A Romano-British rural site at Eaton Socon, Cambridgeshire

Specialist Report

Animal bone

by Naomi Sykes

THE ANIMAL BONES

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Introduction

Animal bones were recovered from a range of feature types within the Romano-British settlement at East Socon: most of the material derived from the various ditches (53%), pits (24.5%) and a watering hole (13%), with smaller quantities coming from gullies (7%), postholes (2%) and field drains (0.5%).

Over half of the material could be placed in one of two broad date-categories: Phases 1-3 (1st-3rd century) or Phases 4-5 (3rd-4th century); the remainder were definable only as 'Romano-British'. Dating evidence and sample sizes are insufficient to allow a detailed analysis of inter-period variation. Nevertheless, the sum assemblage can be viewed against other broadly dated sites to provide an insight into the regions Romano-British animal economy. Furthermore, because the animal bone was recovered from various feature types, the assemblage offers the opportunity to consider the intra-site variation in disposal practices.

Methods

The assemblage was recorded at the Centre for Applied Archaeological Analysis (CAAA), University of Southampton, using Serjeantson's (1996) 'zones' system. These data produced the basic NISP (Number of Identified Specimen) and MNE (Minimum Number of Elements) counts. The MNI (Minimum Number Individuals) was calculated from the most common element according to the MNE, by taking sides into consideration.

Where possible specimens were identified to species, with sheep and goat being differentiated following Boessneck's (1969) and Payne's (1985) criteria, and horse and donkey being separated on the basis of Davis's (1981) work. Undiagnostic skull fragments, ribs and vertebra (except the atlas and axis) were placed in cat-size, sheep-size and cattle-size categories. The material from these categories has been included in the percentage of identifiable bone. Bones that showed signs of butchery, burning or gnawing were noted and quantified. Butchery marks were recorded and interpreted following Lauwerier's (1988) scheme.

For the main domesticates, dental wear was recorded using Grant's (1982) system. This was undertaken for mandibles (with two or more ageable teeth), single deciduous premolars and third molars. Mandibles were placed into age groups following Payne (1973) for sheep, Legge (1992) for cattle and Hambleton (1999) for pig. Horse age was calculated using crown-height measurements (Levine 1982). Bone fusion was also recorded, and interpreted using Sisson and Grossman's (Getty 1975) timings for epiphyseal closure.

Fused bones and adult molars were measured following the standards set by von den Dreisch (1976), Payne and Bull (1988) and Davis (1992). Wither heights were calculated using the factors provided by von den Dreisch and Boessneck (1974). The results are presented in the Animal Bones Appendix. Data accumulated by the Animal Bone Metrical Archive Project (Centre for Human Ecology and Environment 1995) were used for comparison.

Taphonomy

Bone preservation varied depending upon the context of deposition, with the material from the watering hole and pits showing greater integrity than that from the ditches and gullies. This inter-feature disparity is also reflected by the percentage of identifiable bones: 65 and 66% of the material from the watering hole and pits (respectively) was diagnostic compared to 58% from the ditches/gullies. In all cases bone-surface condition was generally moderate to poor, which may account for the low incidence of apparently modified bone (Table 1). Specimens showing cut or chop marks were insufficient to allow the reconstruction of carcass processing patterns, although it would seem, from the ratio of chop:cut marks, that meat cleavers were the preferred butchery tool. Gnawed material was more frequently noted, indicating that both dogs and cats had access to, either by scavenging or through being deliberately fed, the bones prior to their final deposition. Carnivore activity can impact greatly upon bone preservation, with some skeletal elements being more susceptible to destruction that others. This should be born in mind when the anatomical representations are considered. Burnt bone was particularly poorly represented but the few fragments that were present displayed a range of colours (black, grey and white) indicating that had been incinerated at temperatures of between 200-600°C (Gilchrist and Mytum 1986).

Table 1: Modified bone

Total	**% gnawed**		**% butchered**		**% burnt**		
NISP	Dog	Cat	Chop	Cut	Black	Grey	White
882	5.7	0.1	3	1.9	0.4	0.2	0.4

The assemblage

Excavations yielded a total of 882 bone fragments of which 481 were identifiable to either species or size group. Composition of the material retrieved by both hand-collection and sampling is shown, by broad phase-group, in Table 2. Taxa representation is very similar for each of the phases, where in each case domestic mammals predominate.

Cattle, sheep and pigs

Whilst sample sizes are small, they do demonstrate a slight temporal shift in the ratios of cattle to sheep, with the frequency of sheep declining from the earlier to later period; a change also suggested by the ‘sheep-size’ and ‘cattle-size’ data. This conforms to a widely recognised trend towards cattle husbandry (for example King 1978). Originally it was interpreted as evidence for Roman dietary preferences (King 1991) but recently Hamshaw-Thomas (2000) has argued that the shift towards cattle is symptomatic of a general agricultural intensification, caused by social rather than cultural change.

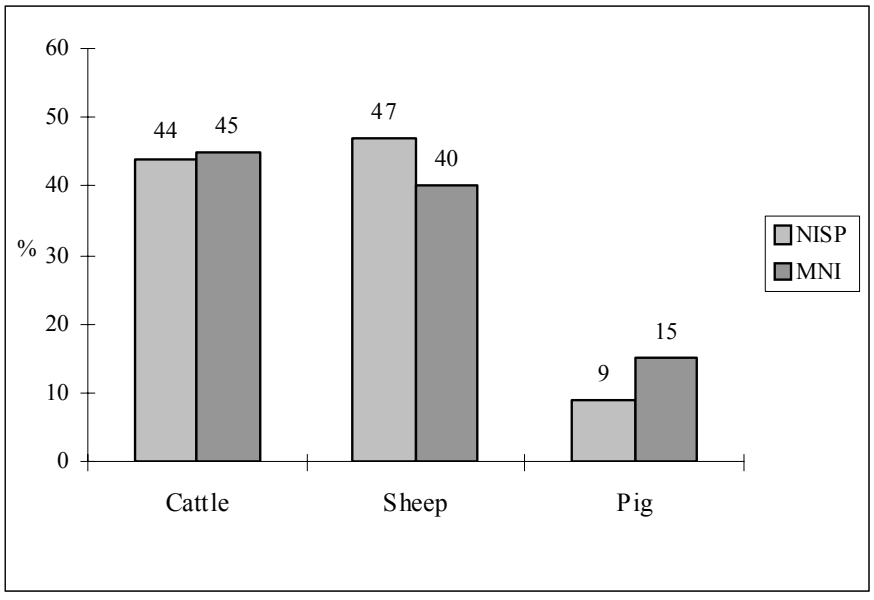
Other than the change in the cattle:sheep ratio, there is a lack of apparent inter-period variation, thus, allowing the data to be combined. Overall relative frequencies (according to both NISP and MNI) of cattle, sheep and pig are shown in Figure 1. It can be seen that regardless of quantification technique the results are similar, suggesting that inter-specific variation in bone fragmentation is low: usually the bones of larger animals are more highly fragmented than those of smaller taxa, thus inflating their NISP count. In this case both the NISP and MNI data show sheep and cattle to be well represented in roughly equal proportions whilst pigs are less

abundant. Such taxa frequencies are common for Romano-British assemblages and similar ratios have been noted for other Cambridgeshire sites such as Stonea (Barker 1977) and Earith (Phillipson and Gilmore 1967).

Table 2: The animal bone assemblage

	Phases 1-3	Phases 4-5	'R-B'	NISP	MNI
Hand-retrieved					
Mammals					
Cattle	45	20	55	120	9
Sheep/goat	58	19	44	121	8
Sheep	1	3	1	5	-
Pig	11	5	8	24	3
Horse	12	6	6	24	5
Dog	3	-	3	6	1
Red deer	0	0	1	1	1
Cat-size	1	-	-	1	-
Sheep-size	22	3	11	36	-
Cattle-size	25	23	72	120	-
Birds					
Domestic fowl	1	3	4	8	2
Duck	-	1	-	1	1
Crow	-	-	-	-	-
Unidentified bird	-	-	1	1	-
Unidentified	130	25	148	303	-
Total	***309***	***108***	***354***	***771***	***-***
% identified	58	77	58	61	-
From samples					
Cattle	1	-	-	1	-
Sheep/goat	-	-	2	2	-
Pig	1	1	1	3	-
Horse	-	-	1	1	-
Sheep-size	1	-	-	1	-
Cattle-size	1	1	2	4	-
Crow	1	-	-	1	-
Unidentified	13	24	61	98	-
Total	***18***	***26***	***67***	***111***	***-***

Figure 1: Overall relative frequencies of cattle, sheep and pig



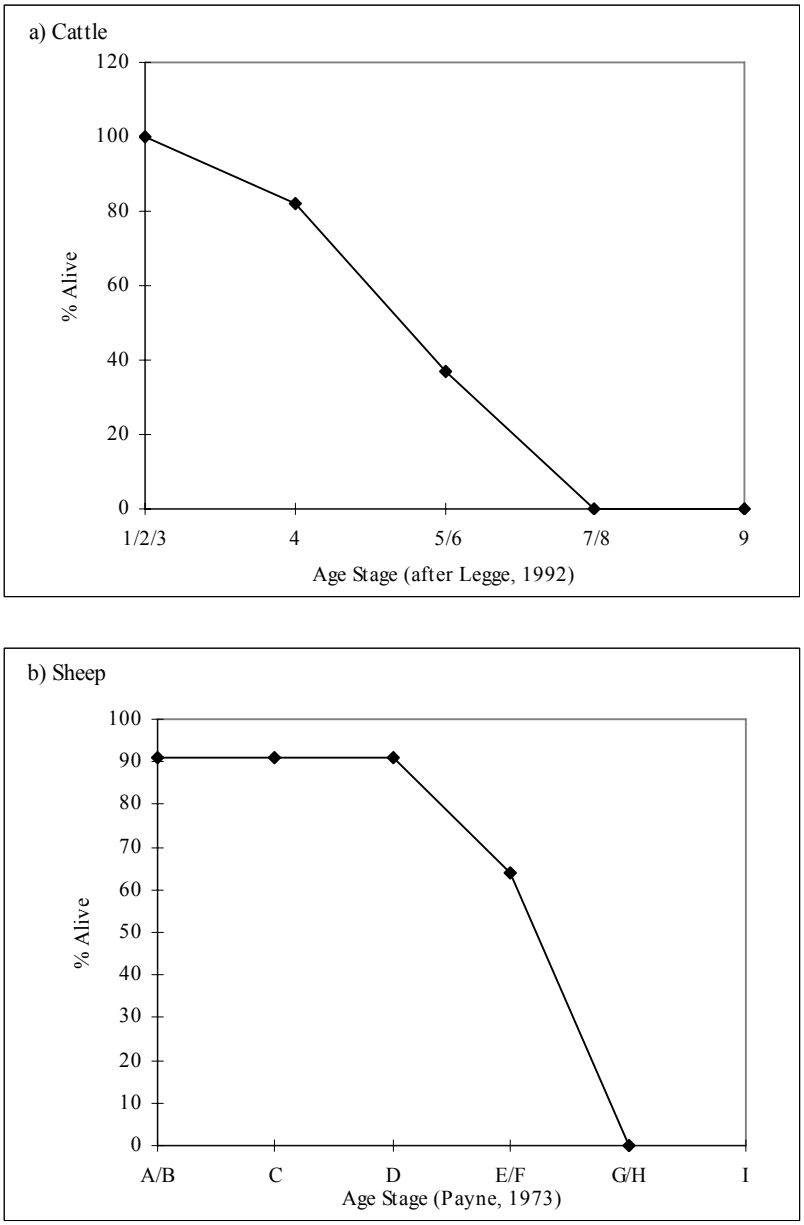
Concentration on cattle and sheep, as opposed to pig, husbandry may suggests that, at East Socon, animals capable of supplying secondary products were more highly valued than those which could be raised only for their meat; a hypothesis supported by the ageing data (Table 3). Only three pig mandibles were ageable but even on this limited evidence it is clear that pigs were being culled once they had obtained their optimum meat weight, with none surviving past 2½ years of age.

Table 3: Ageing data for pig, cattle and sheep/goat (after Grant 1982)

Pig				
DP4/P4	M1	M2	M3	Stage
-	-	-	a	5
-	e	d	b	6
b	f	b	-	5
Cattle				
(DP4)/P4	M1	M2	M3	Stage
b	j	g	d	6
a	k	g	d	6
(j)	b	-	-	4
a	j	g	b	6
b	j	g	d	6
-	k	j	g	7
(f)	b	-	-	4
-	-	-	g	7
h	l	k	k	7
e	j	g	-	6
-	-		g	7
Sheep/goat				
(DP4)/P4	M1	M2	M3	Stage
l	m	k	h	h
-	-	-	g	g
-	-	-	g	g
g	h	g	g	g
h	h	g	g	g
f	h	g	f	f
f	g	g	b	e
h	j	h	g	g
f	g	-	-	e
-	-	-	g	g
(f)	-	-	-	b

Cattle and sheep mandibles were slightly more numerous and the cull-patterns constructed from their eruption and wear evidence are shown in Figure 2. It is clear that these animals were being raised for reasons other than meat, with the majority of animals being maintained to ages where their flesh would no longer have been tender. In the case of sheep most individuals survived into their fourth year with some attaining even older ages, suggesting a situation where wool and perhaps also manure were economically important. It seems possible that some of the flock was also used for dairying, although the lack of juvenile animals indicates that this was not a specialised activity. The cattle cull-pattern demonstrates a similar dearth of very young animals, with most individuals being slaughtered at Stage 6 or later (2-3 years +). Presumably the main role of these beasts was as plough animals, perhaps indicating that arable production was a significant part of the site's economy.

Figure 2: Cattle and sheep cull patterns based on tooth eruption and wear evidence



These cull-patterns are interesting as they do not fit the patterns from other similarly dated sites. In general, Romano-British assemblages show a much higher frequency of juveniles. It could be argued that the low frequency of infant teeth in the Eaton Socon assemblage is due to preservation and recovery biases. However, since teeth, even those of young animals, are robust, they are unlikely to have been effected by factors of preservation. Evidence to support this is provided by that fact that some juvenile remains (including neonatal sheep and pig bones as well as a partial calf skeleton), which are notoriously susceptible to destruction, were recovered (Table 4). The presence of these remains indicates that animals were being bred on, or at least close, to the settlement. As such, East Socon can most probably be classified as a 'producer' site, from where animals were raised and perhaps supplied to 'consumer' populations (Wapnish and Hesse 1988). Export of meat-animals may account for the poor representation of prime-aged individuals in the assemblage.

Table 4: Juvenile remains

		Fused	Unfused	Total	% fused
Cattle					
	Scapula	1	-	-	-
	P Radius	5	-	-	-
	D. Humerus	2	-	-	-
	Phalanx I	3	-	-	-
	Phalanx II	1	-	-	-
7-18 months		*12*	*0*	*12*	*100*
	D. Tibia	1	-	-	-
	D. Metapodia	5	5	-	-
2-2.5 years		*6*	*5*	*11*	*55*
	Ulna	-	-	-	-
	P. Humerus	-	-	-	-
	Calcaneum	1	-	-	-
	D. Femur	2	-	-	-
	P. Femur	-	-	-	-
	D. Radius	3	-	-	-
	P. Tibia	-	1	-	-
3.5 years		*6*	*1*	*7*	*86*
Sheep					
	Scapula	-	-	-	-
	D. Humerus	-	1	-	-
	P. Radius	-	2	-	-
10 months		*0*	*3*	*3*	*0*
	D. Metapodia	2	3	-	-
	D. Tibia	5	1	-	-
1.5-2 years		*7*	*4*	*11*	*64*
	Phalanx I	1	-	-	-
	Ulna	-	-	-	-
	P. Femur	-	1	-	-
	Calcaneum	1	-	-	-
	D. Radius	-	-	-	-
2.5-3 years		*2*	*1*	*3*	*67*
	P. Humerus	-	1	-	-
	D. Femur	-	1	-	-
	P. Tibia	-	1	-	-
3.5 years		*0*	*3*	*3*	*0*
Pigs					
	Scapula	-	-	-	-
	D. Humerus	-	1	-	-
	P. Radius	1	-	-	-
	Phalanx II	-	-	-	-
1 year		*1*	*1*	*2*	*50*
	P. Humerus	-	1	-	-
	D. Radius	1	-	-	-
	Ulna	-	-	-	-
	P. Femur	-	-	-	-
	D. Femur	-	-	-	-
	P. Tibia	-	-	-	-
3.5 years		*1*	*1*	*-*	*50*

Evidence for provisioning systems can often be gleaned from anatomical representation data, depending upon whether animals were driven on-the-hoof or sent as pre-butchered meat-joints. Figure 3 and Table 5 show the body part data for the main domesticates and those for sheep and, in particular cattle, do indicate an over-representation of elements (notably mandibles and metapodia) that are associated with butchery waste. This could, indeed, suggest that animals were butchered on site and the meatier parts of the carcass were being exported from the settlement. It is perhaps more likely, however, that the patterning reflects a

preservation bias in favour of elements with a high bone density and in particular those that, according to Brain (1967), are less palatable to dogs. As such, if animals were being sent to other sites, it would seem that they were exported alive, or at least as complete carcasses.

Because most of the assemblage was badly preserved, gnawed or broken, few specimens were measurable and it was not possible to draw any conclusions concerning inter-period variation in animal size or conformation. Despite this, all of the available measurements did fall within the size range for Romano-British cattle, sheep and pigs.

Figure 3: Body part data for cattle, sheep and pig

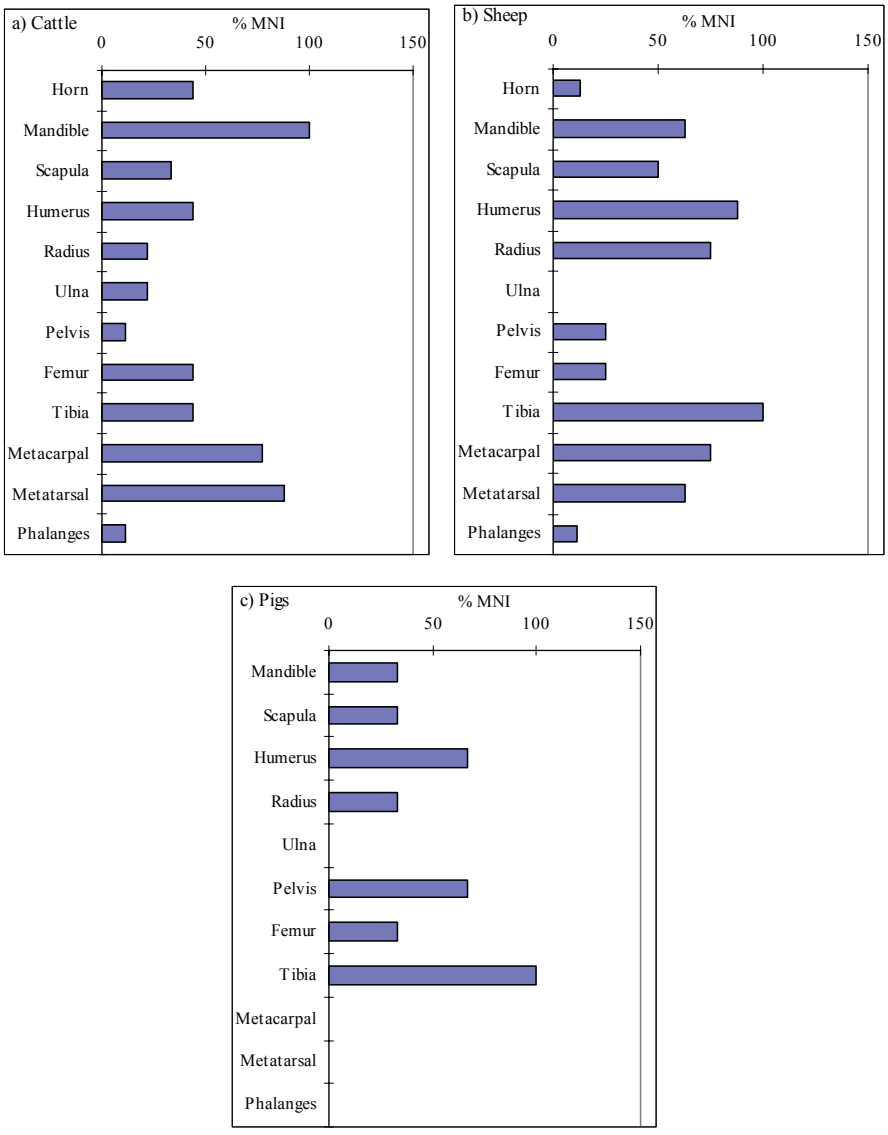


Table 5: Body part data for cattle, sheep and pig

	Cattle						Sheep						Pig					
	Pit	***Ditch***	***W'hole***	***MNE***	***MNI***	***%MNI***	***Pit***	***Ditch***	***W'hole***	***MNE***	***MNI***	***%MNI***	***Pit***	***Ditch***	***W'hole***	***MNE***	***MNI***	***%MNI***
Horn	2	4	-	6	4	44	-	1	-	1	1	12.5	-	-	-	-	-	-
Mandible	3	5	4	11	9	100	1	11	-	9	5	63	-	1	1	2	1	33
Scapula	3	2	2	5	3	33	-	4	-	4	4	50	-	1	1	2	1	33
Humerus	1	2	2	5	4	44	2	5	3	10	7	88	2	-	1	3	2	67
Radius	2	4	-	4	2	22	4	8	-	12	6	75	-	-	1	1	1	33
Ulna	-	3	-	3	2	22	-	-	-	-	-	-	-	-	-	-	-	-
Pelvis	2	1	1	2	1	11	1	3	-	3	2	25	-	-	2	2	2	67
Femur	3	3	3	7	4	44	1	2	1	4	2	25	-	2	-	1	1	33
Tibia	2	5	2	7	4	44	1	13	1	15	8	100	1	4	1	6	3	100
Metacarpal	5	2	4	11	7	77	4	6	1	11	6	75	-	-	-	-	-	-
Metatarsal	7	9	1	15	8	88	4	7	-	9	5	63	-	-	-	-	-	-
Phalanges	3	-	1	4	1	11	1	1	-	2	1	12.5	-	-	-	-	-	-

Horse

As is the case with many Romano-British assemblages, horse was well represented, being present in equal frequencies to pig. The abundance of horse remains, combined with the fact that several of the specimens showed evidence of butchery, raises the question of whether horse flesh was being consumed at East Socon. According to Simoons (1994 187) horse meat was taboo in the Romano-British period, certainly in the archaeological record horses from this period are commonly recovered as partial skeletons, suggesting that their flesh was not eaten. In this case, the horse remains were disarticulated and incorporated with food refuse, thus, it seems likely that the meat was consumed. It is noteworthy, however, that horse carcasses were not treated in the same way as those of other food animals. Fragmentation of the cattle remains suggests that they were heavily processed before disposal, whereas the horse bones were frequently recovered complete. Because of this, much of the metrical data in the Animal Bones Appendix relates to the horse bones. Several specimens allowed wither heights to be estimated, all suggesting shoulder heights of between 13 and 14 hands. A small number of loose teeth were also complete enough for crown height measurements to be taken: two of these teeth provided age estimations of 5-6 years and another two indicated an approximate age at death of 7-8 years. The age of these animals suggests that they were raised and maintained for reasons other than meat. It is most probable that they were used as riding animals, although they may also have been employed in ploughing.

Dog

Despite the presence of gnawed bones, the remains of the dogs themselves were represented by only 6 specimens: a humerus, two radii, an ulna (which demonstrates canine gnawing), a mandible and a complete but fragmented skull. The skull was from a large individual and its slender features suggest an animal similar to a greyhound.

Birds

A small number of birds bones, from both domestic and wild taxa, were present in the assemblage. Domestic fowl (*Gallus gallus*) were the most numerous, being represented by eight bones. Three of these, a femur, tibio-tarsus and tarsometatarsus, formed an articulating limb. Wild bird bones were represented by just two bones: an ulna from a crow (*Corvus corax*) and a second ulna belonging to a medium-sized duck (Anas/Aythya sp.).

Wild mammals

Red deer, represented by a single distal tibia, is the only wild mammal identified within the East Socon assemblage. From this it can be assumed that, as on most Romano-British sites, hunting was not a regular activity, and that venison made only a minor contribution to the diet of the sites inhabitants.

Contextual analysis

Table 6 shows the assemblage divided into the main feature types. Although the overall taxa representation is similar, there are some distinct differences between the types of deposit. Perhaps most obvious is the variation in cattle and sheep representation: Table 7 shows that whereas cattle dominate the pit and watering hole assemblages (with a relative frequency of 53% and 57%, respectively), their

percentage drops to 33% in the ditch and gully, where instead sheep are the most abundant taxa (51%). This inter-feature variation is particularly interesting because it contrasts with the situation found on most sites where spatial patterning has been analysed, such as Winnall Down (Maltby 1985). These studies have shown that cattle are generally the key taxa of ditch deposits, with sheep being better represented in pits.

Table 6: Assemblage by main feature type

	Pits	Ditch/gully	Watering hole	Total
Cattle	40	50	27	**117**
Sheep/goat	21	76	6	**103**
Pig	3	10	8	**21**
Horse	8	10	6	**24**
Dog	3	3	-	**6**
Red deer	-	-	1	**1**
Sheep size	1	22	1	**24**
Cattle size	33	50	9	**92**
Domestic fowl	1	4	1	**6**
Duck	1	-	-	**1**
Unidentified bird	-	-	1	**1**
Unidentified	58	163	32	**253**
Total	**169**	**388**	**92**	**649**
% Identified	66	58	65	**60**

Table 7: Relative frequency of the main domesticates (in terms of NISP), by feature type

	Total	Cattle	Sheep	Pig	Horse	Dog
Ditch and gully	**149**	33	51	7	7	2
Pit	**75**	53	28	4	11	4
Watering hole	**47**	57	13	17	13	-

The reason why the East Socon, assemblage does not conform to the expected patterns is uncertain but it may simply be a reflection of small sample size. Alternatively, the intra-site variation may be highlighting actual differences in disposal strategies. It is notable, for example, that the pits contained a high frequency of metapodia, in particular those belonging to cattle. Most of these came from watering hole 81. Indeed, it was from this feature that the partial calf skeleton (consisting of the head and metapodia) was recovered. Anatomical patterning for the pit and waterhole features suggests that they may have been used for the deposition of butchery, or even tanning, waste, suggesting that either of these activities may have been taking place on-site. Similar body part patterns, with an abundance of foot elements, are also apparent for the ditch and gully deposits, although a much higher frequency of mandibles were noted in these contexts. Jaw bones are particularly robust and, being unpalatable to dogs, are often over-represented in poorly preserved deposits. It has already been noted (Taphonomy, above) that of all the feature types, the material from the ditch and gully contexts was in the worst condition and, thus, the body part representation can most probably be explained in terms of preservation biases.

By contrast to the pit, ditch and gully deposits, the assemblage from the watering hole contained a much higher frequency of meat-bearing elements. This may, in part, be due to the good preservation conditions in the watering hole. Factors of preservation would certainly explain the high frequency (17%) of pig bones found in this feature: since pigs are generally slaughtered young, their bones tend to be

porous and more susceptible to destruction. Alternatively, the presence of pigs may be more a reflection of the assemblage type. Pigs, being primarily meat animals, are often well represented in food waste deposits. This, combined with fact that the only deer bone from the whole assemblage also came from the watering hole, would suggest strongly that the material from this context provides the best indication of what was actually being eaten by the site's inhabitants. If this is the case, the watering hole assemblage also supports the contention that horse flesh was being consumed at East Socon.

Conclusion

Excavations at East Socon produced a modest quantity of identifiable animal bone and, although the material is neither well preserved nor well dated, the assemblage is not without interest. When viewed against data from contemporary sites in Cambridgeshire, it can be stated that (in terms of taxa representation and, in particular, the slight temporal shift towards cattle) the East Socon assemblage conforms to regional patterns. By contrast, ageing data for cattle and sheep indicates that the East Socon animals are generally older than those found on most Romano-British sites. At the same time, a number of neonatal and juvenile bones were identified, suggesting that livestock was being raised on site. From these age profiles, with a preponderance of very young and old individuals, it is suggested that East Socon was a producer site, where domestic animals were raised, slaughtered and consumed on the settlement itself. In all probability, the prime aged livestock from this site were used to provision other, less rural, settlements. As a result, the diet of the site's occupants was centred on animals left over from the agricultural process, with most cattle, sheep and even horses, having served several years supplying secondary products before their slaughter and consumption. If the sites inhabitants were heavily occupied with agricultural process, they would have had little time for hunting or fishing, which may explain the poor representation of wild animals within the assemblage.

Spatial analysis revealed some interesting patterns, which contradict those from other sites. Rather than sheep being well represented in the pit features they were found to be more numerous in the ditches and gullies, with cattle dominating the pit and watering hole assemblages. In this report it is suggested that these patterns are, most probably, an artifice of small sample size, and that the pit deposits represent primary butchery, or tanning, waste. Furthermore, it is argued that the watering hole deposit may provide the best indication of diet, containing as it does a higher percentage of pig remains and meat-bearing elements.

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ANIMAL BONES APPENDIX

Scapula	Phase	GLP	BG	LG	SLC
Cattle	1st-3rd century	68.2	43.2	55.6	53.2
Horse	3rd-4th century	80.3	38.6	57.1	63.2

Humerus	Phase	GL	BP	SD	BD
Domestic fowl	Romano-British	65.3	16.8	6.7	14.6

Radius	Phase	GL	BP	BPf	SD	BD	BDf	Wither height
Cattle	1st-3rd century		88.3	79.5	49.7			
Cattle	3rd-4th century		82.5	74.9	42.4			
Sheep/Goat	3rd-4th century		28.2	26.1	16.3			
Horse	1st-3rd century	337	75.2	72.9	38.8	66.5		1462
Horse	1st-3rd century		79	73.9	35.7			
Horse	1st-3rd century				37.1			
Horse	3rd-4th century	338			40.2	75.2	58.7	1466

Ulna	Phase	GL	BP	DP	SD	BD
Duck	3rd-4th century				5.8	10.5
Crow	1st-3rd century	78.2	10.2	8.2	4.9	9.8

Femur	Phase	GL	GLl	BP	DP	SD	BD	DD
Domestic Fowl	3rd-4th century	63.2	60.9	13.1	9	5.5	12.1	10.8
Domestic Fowl	Romano-British			14.2	9.2			

Tibia	Phase	Gl	Gll	BP	SD	BD	DD	Withers height
Sheep/Goat	1st-3rd century					25.6	21.1	
Sheep/Goat	1st-3rd century					22.5		
Sheep/Goat	1st-3rd century					28.2	21.9	
Sheep/Goat	1st-3rd century					24.6	20.2	
Sheep/Goat	Romano-British					22.4	18.5	
Horse	1st-3rd century					66.8		
Horse	Romano-British				42.5		46.7	
Horse	Romano-British	349	334	87.1	41.9	72	45.1	1521
Red Deer	Romano-British					52.3	40.5	
Domestic Fowl	3rd-4th century				4.1	9.7		

Dental	Phase		CH	L	B/WA	WP	Suggested age
Cattle	1st-3rd century	lm3		37.9	16.3		
Pig	3rd-4th century	lm2		18.1	12.7	13.5	
Horse	1st-3rd century	lp3	72.8	29.3	15.9		5-6 years
Horse	1st-3rd century	um2	76.7	27.7	25.9		5-6 years
Horse	3rd-4th century	lp4	58.4	28.4	18.5		7-8 years
Horse	3rd-4th century	lm2	63.1	25.9	15.6		7-8 years
Dog	Romano-British	lm1		21.1	9.1		

Horn-cores	Phase	OC	BA	BB	BC
Cattle	1st-3rd century		40.7	32.8	118
Cattle	3rd-4th century	210	73	52.6	202
Cattle	Romano-British		49.1	34.8	131
Sheep/Goat	1st-3rd century	72			

Metacarpal	Phase	L1	BP	DP	SD	BaF	BD	1	2	3	4	5	6	Withers height
Cattle	1st-3rd century				36									
Cattle	1st-3rd century	190	52.1	33.5	30.7	49.4	53.6	30.3	25.1	23.2	24.8	29.2	21.5	1165
Cattle	3rd-4th century	202	65.9		32.7	57.7		30.2	30.6	24.8		33.2		1238
Cattle	3rd-4th century		60.7	36.3	36									
Cattle	Romano-British	234	53.5	54.5	30.5	60.6	29.9	23	27.7					1434
Sheep/Goat	1st-3rd century		22.6	16.1										
Sheep/Goat	3rd-4th century				13.4	25.6	24.7	16.7	11.6	11.1	11.4	15.8	10.3	
Sheep/Goat	3rd-4th century	131	21.9	17.4	15.7	25.1	24.2	16.5	11.1	11	11.1	16.1	10.4	640
Horse	1st-3rd century	224	50.4	33.1	34.5	45.9	45.9							1436
Horse	1st-3rd century	207	45.1	29.3	28.4	43.4	43.2							1429
Horse	3rd-4th century	223	48.9	34.5	35.3	45.4	44.1							1327

Metatarsal	Phase	L1	BP	DP	SD	BaF	BD	1	2	3	4	5	6	Withers height
Cattle	1st-3rd century	218	42.1	42.9	24.6	46	48.5	29.5	22.9	22.3	21.6	28.5	20.5	1188
Cattle	1st-3rd century				28.7									
Horse	1st-3rd century	277		42.2	31.9	47.6	47.5							1476
Horse	1st-3rd century				23.9									
Horse	3rd-4th century	253	47.7	43.1	29.3	44.7	45.7							1327
Domestic Fowl	3rd-4th century	59.9			4.8	10.8								

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