i> f. domestic	pig	37	1
<i>Bos</i> f. domestic	cattle	96	2
Caprinae	sheep/goat	137	43
<i>Sub-total</i>		616	157
Unidentified bird		26	-
Unidentified		697	-
<i>Sub-total</i>		723	-
Total		1339	157

Table 2. Recorded animal bone from 18th - 19th century deposits.

Species		No. fragments	No. measurable
Pisciformes	fish	11	-
Testudines	tortoise	16	-
<i>Anser</i> sp.	goose	7	5
<i>Anas</i> sp.	duck	29	4
<i>Anas crecca</i> L.	teal	3	-
<i>Perdix perdix</i> (L.)	grey partridge	2	1
<i>Gallus</i> f. domestic	chicken	35	13
<i>Meleagrus gallopavo</i> L.	turkey	3	2
cf. <i>Vanellus vanellus</i> (L.)	?lapwing	2	1
<i>Gallinago gallinago</i> (L.)	snipe	1	1
<i>Oryctolagus cuniculus</i> (L.)	rabbit	21	5
<i>Lepus europaeus</i> Pallas	brown hare	8	1
<i>Mus</i> sp.	mouse	2	-
<i>Canis</i> f. domestic	dog	1	1
<i>Sus</i> f. domestic	pig	20	-
cf. <i>Cervus elaphus</i> L.	?red deer	1	-
<i>Bos</i> f. domestic	cattle	32	3
Caprinae	sheep/goat	48	17
<i>Sub-total</i>		241	54
Unidentified bird		7	-
Unidentified		248	-
<i>Sub-total</i>		255	-
Total		496	54