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THE ANIMAL BONE FROM EXCAVATIONS AT STRICKLANDGATEM, KENDAL CUMBRIA 1987-88.

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Summary

Small groups of animal bone from contexts spanning the thirteenth to twentieth centuries were recovered from two small excavations in Stricklandgate, Kendal. The sites are adjacent but had differing occupational histories. The animal bone from the early phases is in poor condition which has limited the analyses possible. The bones are mostly of the common domestic animals with cattle remains predominating over those of sheep/goat in the earlier phases but sheep/goat remains being more frequent from the fifteenth/sixteenth centuries onwards. Pig bones are scarce with fowl and goose bones being more commonly encountered. Red deer are represented on both sites otherwise horse, cat, dog, hare, rabbit and roe deer are present, though infrequent, only in site 1. The majority of the bones from both sites seem to be derived from the casual disposal of household food waste and do not apear to related to the industrial activities noted on these sites. Some of the bone may have been secondarily deposited in make up and need not reflect what was consumed on site.

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The Animal Bone From the 1987 and 1988 excavations at Stricklandgate, Kendal, Cumbria.

By L. J. Gidney

Introduction

The animal bones considered in this report were recovered from two small excavations in Stricklandgate, Kendal. The two sites are close together but have differing occupational history.

Site 1, excavated in 1987, has seven phases of activity identified spanning the thirteenth to twentieth centuries A.D. The earliest phase, ending in the fourteenth century, is ploughsoil which is followed in phase 2 in the fourteenth century by industrial activity involving metal working. The later phases, 3-6, comprise structural evidence, including walls, floors and yards, for burgage plots which were repeatedly modified through time and finally demolished in the twentieth century. The phase 3 occupation spans the fourteenth to fifteenth centuries, phase 4 the fifteenth to sixteenth centuries, phase 5 the sixteenth to eighteenth centuries and phase 6 the eighteenth to nineteenth centuries. The bones from the recent demolition, phase 7, have been catalogued and the species present are listed in Table 1 but no further analysis of these fragments has been undertaken.

Site 2, excavated in 1988, has three phases of activity identified. The earliest phase, dating from the thirteenth to fifteenth centuries, being a timber structure which may have been a workshop as metal working debris was recovered. This was followed in phase 2 by a further phase of industrial activity, perhaps small scale metal working, for a shop with an open front on

Stricklandgate. Phase 2 covers the fifteenth to sixteenth centuries and was succeeded in phase 3 by a stone structure with basement accommodation occupied from the sixteenth to nineteenth centuries.

Though the collection of bone is small and the two sites are in close proximity, the differing history of the two sites precludes considering the bone as one assemblage. Site 1 produced 865 fragments of bone with 271 fragments from Site 2. The small quantity of bone from individual phases restricts the analyses possible with this assemblage.

Identification

Where possible bone fragments were identified to species using the reference collection of the Biological Laboratory, Department of Archaeology, University of Durham. Fragments of mammal bone not readily identifiable to species but identifiable to element, such as ribs and vertebrae, were ascribed by size to two categories: large and small ungulates. The large ungulates identified are cattle, horse and red deer. However red deer is only represented by two antlers and only five horse bones were identified so large ungulate usually indicates cattle. The term large mammal is used for long bone shaft fragments and other fragments that cannot be identified to bone but are obviously from cattle sized bones.

The small ungulates identified are sheep/goat, pig and roe deer. As there are very few fragments of pig and only one of roe deer, small ungulate usually indicates sheep/goat.

The alternatives of sheep or goat are given because of the difficulty of distinguishing the two species from

most bone fragments. However only one fragment, a horn core from Site 1 phase 2, was positively identified as goat whereas skull fragments definitely of sheep were found in Site 1 phases 2 and 5 and Site 2 phase 3. It is the author's opinion that the sheep/goat fragments are largely, if not all, from sheep.

No measurements were taken as there were insufficient measureable fragments per phase for analysis of size distributions to be made.

Preservation

The state of preservation of the bone is directly related to the age of the deposits from which it was recovered. The early phases produced higher proportions of bones in poor condition, shown by Table 2. The relatively recent bones from Site 1 phase 6 and Site 2 phase 3 included some fragments from juvenile/infant animals. If such bone had been present in the earlier phases it would have now decayed beyond recognition.

Fragmentation

Fragmentation is illustrated by Table 3 which shows the number of zones represented. This employs a method developed by Rackham (1987) whereby each major bone is allocated up to ten diagnostic zones. Each zone is recognisable on a bone fragment, though not every fragment encompasses a zone. A zone is only counted if at least half the appropriate feature is present. A high number of zones to identified bones gives a high fragmentation index, indicating a low level of fragmentation.

The sample sizes for the individual phases are rather small but it can be seen that there is little variation

in the fragmentation index for cattle and that the sheep/goat bones are generally less fragmented than the cattle bones. This is a pattern to be expected as the larger cattle bones are broken up more than sheep/goat bones during butchery. Large cattle bone fragments are unlikely to be left lying around while smaller fragments can get trampled into ground surfaces.

This pattern may also be produced by recovery bias during excavation where the smaller sheep/goat fragments are not seen by the excavators.

Table 4 illustrates some factors which have influenced these two groups of bone prior to burial. Only one dog bone was recovered but the characteristic pattern of dog gnawing was seen on fragments from Site 1 phases 2-6 and Site 2 phases 1 and 3 indicating that dogs were kept. Dogs gnawing bones will have reduced the available information on skeletal representation and ageing as small bones and epiphysial ends may have been totally consumed.

Bones with rodent gnaw marks were noticed in several phases though actual rodent bones were only found in the more recent phases.

Butchery marks were seen in all phases except the small, poorly preserved group Site 1 phase 1. The number of fragments with visible butchery marks may seem low. This may be explained in part by the poor condition of some of the bone and partly because not all butchery need leave clear marks on the bones. The greater part of the bones from both sites is likely to be derived from the casual discard of domestic food waste.

Given the number of hearths present in both areas the number of burnt fragments from Site 1 is low though there are a few more from Site 2. This suggests that none of these hearths was commonly used for incidental cooking or waste disposal and that animal bone formed no part of the industrial processes undertaken.

Species

The species present are listed in Table 1. It can be seen that the larger assemblage of bones from Site 1 has a wider range of species than the smaller collection from Site 2. In both areas the most commonly identified mammal bones are from the domestic animals commonly exploited for food: cattle, sheep/goat and pig.

The other domestic animals, horse, cat and dog are represented by a few fragments from Site 1 only. Horse was represented in phases 2, 3 and 6; cat in phases 4 and 6 and dog in phase 3. As noted above the presence of gnawed bone indicates that dogs were active in other phases too. These fragments seem unlikely to be human food waste or disturbed burials and may more probably be seen as residual or redeposited fragments, brought in with hard core for example.

The red deer remains in Site 2 phase 1 comprise parts of two antlers, not from the same head. One has been chopped from the head at the pedicle but shows no other signs of utilisation, the other does not have the pedicle surviving. Both antlers are probably from stags of ten points (Schmid 1972, 89). It is possible that these are the remains of discarded hunting trophies. The presence of antler, even if removed from a dead stag, does not necessarily imply the consumption of venison in this

phase. A small fragment of decayed tine, probably from red deer antler, was recovered from Site 1 phase 2.

Roe deer is represented by a metatarsal fragment from Site 1 phase 3. This does not necessarily indicate consumption of venison either as roe deer feet with the skin and hooves left on are sometimes used for knife handles.

Two hare bones, probably from the same animal, were found in Site 1 phase 6 and a single rabbit bone in phase 7. It would seem that wild mammals were rarely utilised on either site as a source of food or raw material for manufacturing.

A single rodent bone was found in Site 2 phase 3 and two bones in Site 1 phase 7. These have not been identified to species but are comparable in size to rat. The fragments of bone listed in Table 4 which exhibit rodent gnaw marks indicate that these creatures were resident in both areas for most, if not all, of the time of human occupation.

Domestic fowl bones were found in Site 1 phases 3-7 and Site 2 phases 1-3. The unidentified bird bone includes a number of fragments thought to be juvenile fowl which could not be positively attributed. Fowl bones are noticeably more numerous than pig bones. While a greater amount of meat may be represented by the pig bones, fowl would appear to have been consumed regularly throughout the occupation of these two areas.

There are fewer goose bones, being present only in Site 1 phases 1 and 3-6 and Site 2 phases 1 and 3. Geese being bigger birds will probably have contributed an

equivalent amount of meat to the fowl. A single duck bone was found in Site 1 phase 6.

Quantification of the Major Domestic Species

Two methods of quantification are presented in Table 5. These are the relative percentage of identified fragments for each species and the relative percentage of the total number of zones for each species. Only Site 1 phases 2, 3, 5 and 6 and Site 2 phase 3 had sufficient fragments to try using these methods. The sample sizes are still small so the results may not be accurate. The method using zones should partly compensate for the bias in fragment counts towards the bigger cattle bones.

Both methods indicate an increase in the proportion of sheep/goat to cattle fragments in the later phases in Site 1 with little variation in the pig remains. Site 2 shows a similar pattern to the later phases in Site 1. A general increase through time in the proportion of sheep/goat remains compared to cattle has been noticed by O'Connor (1989, 18) at York and Lincoln and is probably a general trend in Northern England from the fourteenth to nineteenth centuries..

Relative Frequency of Skeletal Elements

The rib and vertebrae fragments catalogued as large or small ungulate are included in Table 6. Carpals, tarsals and sesamoids are counted under feet. Again the numbers of fragments from the individual phases are rather small for any meaningful interpretation of body part representation. The only trends noticeable from Table 6 are a high proportion of rib fragments for both cattle and sheep/goat in Site 1 phases 5 and 6 and a low proportion of sheep/goat feet compared to cattle.

This pattern supports the interpretation of the bones from both sites as being domestic food waste as ribs are meat bearing while feet are not though the latter can have manufacturing uses.

Analysis of Age Structure

There were insufficient epiphysial ends or teeth from any phase for preferred ages of slaughter to be estimated. Overall there were more fused than unfused epiphyses and more worn than unworn teeth but this could be as much a product of differential survival of juvenile bone as human selectivity.

Pathology

Only four pathological conditions were seen in this collection, all from Site 1. A cattle mandible from phase 2 has pitting of the alveolar bone round the first molar indicating the onset of periodontal disease. The tooth shows considerable wear so the animal was mature to elderly.

A robust cattle metatarsal from phase 3 is possibly from a male animal and exhibits bony proliferation on the proximal anterior face. This is probably a case of spavin (Baker and Brothwell 1980, 118-9).

A cat mandible from phase 6 has a supernumary tooth between the fourth premolar and the first molar causing crowding of the tooth row and rotation of the premolar. This may be an aberrant genetic condition.

Also from phase 6 are a horse central tarsal and third tarsal which articulate and are starting to ankylose. This is probably also an early stage of spavin.

Conclusion

Only small quantities of bone were recovered from the individual phases in both areas but overall Site 1 produced more bone than Site 2. The bone from the earlier phases on both sites is in poor condition which has limited the analyses applicable.

Both sites show greater numbers of cattle than sheep/goat fragments in the earlier phases but the fifteenth to sixteenth century phases onwards show a predominance of sheep/goat over cattle fragments. Pig bones are scarce on both sites with fowl and goose bones being more commonly encountered. Red deer are represented on both sites otherwise horse, cat, dog, rabbit, hare and roe deer are present, though infrequent, only in Site 1. The bones from both sites appear to be generally derived from casual disposal of household food waste. Some of the bone may have been secondarily deposited in make up and need not reflect what was consumed on site.

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Table 1. Fragment counts for the species present.

Site 1

Phase	1	2	3	4	5	6	7
Cattle	6	37	46	6	17	21	
Sheep/Goat	1	9	16	8	27	31	2
Sheep		1			1		
Goat		1					
Pig	2	3	3	4	2	6	1
Horse		1	1			3	
Deer		1					
Roe Deer			1				
Hare						2	
Cat				1		1	
Dog			1				
Rabbit							1
Rodent							2
L. Ung.		10	17	13	14	18	
S. Ung.		5	24	13	40	75	8
L. Mam.		26	26	2	21	36	4
Indet. Mammal	2	44	13	14	16	62	7
Fowl			19	3	10	15	2
Goose	1		1	2	3	4	
Duck						1	
Indet. Bird			5		9	12	2
	12	138	173	66	160	287	29

Site 2

Phase	1	2	3
Cattle	6	1	35
Sheep/Goat	5	7	31
Sheep			2
Pig		1	2
Red Deer	2		
Rodent			1
L. Ung.	7	1	16
S. Ung.	12	4	37
L. Mam.	8		17
Indet. Mam.	12	15	31
Fowl	2	4	3
Goose	1		4
Indet Bird	1		3
	56	33	182

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Table 2. Proportion of decayed fragments

	Site 1						Site 2		
Phase	1	2	3	4	5	6	1	2	3
% decayed	100%	31.8%	31%	4.9%	12.5%	3.8%	28.8%	37.9%	4.6%

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Table 3. Fragmentation.

	Site 1				Site 2
Phases	2	3	5	6	3
Cattle					
No. of zones	22	29	13	11	26
No. of bones w. zones	16	19	9	8	16
No. of bones id.	37	46	17	21	35
Fragmentation Index	0.6	0.6	0.8	0.5	0.7
Sheep/Goat					
No. of zones	10	37	34	32	51
No. of bones w. zones	5	13	15	14	21
No. of bones id.	11	16	28	31	33
Fragmentation Index	0.9	2.3	1.2	1.0	1.5

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Table 4.

	Site 1					Site 2		
Phases	2	3	4	5	6	1	2	3
Gnawed by dog	3	4	8	7	9	1		18
Gnawed by rodent	1		2		7		1	6
Chop marks	7	6	5	7	8	5	1	13
Knife marks	2	2		2	3			2
Burnt	3					9	2	5

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Table 5. Quantification
Site 1

Phase		Cattle		Sheep/Goat		Pig	
2	No. of frags.	37	72.5%	11	21.5%	3	5.8%
2	Total no. of zones	22	66.6%	10	30.3%	1	3%
3	No. of frags.	46	70.7%	16	24.6%	3	4.6%
3	Total no. of zones	29	42.6%	37	54.4%	2	2.9%
5	No. of frags	17	36.1%	28	59.5%	2	4.2%
5	Total no. of zones	13	27%	34	70.8%	1	2%
6	No. of frags	21	36.2%	31	53.4%	6	10.3%
6	Total no. of zones	11	21.1%	32	61.5%	9	17.3%

Site 2

Phase							
3	No. of frags	35	50%	33	47.1%	2	2.8%
3	Total no. of zones	26	33.3%	51	65.3%	1	1.2%

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Table 6. Skeletal representation

	Site 1			Site 2		Site 1		Site 2
Phases	2	3	5	6	3	5	6	3
Cattle & L. Ung					Sheep/goat & S. Ung			
Head	13	16	8	5	18	6	7	6
Forelimb	6	3	2	5	5	7	8	11
Hindlimb	9	15	4	4	4	10	14	14
Vertebrae	3	11	2	3	8	5	14	4
Ribs	5	4	11	13	9	25	33	19
Feet	7	9	3	4	4	1	2	1