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A NOTE ON THE ANIMAL BONES FROM A GROUP OF PITS AT S. SALVATORE, OSTIANO (CREMONA)

The material discussed here was found during the excavation of a series of pits at S. Salvatore, Ostiano (Cremona). This area is adjacent to area 2, the faunal data of which has been discussed elsewhere (Clark 1980). Faunal material was not found in all of the pits in this group, being absent in pits 6 and 7.

There was a total of 230 fragments of bone recovered of which 45.6% were identifiable to the species level. Domestic animals constituted 93.4% of the sample and it is probable that wild animals were of little economic importance. Only five different species could be distinguished: cattle, caprines, pigs, roe deer and red deer (table 1). As will be seen in table 2 where the relationship between the three major species is shown, caprines were, overall, the most important species followed by cattle and then pigs.

In table 3 the principal anatomical elements of the three main species are listed. On the whole a wide range of elements were found although there was a predominance of capital elements. This may have been caused by artificial factors rather than being a reflection of the original situation. The sample is so small that it is not really feasible to draw any conclusions about the butchery practices involved.

The minimum number of individuals represented by the sample is given in table 4. This method of analysis eliminates certain biases inherent in figures based on the number of fragments. Two sets of results are given for each species. The first assumes that the sample is one entity, that is, that any one animal could be found in more than one pit. The second assumes that each pit is an individual sample. The figures are based either on the epiphyses of the limb bones or on the teeth. Again caprines dominate the sample. The relationship between cattle and pigs is, however, reversed with pigs being of slightly more importance than cattle. Wild animals are also of slightly more importance (11%).

In terms of the meat potentially contributed by each of the three main

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Table 1 - San Salvatore, Ostiano pit group: identifiable fragments.

	1.	3.	4.	5.	Total	Percentage
Cattle	1	19		6	26	24.8
Caprines	4	29	6	8	47	44.8
Pigs	5	18		2	25	23.8
Roe deer		1			1	0.9
Red deer		4			4	3.8
Red deer/Cattle		2			2	1.9
Total identifiable	10	73	6	16	105	100.0
Ribs & vertebrae Unidentifiable	4	13	1		18	
	9	87	2	9	107	
Total / identifiable	23 43.5	173 42.2	9 66.7	25 64.0	230 45.6	

Table 2 - Relative percentages of fragments of the three main species.

	1.	3.	4.	5.	Total
Cattle	10.0	28.8		37.5	26.5
Caprines	40.0	43.9	100.0	50.0	48.0
Pigs	50.0	27.3		12.5	25.5
	100.0	100.0	100.0	100.0	100.0

species to the subsistence regime, a markedly different picture emerges. Cattle very much dominate the sample, with both caprines and pigs combined being more or less a third of the total (table 5).

Relatively few data are available on the age at death of the animals represented in the sample (table 6). The ages have been calculated on the basis either of the dentition or of the fusion of the limb bones. The figures for the dentition are based on those given by SILVER (1969) and GRANT (1975) and for the fusion on SILVER (1969). Although there are problems due to diachronically differential rates of development, the general patterns which emerge are valid. The ages of cattle vary from over 5-6 months to over

Table 3 - Anatomical elements of the three main species

	1.	3.	4.	5.	Total
horn				1	1
mandible		16	1	2	19
teeth		30	3	13	46
skull	2	1	1		4
scapula	2	1			3
humerus	2	1			3
radius		4			4
ulna		1			1
metacarpal	1				1
axis		2			2
pelvis		1			1
femur		1			1
tibia	2				2
astragalus			1		1
metatarsal		6			6
phalange	1	2			3

Table 4 - Minimum number of individuals.

	Results for whole sample		Cumulative results for each individual unit	
Cattle	2	15.4	4	22.3
Caprines	6	46.1	7	38.9
Pigs	3	23.1	5	27.8
Roe deer	1	7.7	1	5.5
Red deer	1	7.7	1	5.5
Total	13	100.0	18	100.0

42-48 months. As will be realised, the only conclusion which can be drawn from this range is that at least some animals attained maturity. The majority of caprines are over 9 months of age although one individual present was

Table 5 - Proportion of the meat supply potentially contributed by the three main species.

/ of fragments x meat weight expressed as a percentage of the total						
	meat weight per animal in Kg	1.	3.	4.	5.	Total
Cattle	226	40.4	72.9		81.6	71.0
Caprines	27	19.3	13.3	100.0	13.0	15.4
Pigs	45	40.3	13.8		5.4	13.6

/ of minimum number of individual x meat weight expressed as a percentage of the total			
	meat weight per animal in Kg	whole sample	cumulative results
Cattle	226	60.3	68.6
Caprines	27	21.6	14.3
Pigs	45	18.1	17.1

Table 6 - Mortality data

	Fusion		Dentition		
	less than	more than	less than	more than	
Cattle	12/18	1	5/6	2	
	42/48		15/18	1	
			24/30	1	
Caprines	10	1	3/5	3	
	13/16		9/12	6	
	20/28	1	18/24	1	
			21/24	1	2
Pigs	27	1	4/6	3	
	42		7/13	2	
			17/22	1	1

younger. However, there is then a range of ages with two individuals over 21-24 months of age. For pigs the evidence is again slight although all examples were over 4-6 months of age. Two fragments are from animals less than 27 months but there is also one animal over 42 months.

Only 3 bones could be measured and the figures are given in the appendix. The data are such that it is not possible to comment on the presence of and relation between sheep and goat.

DISCUSSION

As at area 2 at S. Salvatore, Ostiano a mixed subsistence base is indicated by this small sample. Wild animals, represented by red deer and roe deer, are of little importance and domestic animals dominate. Caprines, cattle and pigs are all present in fair numbers although the relationship between the three varies quite considerably dependent on the method of analysis. Although caprines are predominant in terms of the number of fragments and the minimum number of individuals, they are of little significance in terms of the potential meat weight, when cattle assume great importance.

This picture is somewhat different to area 2 at this same site where cattle were predominant in each set of results and particularly in the case of the potential meat resource. However, it would, I think, be wrong to attach any great importance to this as the sample is so small. The differences may have been caused by spatial, chronological or artificial factors and it would seem impossible, at the moment, to isolate the determining factor if such a thing even exists.

The limited ageing data available indicate that cattle were not only kept for meat but also for their live products. Caprines were probably kept entirely for their live products. Pigs were probably kept within an extensive system, ranging for their food in the surroundings and being killed for their meat at times of need. This is very similar to area 2.

Therefore this small sample from a group of pits at S. Salvatore, Ostiano, although different in terms of the relationship between the species to area 2, still indicates a mixed and well balanced subsistence strategy.

REFERENCES

- CLARK, G. (1980) - *The faunal material from S. Salvatore, Ostiano (Cremona)*. *Preistoria Alpina*, 16 (in press).
- GRANT, A. (1975) - *The use of tooth wear as a guide to the age of domestic animals — a brief explanation*. In B. Cunliffe, *Excavations at Porchester Castle*. Vol. I Roman, 437-450. London, Reports of the Research Committee of the Society of Antiquaries of London, 32.
- SILVER, I. A. (1969) - *The ageing of domestic animals*. In D. Brothwell and E. S. Higgs (eds.), *Science in Archaeology* (second edition), 283-302. London, Thames and Hudson.

Appendix

Metric data

The following measurements were taken in mm.

Scapula: 1. maximum thickness distal epiphysis 2. maximum thickness distal articulation.

Humerus: 1. maximum width distal epiphysis. 2. maximum thickness distal epiphysis 3. maximum height distal articulation.

Astragalus: 1. maximum length lateral side. 2. maximum thickness lateral side, measured from the baseline to anterior side. 3. maximum length medial side.

	1.	2.	3.
Cattle Scapula	64.1	56.8	—
Humerus	63.3	36.4	59.5
Caprine Astragalus	24.7	15.4	26.3

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