

Reports from the Environmental Archaeology Unit, York 98/42, 12 pp.

**Assessment of vertebrate remains from Easington, East Riding of Yorkshire
(site code EAS 98)**

by

Cluny Johnstone, John Carrott, Deborah Jaques,
Frances Large and Darren Worthy

Summary

The contents of a single pit, provisionally dated to the Early Saxon period, were excavated at Easington. Sixteen sediment samples and two boxes of bone were submitted for assessment of their bioarchaeological potential.

The vertebrate assemblage formed the most significant part of the bioarchaeological remains. The preservation of the vertebrate remains suggests that the pit may have been filled by several episodes of dumping, both primary dumping and redeposition of material from elsewhere. The presence of small mammal and amphibian bones suggests that the pit must have been open for long enough to act as a pit-fall trap. The systematic sampling program suggested that certain areas of the pit contained different concentrations of bone and of burnt material. The mixture of primary butchery and domestic refuse, combined with concentrations of burnt fragments, suggest that this pit was a general refuse pit.

KEYWORDS: EASINGTON; EAST RIDING OF YORKSHIRE; SEDIMENT SAMPLES; VERTEBRATE REMAINS; EARLY SAXON; ASSESSMENT.

Authors' address:

Palaeoecology Research Services
Environmental Archaeology Unit
Dept. of Biology
University of York
PO Box 373
York YO10 5YW

Prepared for:

Humber Archaeology Partnership
The Old School
Northumberland Avenue
Hull
HU2 0LN

Telephone: (01904) 433846/434475/434487

Fax: (01904) 433850

18th December 1998

Assessment of vertebrate remains from Easington, East Riding of Yorkshire, (site code EAS 98)

Introduction

Excavations, undertaken by the Humber Archaeology Partnership at Easington, East Riding of Yorkshire, revealed a single pit. Very little dating evidence was recovered, but a provisional Early Saxon date has been suggested by the excavator. The pit was sectioned into quadrants: east and west, upper and lower sections. Only a single deposit (Context 3) was identified. Sixteen sediment samples (four from each section) and two boxes of bone (approximately 16.5 litres taken from the pit as a whole), were submitted for an assessment of their bioarchaeological potential.

Methods

Sediment samples

All sixteen sediment samples were inspected in the laboratory. A description of the lithology of four of these samples (one from each quadrant) was recorded using a standard *pro forma*. A 1 kg sub-sample from Sample 1 was processed as a 'GBA' (*sensu* Dobney *et al.* 1992), following procedures of Kenward *et al.* (1980; 1986), whilst the rest of that sample, and the other fifteen, were bulk-sieved to 500 µm for recovery of bones and other artefacts. The resulting washovers and residues were examined for plant and invertebrate remains.

A single sample (Sample 11) was examined for the eggs of parasitic nematodes using the method outlined by Dainton (1992).

Vertebrate remains

For the hand-collected vertebrate remains, data were recorded electronically directly into a series of tables using a purpose-built input system and *Paradox* software. Subjective records were made of the state of preservation, colour of the fragments, and the appearance of broken surfaces ('angularity'). Additionally, semi-quantitative information was recorded for each context concerning fragment size, dog gnawing, burning, butchery and fresh breaks.

Where possible, fragments were identified to species or species group, using the reference collection at the Environmental Archaeology Unit, University of York. Fragments not identifiable to species were grouped into categories: large mammal (assumed to be cattle, horse or large cervid), medium-sized mammal (assumed to be caprovid, pig or small cervid), bird, fish, small mammal and totally unidentifiable. As well as counts of fragments, total weights were recorded for all identifiable and unidentifiable categories.

Measurements for mammals were taken, (where appropriate) according to the system of von den Driesch (1976), with additional measurements following those outlined by Dobney *et al.* (forthcoming).

Vertebrate remains from the residues were recorded in a similar manner, but the unidentified fragments were not split into large and medium-sized mammal categories.

Results

Sediment samples

(The vertebrate remains are summarised in Table 1.)

Sample 1 (Upper west section of pit)

[1 kg processed - 'GBA']

Just moist, mid grey brown to light-mid grey, brittle to crumbly, very slightly silty clay, with small lumps of light brown sandy (?burnt) silt (to 10 mm) and, with some lumps of light brown sand (to 10 mm). Small stones (quartz), mammal bone (some burnt) and modern rootlets were noted.

The small washover contained only modern rootlets and small charcoal fragments. No insect remains were recovered.

The residue contained 25 bone fragments (weighing 17.1 g) amongst which a single cow phalanx (weighing 4.4 g) was identified. Thirteen fragments (52%) were burnt.

Sample 1 (Upper west section of pit)

[10 kg processed]

A moderately large residue was recovered which consisted mainly of sand and gravel (water-worn stones, to 70 mm, of very heterogeneous origin and no doubt derived from local till deposits or beach). A small quantity of daub, some mammal bone and a few scraps of charcoal were also recorded.

A total of 163 bone fragments (weighing 36.6 g) were recovered, of which 6 were identifiable (weighing 10.2 g) and 31 % were burnt. The remains of cattle (1 fragment), caprovid (2), small mammal (1) and fish (2), including eel (*Anguilla anguilla* (L.)), were represented.

Sample 2 (Upper west section of pit)

[10 kg processed]

The matrix of the residue was very similar to that from Sample 1. The residue contained a small quantity of daub, some mammal bone and a few scraps of charcoal.

Both mammal and bird remains were represented amongst the 98 fragments (weighing 15.4 g) recovered. Burnt fragments represented 14% of the total.

Sample 3 (Upper west section of pit)

[13 kg processed]

The matrix of the residue was very similar to that from Sample 1 and contained a small quantity of mammal bone.

A single caprovid tooth (weighing 2.7 g) was the only identified fragment amongst the 57 fragments (weighing 14.0 g) recovered. As with Sample 2, 14 % of the fragments were burnt.

Sample 4 (Upper west section of pit)

[12 kg processed]

The residue (again similar to Sample 1) contained some mammal bone, a few scraps of charcoal, daub and a single woodlouse (Isopoda), which may be intrusive.

Of the total of 191 bone fragments (weighing 78.4 g) recovered from this sample, five were identified (weighing 11.1 g). These included four caprovid teeth and a single cattle tooth. Only 2% of fragments from this sample were burnt.

Sample 5 (Lower west of pit)

[10 kg processed]

The washover contained numerous small fragments of charcoal and modern plant debris.

The matrix of the residue was very similar to that from Sample 1 and contained a small quantity of mammal bone and a few scraps of daub.

Vertebrate remains amounted to 58 fragments (weighing 38.9 g), of which a single pike (*Esox lucius* L.) vertebra (weighing 0.2 g) was the only identified fragment. Burnt fragments made up 9 % of the total.

Sample 6 (Lower west of pit)

[10 kg processed]

The residue from this sample (similar matrix to that from Sample 1) contained some mammal bone and a few scraps of charcoal.

Two identified fragments (single caprovid and cattle fragments weighing 15.5 g) were recovered from a total of 140 fragments (weighing 46.9 g). Only 4% of the fragments were burnt.

Sample 7 (Lower west of pit)
[10.5 kg processed]

The lithology description of this sample was the same as Sample 1, however more bone and a few 6-20 mm stones were noted. The sample also showed earthworm activity.

The small washover contained a few scraps of charcoal (to 10 mm) and modern plant detritus.

The residue (again similar to that from Sample 1) contained a moderate quantity of mammal bone and a few scraps of daub.

A total of 426 fragments of bone (weighing 119.7 g) were recovered, of which 10 were identified (weighing 14.2 g). Amongst the identified fragments were the remains of caprovid (8), pig (1), and goose (*Anser* sp.). Burnt fragments made up 2 % of the total.

Sample 8 (Lower west of pit)
[10 kg processed]

The small washover contained small fragments of charcoal (to 5 mm), and single barley grain and modern plant debris.

The residue matrix was similar to that from Sample 1, and contained a small quantity of mammal bone and a few scraps of charcoal and daub.

A single pig tooth (weighing 1.0 g) was the only identified fragment amongst the 281 fragments (weighing 24.8 g) recovered. Burnt fragments amounted to 6 % of the total.

Sample 9 (Upper east of pit)
[11kg processed]

The moderate-sized washover contained mainly fine sand, with small scraps of charcoal (to 4 mm), a bread wheat grain and many modern plant rootlets.

The residue (matrix similar to that from Sample 1) contained a moderate quantity of daub, a small

amount of mammal bone and a few scraps of charcoal.

Caprovid (4), and cattle (1) fragments were identified (weighing 3.6 g), from a total of 354 fragments (weighing 54.5 g). Burnt fragments formed 42% of the assemblage.

Sample 10 (Upper east of pit)
[11kg processed]

The moderate-sized washover contained fine sand, small charcoal fragments (to 5 mm), and many modern plant rootlets.

The matrix of the residue was very similar to that from Sample 1 and contained a moderate amount of mammal bone, daub and a few scraps of charcoal.

Of the 355 fragments of bone (weighing 97.0 g) recovered from this sample, seven were identified (weighing 41.3 g). The identified remains included cattle (3), goose (2) and shrew (2) (probably common shrew, *Sorex araneus* L.). Burnt fragments amounted to 29% of the total.

Sample 11 (Upper east of pit)
[10kg processed]

The lithology description was the same as Sample 1 but the sediment was drier and larger quantities of bone were present.

The small washover consisted chiefly of modern plant roots, with a few scraps of charcoal (to 5 mm).

The bulk of the residue had a similar matrix to that recorded for Sample 1. Additionally, large quantities of mammal bone, a moderate amount of daub, three pottery sherds and a few scraps of charcoal were recorded. Faecal concretions containing large bone fragments (an indication they may be from canid coprolites) were also noted. A 'squash' undertaken on a small subsample showed no parasite eggs present (not unusual for canid faecal material).

A total of 556 bone fragments (weighing 507.6 g) were recovered, of which 26 were identified (weighing 145.5 g). Mammal species present included cattle (8 fragments), caprovid (14), sheep (3) and vole/mouse (1). Burnt fragments made up 17 % of the total.

Sample 12 (Upper east of pit)

[11kg processed]

The small washover mainly contained fine sand and modern plant rootlets, with a few charcoal flecks.

The residue (again similar to that from Sample 1) contained a moderate quantity of mammal bone, a small amount of daub, a few scraps of charcoal and a few fragments of faecal concretions (similar to those identified in Sample 11).

Only two bone fragments (weighing 3.9 g), from a total of 294 (weighing 105.0 g) recovered from this sample, were identified. These included the remains of caprovid and goose. Burnt fragments represented 31% of the total.

Sample 13 (Lower east of pit)

[10kg processed]

The lithology description of this sample was the same as that for Sample 1, however, the sediment was drier and contained more stones (to >60 mm) and modern rootlets.

The small washover consisted mostly of modern plant detritus and fine sand, with charcoal flecks.

The residue (similar to the matrix for Sample 1) contained a moderate quantity of mammal bone, a small amount of daub and a few scraps of charcoal.

Of the 289 fragments of bone recovered (weighing 73.2 g), only a single cow tarsal (weighing 5.6 g) was identified. Only 10% of the fragments were burnt.

Sample 14 (Lower east of pit)

[10kg processed]

The residue (matrix again similar to that from Sample 1) contained a moderate quantity of mammal bone.

Twelve bone fragments (weighing 22.6 g) were identified, from a total of 782 (weighing 111.2 g) recovered. The remains of caprovid (10), pig (1) and amphibian (1) were all represented. Only 1% of the fragments were burnt.

Sample 15 (Lower east of pit)

[9kg processed]

The matrix of the residue was very similar to that from Sample 1 and contained a small amount of mammal bone and daub, a few scraps of charcoal and a single sherd of pottery.

Of the 323 fragments of bone (weighing 57.6 g) recovered from this sample, seven were identified (weighing 7.1 g). The identified material included caprovid (4), sheep (1), pig (1) and amphibian (1). Burnt fragments made up 12 % of the total.

Sample 16 (Lower east of pit)

[9kg processed]

The small washover consisted mostly of modern plant debris and fine sand, with a few scraps of charcoal (to 5 mm).

The matrix of the residue was very similar to that from Sample 1 and contained a moderate quantity of mammal bone, a few scraps of daub and charcoal and two pottery sherds.

Only 11 bone fragments (weighing 14.6 g) from a total of 784 (weighing 109.7 g) were identified and included caprovid (7), sheep (2), and goose (2). Only 4 % of the fragments were burnt.

Vertebrate remains

Overall, preservation of the hand-collected remains was variable. Although most fragments were recorded as 'good', some had slightly flaky areas on the surface of the bone. Colour was described as ginger to brown, whilst angularity (appearance of broken surfaces) was recorded as 'spiky'. The appearance of the bone did not suggest the presence of re-deposited material.

Dog gnawing, and burning were present on 0-10% of the fragments, butchery on 10-20% and fresh breakage was evident on 20-50%. A moderate degree of fragmentation was noted, more than 50% of the fragments being 5-20 cm in dimension.

The vertebrate remains recovered from the residues were less well-preserved than the hand-collected fragments. The colour range (of the unburnt fragments) was similar to that of the hand-collected

material, but the overall state of preservation was fair rather than good. A larger proportion of battered fragments was noted, with a few rounded pieces also present.

The degree of fragmentation was considerably greater with more than 50 % of the fragments less than 20 mm in dimension. A larger proportion of burnt fragments was noted in the sieved assemblages.

In total, 409 fragments (weighing 5331 g) were recovered by hand collection, of which 122 (3188 g) were identified to species. Table 2 gives the numbers of mandibles and teeth, subadult bones, total numbers of fragments and weights by species. Table 5 gives the measurements taken on the mammal bones.

Caprovid remains were most numerous (61 fragments including 21 identified as sheep), followed by cattle (44). Horse (6), pig (5) and goose (3) were also present.

A total of 287 unidentified fragments was recorded of which 64 were completely unidentified, the rest being large or medium-sized mammal fragments.

Table 3 shows the relative proportion of meat-bearing to non-meatbearing elements for cattle and caprovids from both the hand-collected and bulk-sieved assemblages. Although the numbers are fairly small, both cattle and caprovids show a higher proportion of non-meatbearing elements.

The bulk-sieved residues produced a total of 5176 fragments (weighing 1507.6 g), of which 94 (weighing 303.5 g) were identified. Table 1 gives the numbers of fragments in each section of the pit, as well as the totals by species. Table 4 gives the total number of fragments by sample together with the percentage burnt.

Caprovid remains were again most numerous (63 fragments including 7 identified as sheep), followed by cattle (17). Other mammal species present included pig, vole/mouse and shrew. The only bird species present was goose, whilst the identified fish remains included eel and pike. Two amphibian bones were also recorded.

The 5082 unidentified fragments comprised totally unidentified material, together with large and medium-sized mammal bones, and a few

unidentified fish, bird, and small mammal fragments.

Discussion and statement of potential

Sediment samples

Ancient plant remains were scarce from the samples apart from a very few charred cereal grains, and a little charcoal, whilst invertebrate remains were absent.

Vertebrate remains

The preservation of the hand-collected vertebrate remains suggested that the material was reasonably homogeneous. In contrast, however, the bulk-sieved remains were more heavily fragmented (although sieving will obviously accentuate the numbers of small fragments through improved recovery), and many more bone fragments were battered and rounded. The more complete and better preserved material may represent primary dumping, whilst the more eroded and fragmented bones may represent reworked material from elsewhere.

The range of species represented in the hand-collected material is very limited, and the bulk-sieved samples have added only a few further species. The presence of 12 small mammal and two amphibian bones suggests that the pit was probably open for long enough to act as a pit-fall trap.

The systematic sampling program and the method of excavation enabled a preliminary examination of bone concentrations in different areas of the pit to be made (Table 4). Although burnt fragments were spread throughout, there was a definite concentration of burnt bone in the upper east

portion of the pit. Similarly, the highest accumulation of bone was in the lower east segment and, to a lesser extent in the upper east portion.

The relative proportions of the meat-bearing and non-meatbearing parts of the skeleton suggest that the remains represent both primary butchery and domestic refuse, with a slightly higher proportion of the former. No specific craft activities could be identified from the vertebrate remains, and it seems highly likely that the pit contained general refuse from a number of sources.

The moderate size of the vertebrate assemblage, and the few fragments of use for providing zooarchaeological data, limit the extent to which further work is justifiable. Equally, in the absence of a definitive dating framework, any further data collected will be of limited value.

Recommendations

No further work is recommended on the plant remains.

No further work is recommended on the vertebrate assemblage from Easington until a ¹⁴C date is forthcoming.

Early Saxon vertebrate assemblages are not well represented in the region, thus, even small data-sets of Saxon date, such as this one, should be retained and recorded to archive level at least. This archive should contain basic species identifications, records of measurements and age-at-death data from teeth. This would entail a small amount of further work to bring the current records up to archive level.

Retention and disposal

All sediment samples and vertebrate remains site should be retained, under suitable storage conditions, for the present.

Archive

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

Acknowledgements

We are grateful to Humber Archaeology Partnership for supplying the material and archaeological information.

References

- Dainton, M. (1992). A quick, semi-quantitative method for recording nematode gut parasite eggs from archaeological deposits. *Circaea, the Journal of the Association for Environmental Archaeology* **9**, 58-63.
- Dobney, K., Hall, A. R., Kenward, H. K. and Milles, A. (1992). A working classification of sample types for environmental archaeology. *Circaea, the Journal of the Association for Environmental Archaeology* **9** (for 1991), 24-6.
- Dobney, K. M., Jaques, S. D. and Johnstone, C. J. (Forthcoming). [Protocol for recording vertebrate remains from archaeological sites].
- Kenward, H. K., Engleman, C., Robertson, A., and Large, F. (1986). Rapid scanning of urban archaeological deposits for insect remains. *Circaea* **3** (for 1985), 163-72.
- Kenward, H. K., Hall, A. R. And Jones, A. K. G. (1980). A tested set of techniques for the extraction of plant and animal macrofossils from waterlogged archaeological deposits. *Science and Archaeology* **22**, 3-15.

von den Driesch, A. (1976). A guide to the measurement of animal bones from archaeological sites. *Peabody Museum Bulletin* 1. Cambridge Mass., Harvard University.

Table 1. The vertebrate remains from the bulk-sieved samples from Easington, East Riding of Yorkshire.

Taxon		Upper West	Lower West	Upper East	Lower East	Total
Vole/mouse	Microtine/Murine	-	-	1	-	1
?Common shrew	cf. <i>Sorex araneus</i> L.	-	-	2	-	2
Pig	<i>Sus</i> f. domestic	-	2	-	2	4
Cow	<i>Bos</i> f. domestic	3	1	12	1	17
Sheep/goat	Caprovid	7	9	19	20	55
Sheep	<i>Ovis</i> f. domestic	-	-	3	4	7
Goose	<i>Anser</i> sp.	-	1	1	2	4
Eel	<i>Anguilla anguilla</i> (L.)	1	-	-	-	1
Pike	<i>Esox lucius</i> L.	-	1	-	-	1
Amphibian		-	-	-	2	2
Subtotal		11	14	38	31	94
Unidentified fish		1	2	1	-	4
Unidentified bird		9	2	13	9	33
Unidentified small mammal		7	-	1	1	9
Unidentified		506	887	1506	2137	5036
Subtotal		523	891	1521	2147	5082
Total		534	905	1559	2178	5176

Table 2. The vertebrate remains from Easington, East Riding of Yorkshire.

Species		No. unfused	No. juvenile	No. mandibles	No. teeth *	Total	Weight (g)
Horse	<i>Equus f. domestic.</i>	1	-	-	-	6	254
Pig	<i>Sus f. domestic</i>	-	-	1	2	5	65
Cow	<i>Bos f. domestic</i>	7	1	2	2	44	2111
Sheep/goat	Caprovid	13	-	4	3	40	462
Sheep	<i>Ovis f. domestic</i>	2	-	3	-	21	282
Goose	<i>Anser sp.</i>	-	-	-	-	3	14
Subtotal		23	1	10	7	122	3188
Large mammal		-	-	-	-	106	1635
Medium sized mammal		-	-	-	-	117	388
Bird		-	-	-	-	3	3
Unidentified		-	-	-	-	64	117
Subtotal		-	-	-	-	287	2143
Total		23	1	10	7	409	5331

* = The number of teeth includes only those teeth of use in providing ageing or sexing information

Table 3. Relative proportions of meat-bearing and non-meat-bearing parts of the skeleton from Easington, East Riding of Yorkshire.

	Meatbearin g	Non- meatbearing	Total
Cattle	16	45	61
Caprovid	46	77	123
Total	62	122	184

Table 4. The numbers of bone fragments from the sediment samples, together with the percentage of burnt fragments, from Easington, East Riding of Yorkshire.

Area	Sample no.	No. bone fragments	% fragments burnt
Upper West	1	188	34
	2	98	14
	3	57	14
	4	191	2
Lower West	5	58	9
	6	140	4
	7	426	2
	8	281	6
Upper East	9	354	42
	10	355	29
	11	556	17
	12	294	31
Lower East	13	289	10
	14	782	10
	15	323	12
	16	784	4

Table 5. Measurements of bones from Easington, East Riding of Yorkshire.

Species	Element	Measurements					
Sheep/goat	Radius	Bp=30.51	BFp=28.83	SD=18.22			
Sheep/goat	Metatarsal	Bp=20.60	Dp=19.80				
Sheep/goat	Metatarsal	Bp=18.99	Dp=18.98				
Sheep/goat	Scapula	SLC=18.35	ASG=20.74				
Sheep/goat	Scapula	GLP=31.96	SLC=18.54	ASG=21.40			
Sheep/goat	Scapula	SLC=20.63	ASG=24.46				
Sheep/goat	M3	L=23.18	B=7.80				
Sheep/goat	M3	L=21.47	B=7.85				
Sheep/goat	M3	L=20.44	B=7.64				
Sheep/goat	M3	L=21.77	B=8.80				
Sheep/goat	M3	L=20.92	B=8.28				
Sheep	Calcaneum	GL=56.32	C=12.49	C+D=21.58	DS=17.41		
Sheep	Metacarpal	GL=112.21	SD=12.88	Bd=22.89	Dd=14.89	Dem=10.08	
		Dvm=14.87	Dim=12.41				
Sheep	Metacarpal	GL=120.68	Bp=22.42	Dp=15.08	SD=14.36	Bd=26.06	
Sheep	Metacarpal	SD=14.71	Bd=26.35	Dd=15.57	Dem=10.70	Dvm=15.54	Dim=12.99
Sheep	Metatarsal	GL=127.92	Bp=21.13	Dp=20.64	SD=13.09	Bd=23.98	Dem=10.08
		Dim=12.81					
Sheep	Metatarsal	SD=13.68	Bd=24.51	Dd=15.88	Dem=10.55	Dvm=15.90	Dim=12.70
Sheep	Tibia	SD=12.10	Bd=25.91	Dd=19.99			
Sheep	Tibia	SD=12.67	Bd=25.08	Dd=19.53			
Sheep	Humerus	SD=11.68	BT=25.87	HT=16.21	HTC=13.79		
Sheep	Humerus	SD=14.47	BT=29.10	HT=18.98	HTC=14.17		
Sheep	Humerus	SD=13.28	BT=28.80	HT=18.51	HTC=15.36		
Sheep	Humerus	SD=15.08	BT=28.71	HT=19.27	HTC=14.23		
Sheep	Humerus	SD=13.19	BT=27.73	HTC=15.09			
Cow	Humerus	BT=68.16	HTC=33.02				
Cow	Humerus	BT=62.79	HTC=29.25				
Cow	Humerus	BT=67.49	HTC=31.03				

Cow	Calcaneum	GL=129.06	DS=41.60	C=26.19	C+D=47.98		
Cow	Tibia	Bd=65.34	Dd=49.55				
Cow	Tibia	Bd=55.33	Dd=42.27				
Species	Element	Measurements					
Cow	Radius	Bd=63.51	BFd=56.83				
Cow	Metacarpal	GL=175.5	SD=26.33	Bp=49.96	Dp=31.51	Bd=51.94	Dd=27.16
		Dem=20.59	Dvm=27.63	Dim=25.31			
Cow	Metatarsal	GL=200.4	SD=20.39	Bp=39.19	Dp=39.31	Bd=46.21	Dd=26.22
		Dem=20.10	Dvm=26.15				
Cow	Metatarsal	GL=214.5	SD=23.73	Bp=39.45	Dp=35.88	Bd=50.15	Dem=21.93
		Dim=25.51					