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**Evaluation of biological remains from St. William's College (cold store),
York (site code 1999.4)**

by

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Summary

An archaeological evaluation undertaken to the rear of St. Williams College produced a single box (approximately 20 litres) of bone and shell. The material was dated to the late medieval, post-medieval and modern periods.

The shell assemblages recovered were too small to be of any great interpretative value. However, the bias of the recovered shell towards edible marine taxa, together with the percentage of shells showing evidence of having been opened using tools, strongly suggests that this assemblage derives almost exclusively from human food waste.

*The vertebrate assemblage was also small, and hence of limited interpretative value. The range of species present (mostly the major domesticates) and the proportions of skeletal elements suggest that the assemblage is most likely to originate from domestic refuse. Single fallow deer (*Dama dama*(L.)) and ?woodcock (cf. *Scolopax rusticola* L.) fragments are possibly indicators of high status activity, which might be expected considering the proximity of the site to the minster and the ecclesiastical connections of the College.*

KEYWORDS: ST. WILLIAM'S COLLEGE; YORK; EVALUATION; POST-MEDIEVAL; VERTEBRATE REMAINS; SHELL

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Introduction

During August 1999 an archaeological evaluation was undertaken by York Archaeological Trust to the rear of St. William's College, York, in advance of the construction of a cold store. The excavated area butted up against the existing College building and was found to contain build-up deposits, dumps, occupation deposits, structural elements and various features dating from the late medieval, post-medieval and modern periods. A single box (approx. 20 litres) of hand-collected bone and shell was presented for evaluation.

Methods

Hand-collected shell

One bag of hand-collected shell (representing material from 18 contexts, mostly post-medieval in date) was submitted. Brief notes were made on the preservational condition of the shell and the remains identified to species where possible.

For oyster (*Ostrea edulis* L.) shell additional notes were made regarding: numbers of left and right valves; evidence of having being opened using a knife or similar implement; measurability of the valves; damage from other marine biota (polychaete worms and dog whelks); encrustation by barnacles.

Hand-collected vertebrate remains

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

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

Total numbers of fragments by species were recorded, together with the numbers of unfused and juvenile fragments (Dobney *et al.* forthcoming). In addition to counts of fragments, total weights were recorded for all identified and unidentified categories.

Measurements were recorded following the guidelines of Von den Driesch (1976) with additional measurements outlined in Dobney *et al.* (forthcoming).

Results

Hand-collected shell

A very small assemblage of hand-collected shell was recovered from eighteen contexts. Preservation was highly variable (ranging from very poor to very good) but predominantly good. All of the material was assessed and the taxa identified as closely as possible.

Table 1 shows the total numbers of contexts assessed by period. Table 2 gives the total number of fragments recorded grouped by period.

Most of the recovered shell was of edible shellfish from deposits of post-medieval date. Oyster was the most commonly represented taxon (present in 14 of the 18 contexts containing shell), with cockle and the occasional terrestrial form also noted.

Oyster shell was, on the whole, quite well-preserved (almost all of the valves could be identified as either left or right). Also, 40% of the valves for which 'side' could be determined were measurable (though measurements were not taken as part of this evaluation). Evidence of the oysters having been opened using a knife or similar implement (as shown by 'V'- or 'W'-shaped notches on the shell margins) was noted on 75% of the valves. There was very little evidence of damage to the valves, with only one valve showing traces of possible burrowing by polychaete worms. Similarly, there was little encrustation by other marine biota (again only one valve having some encrustation by barnacles). The information is summarised in Table 3.

The only other marine invertebrates represented were all cockles (*Cerastoderma edule* (L.)).

The identifiable land snails were all of *Helix aspersa* Müller (the 'garden snail'); this is a highly eurytopic species of no value in interpreting ecological conditions on the site beyond indicating the availability of at least modest amounts of calcium carbonate (probably provided by the decomposing shellfish remains and the limestone and mortar of the walls of the college).

Hand-collected vertebrate remains

Vertebrate material was recovered from a total of 31 contexts, and bone from 24 of these was recorded. Material from the remaining seven contexts (dated to the 19th/20th century) was scanned and notes made of preservation and additional species.

A total of 158 fragments (weighing 1006 g) was examined, of which 49 (weighing 587 g) were identified to species (Table 4). The vertebrate remains were recovered from deposits dated to the late medieval and post-medieval periods (Table 5 gives the numbers of fragments by date).

As detailed preservation records could only be made for material from four contexts, the following description is based on an overall impression of the assemblage rather than records from individual contexts. Overall preservation was 'good', with colour ranging from 'beige' to 'fawn'. Angularity (appearance of broken surfaces) was considered to be 'variable', with both 'spiky' and slightly 'battered' fragments within contexts.

The degree of fragmentation was moderate, more than half of the fragments being between 5 and 20 cm in the largest dimension. Overall, at least 10% of fragments were affected by fresh breakage, whilst dog gnawing and butchery were noted on less than 10% of fragments. No burnt fragments were noted.

Domestic species included cattle, caprovid, pig and chicken. A single wild mammal fragment was recovered, a fallow deer (*Dama dama* (L.)) tibia (Context 1076). Of the identified material, caprovid fragments were most numerous, with a correspondingly large number of medium-sized mammal fragments in the unidentified fraction.

The two goose fragments were of similar size to the larger greylag individuals in the EAU reference collection. These bones could therefore represent either wild or domestic individuals. Additionally a ?woodcock (cf. *Scolopax rusticola* L.) humerus (Context 1025) was recorded.

Within the total of 49 identifiable fragments from this assemblage, 17 were measurable (Table 6), and 14 were subadult and/or juvenile. No mandibles or teeth, yielding ageing or sexing information were recovered.

A single human phalanx was recovered from Context 1026. This bone indicates the presence of redeposited material within this layer.

Discussion and statement of potential

Hand-collected shell

The bias of the recovered mollusc shell towards edible marine taxa, together with the percentage of shells showing evidence of having been opened using tools and the lack of damage/encrustation by other marine biota (suggesting cultivation), strongly suggest that these assemblages derive almost exclusively from human food waste.

From current evidence, the oysters could only have been imported to the site from the Kent, Essex or Suffolk coasts or the Firth of Clyde (Winder 1992 and pers. comm.). However, Kenward (1998) has speculated that exploitation of local (but as yet unlocated) oyster beds may well have been more widespread along the east coast of England.

Taken in isolation, the marine shell assemblage is too small to be of any further interpretative value. The land snail remains were of no interpretative value.

Hand-collected vertebrate remains

The reasonable state of preservation and limited quantity of dog gnawing suggests that the vertebrate material was incorporated fairly rapidly into the deposits and has not been reworked to any great extent (with the exception of Context 1026 which contained the single human fragment).

The small size of the assemblage limits the interpretation that can be placed upon it. The

range of species represented, together with the proportions of skeletal elements suggests this assemblage may consist chiefly of domestic refuse. The presence of fallow deer and ?woodcock bones are possible indicators of high status activity, as might be expected considering the proximity of the site to the minster and the ecclesiastical connections of the College.

From an initial scan, the modern material appears to be more poorly preserved than the earlier material, although the colour is very similar. The identifiable fragments are mostly caprovid bones, which (as would be expected from material of this date) were from very large individuals.

The small quantity of material from this site severely limits the potential for further work, particularly as there are very few subadult bones and no mandibles or loose teeth. As the material is reasonably tightly dated the measurements would be of use in future synthetic studies.

Recommendations

No further work is recommended on the current assemblage of hand-collected shell.

It is recommended that a full archive is made of the vertebrate material but no further analytical work is necessary.

Retention and disposal

Hand-collected shell

Although of no further interpretative value on its own, this assemblage may be of use in future synthetic studies and should be retained.

Vertebrate remains

Bone should be retained until a full archive has been made but could subsequently be disposed of.

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

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Table 1. Numbers of contexts containing hand-collected mollusc shell by period for St William's College, York (1999.4).

Period	No. of contexts
Post-medieval	13
Modern	5

Table 2. Hand-collected shell counts by period for St William's College, York (1999.4). Counts for bivalve taxa are minimum numbers of whole valves. Counts for other taxa are minimum numbers of individuals.

Taxon	Period		Total
	Post-medieval	Modern	
Oyster (<i>Ostrea edulis</i> L.)	16	4	20
Cockle (<i>Cerastoderma edule</i> (L.))	14	5	19
Total (marine taxa)	30	9	39
<i>Helix</i> sp.	2	0	2
Total	32	9	41

Table 3. Additional notes on oyster valves from St William's College, York (1999.4) summarised by period. A '?' before numbers indicates possible numbers (e.g. '3(?4) = definitely 3, possibly 4, whereas '?3/4' = possibly 3, possibly 4). **Key:** 'Right valves' = number of right (or upper) valves; 'Left valves' = number of left (or lower) valves; 'Indet. valves' = number of valves of indeterminate side; 'Knife marks' = number of valves showing damage characteristic of the oyster having been opened using a knife or similar implement; 'Measurable?' = estimated number of valves intact enough to be measured; 'Worm burrows' = number of valves showing damage by polychaete worms; 'Barnacles' = number of valves with barnacles.

Period	Right valves	Left valves	Indet. valves	Knife marks	Measurable ?	Worm burrows	Barnacles
Post-medieval	9	7	0	12(?15)	7	0	1
Early modern	1	3	0	3(?4)	1	1	0
Total	10	10	0	15(?19)	8	1	1

Table 4. Total numbers of vertebrate fragments, together with numbers of subadult bones, and weights, by species, from St. William's College, York (1999.4).

Species		No. unfused fragments	No. juvenile fragments	Total no. fragments	Weight (g)
Rabbit	<i>Oryctolagus cuniculus</i> (L.)	1	1	5	5.0
Pig	<i>Sus</i> f. domestic	3	-	6	77.4
Fallow deer	<i>Dama dama</i> (L.)	-	-	1	24.1
Cattle	<i>Bos</i> f. domestic	-	5	8	124.1
Sheep	<i>Ovis</i> f. domestic	1	-	9	144.3
Sheep/goat	Caprovid	3	-	9	185.3
Human	<i>Homo sapiens</i>	-	-	1	3.7
Goose	<i>Anser</i> sp.	-	-	2	5.3
Chicken	<i>Gallus</i> f. domestic	-	-	7	16.4
?Woodcock	cf. <i>Scolopax rusticola</i> L.	-	-	1	1.0
Subtotal		8	6	49	586.6
Fish		-	-	1	0.3
Bird		-	-	9	11.1
Medium-sized mammal 1		-	-	81	273.1
Medium-sized mammal 2		-	-	3	1.5
Large mammal		-	-	13	133.2
Subtotal		0	0	107	419.2
Total		8	6	156	1005.8

Table 5. Total numbers of vertebrate fragments, by date, from St. William's College, York (1999.4).

Species		14-15th C	15-16th C	16th C	17th C	17-19th C	Post-medieval	Total frags
Rabbit	<i>Oryctolagus cuniculus</i> (L.)	-	-	2	-	1	2	5
Pig	<i>Sus f. domestic</i>	-	-	2	-	4	-	6
Fallow deer	<i>Dama dama</i> (L.)	-	-	1	-	-	-	1
Cattle	<i>Bos f. domestic</i>	-	-	-	-	4	4	8
Sheep	<i>Ovis f. domestic</i>	2	1	1	1	2	2	9
Sheep/goat	Caprovid	1	-	2	1	4	1	9
Human	<i>Homo sapiens</i>	-	-	-	-	1	-	1
Goose	<i>Anser sp.</i>	-	-	2	-	-	-	2
Chicken	<i>Gallus f. domestic</i>	-	-	2	-	4	1	7
?Woodcock	cf. <i>Scolopax rusticola</i> L.	-	-	-	-	1	-	1
Subtotal		3	1	12	2	21	10	49
Fish		-	-	1	-	-	-	1
Bird		-	-	-	4	-	5	9
Medium-sized mammal 1		3	3	16	4	28	27	81
Medium-sized mammal 2		-	-	-	-	3		3
Large mammal		2	-	5	1	2	3	13
Subtotal		5	3	22	9	33	35	107
Total		8	4	34	11	54	45	156

Table 6. Measurements of bones from St. William's College, York (1999.4).

Context	Spot date	Species	Element	Side	Measurements
1024	17th C	Sheep	Tibia	L	SD=12.98 Bd=29.64 Dd=21.21
1025	17-19th C	?Woodcock	Humerus	R	GL=54.45 SC=4.63 Bp=13.92 Bd=10.02
1025	17-19th C	Chicken	Humerus	L	GL=67.61 SC=6.55
1025	17-19th C	Sheep/goat	Radius	R	Bp=33.56 BFp=30.63 SD=18.69
1026	17-19th C	Chicken	Ulna	R	SC=5.21 Did=10.55
1034	17-19th C	Chicken	Femur	L	GL=86.33 SC=7.32 Bp=17.93 Dp=11.99 Bd=17.1 Dd=14.32
1034	17-19th C	Sheep	Astragalus	R	Bd=20.77 DL=17.58
1034	17-19th C	Sheep	Metacarpal	R	GL=134.15 SD=13.75 Bp=23.00 Dp=16.55 Bd=25.14 Dd=16.36 Dem=10.84 Dvm=16.3 Dim=13.76 7
1043	Post-medieval	Sheep	Tibia	L	Bd=28.75 Dd=21.05
1055	14-15th C	Sheep	Astragalus	R	Bd=19.82 DL=17.8 GLI=31.66
1058	14th C	Sheep	Humerus	R	BT=31.89 HT=20.35 HTC=15.8 5
1067	15-16th C	Sheep	Humerus	L	BT=30.42 HT=20.51 HTC=16.0 5
1076	16th C	Chicken	Tibiotarsus	R	Dip=18.54 SC=6.04
1076	16th C	Fallow deer	Tibia	R	Bd=34.55 Dd=28.38
1077	Post-medieval	Chicken	Femur	L	Bd=14.77 Dd=12.48
1078	16th C	Chicken	Ulna	R	GL=68.52 SC=4.27 Dip=12.97 Bp=8.63 Did=9.55
1078	16th C	Goose	Tibiotarsus	L	Dip=25.23