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Summary

This report discusses the study of animal bone assemblages from the Iron Age and early to late Saxon site of Kings Meadow Lane, Higham Ferrers (Northamptonshire). The assemblage from the Iron Age site is particularly small and is characterised by a predominance of sheep/goat bones. In Saxon times cattle bones are the most frequent, but an analysis of quantification biases in conjunction with the information offered by the sieved assemblage allows us to suggest that sheep/goat was originally more frequent, though not as much as in the Iron Age. Pigs, probably fed on the products of the woodland, were also common, particularly in the mid Saxon period. Cattle would have been used mainly for traction and sheep/goat and pig for meat production. Most animals were probably reared, slaughtered and butchered locally. The early Saxon assemblage was recovered mainly from pits and from the bottom of sunken-featured buildings, whereas the mid-Saxon material is mainly from ditch fills. There is no evidence for a high status diet, with wild species being rare throughout occupation. Fish bones mainly derive from freshwater species, though the presence of a few fragments of marine species raises the possibility of trade with coastal localities.

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The early to late Saxon animal bones excavated in 1995 from Kings Meadow Lane, Higham Ferrers, Northamptonshire

Umberto Albarella & Cluny Johnstone

Archaeological introduction (from Miles & Williams 1995; Anon. 1999; Alan Hardy pers. comm.)

The site of Kings Meadow Lane (SP 95856935) is located on the eastern side of the Nene valley, immediately to the north of the town of Higham Ferrers, Northants. Higham Ferrers was a Saxon village that eventually developed borough status. Irthlingborough, on the other side of the Nene, was a Saxon Royal Estate, and, like Higham Ferrers, represented a defended Anglo-Saxon burh.

The site was excavated in October-December 1995 by the Oxford Archaeological Unit under the direction of Bob Williams. It is divided into two main areas. One area is occupied by an Iron Age enclosure, whereas the other, larger area has provided evidence of both Saxon and, to a much lesser extent, medieval occupation. The Iron Age site is mainly represented by a rectangular ditched enclosure, a large number of pits and two circular structures. The most remarkable feature of the Saxon site is a large oval ditched enclosure (early-mid Saxon), of which there are no known parallel examples of the same date. This has been interpreted as having possibly been used for livestock. Other features include four sunken-featured buildings, pits and post-holes (area A, early Saxon). Area B, which overlaps with the southern end of the oval enclosure, is covered with post-holes and includes the remnants of a substantial mid Saxon timber building. Area C, which overlaps with the south-east end of the oval enclosure, has pits, ditches and other features of late Saxon and medieval date.

Phasing and chronology

The Iron Age at this site is dated between 150 and 50 BC (middle Iron Age). The analysis of this period of the site was considered to be of a low priority, also the animal bone assemblage from this period is small. Therefore, results of this analysis are only briefly discussed below.

The Saxon material has been divided into three main phases:
Phase 1: 5^{th}-6^{th} cent. AD (early Saxon)
Phase 2: 7^{th}-8^{th} cent. AD (mid Saxon)
Phase 4: 9^{th}-10^{th} cent. AD (late Saxon).

Of these phase 2 has been further divided into the following sub-phases:
2a: 650-680AD
2b: 680-720AD
2c: 720-750AD
2A & 2C: 680-750AD
2B: 650-750AD

However, the dating of these sub-phases must be regarded as approximate (Alan Hardy pers. comm.), and, in view of the small size of the assemblage, it was decided not to split Phase 2 any further. Nevertheless, the chronological subdivision of this phase is provided in the list of measurements presented in TABLES 17 & 18.

The main phasing broadly corresponds to the areal division of the site, with phase 1 activities mainly concentrated in area A, phase 2 in area B and in the ditch of the oval enclosure and phase 3 in area C. The dating of the different phases is based on the stratigraphy and the typology of the datable finds. The fact that the focus of the site moved from one period to the other has reduced the likelihood of residuality, in particular for the first two phases. A higher proportion of residual material has been found in phase 4 (Alan Hardy pers. comm.). Consequently, and also in view of the small size of the animal bone assemblage from this phase, phase 4 has been regarded of a lower priority for the analysis of the animal bones.

Aims of the study

The rare opportunity of looking at animal bones from a long Anglo-Saxon sequence, offered by this site, makes a diachronic comparison of the results of the bone analysis a priority. However, the fact that different areas and types of features were used in different periods means that it is difficult to disentangle the effects of chronological, lateral and taphonomic variation.

Within the limits of the small size of this assemblage this study aims to provide information on the types of animals used by the occupiers of the site, the relative importance of domestic and wild resources, the catchment areas utilised, the types of animal products that were sought after and the strategies of disposal of the food remains. The existence of the unusual oval enclosure and of pottery of a relative high status (Anon. 1999) also raises the possibility of investigating whether the animal bones provide information about the social status of the site.

The results from Kings Meadow Lane will be compared with those from other sites in the period and/or the area, to define possible differences and similarities in the use of animals. It is hoped that this work will provide data and information that can help in building up our knowledge of Anglo-Saxon England, and the use of the animals during that period.

Methods

The animal bones were partly collected by hand and partly by wet sieving. A total of 42 samples, ranging from 10 to 60 litres, were taken from this site. Of these 36 samples were floated and the flotation residues sieved on 10 mm and 4 mm meshes. Residues from flotation samples which were of 40 litres or less which produced a substantial amount of biological remains were additionally sieved at 0.5mm. Samples which were larger than 40 litres were fully coarse sieved (10 mm and 4 mm) but, even when they were rich in biological remains, only 40 litres were fine sieved (0.5 mm). The six remaining samples were specifically taken for sieving and were thus not subject to flotation. As for the flotation residues they were wet sieved on 10 mm, 4 mm and in four cases also on 0.5 mm meshes. In summary, 42 samples were taken, all of them were fully coarse sieved, 36 were floated and 15 were fine sieved.

The mammal bones were recorded following a modified version of the method described in Davis (1992a) and Albarella & Davis (1994). In brief, all teeth (lower and upper) and a restricted suite of parts of the skeleton was recorded and used in counts. These are: skull (zygomaticus), scapula (glenoid articulation), distal humerus, distal radius, proximal ulna, carpal 2-3, distal metacarpal, pelvis (ischial part of acetabulum), distal femur, distal tibia, calcaneum (sustentaculum), astragalus (lateral side), scafocuboid, distal metatarsal, proximal parts of the 1st, 2nd and 3rd phalanges. At least 50% of a given part had to be present for it to be counted. The presence of large (cattle/horse size) and medium (sheep/pig size) vertebrae and ribs was recorded for each context, although these were not counted.

For birds the following were always recorded: scapula (articular end), proximal coracoid, distal humerus, proximal ulna, proximal carpometacarpus, distal femur, distal tibiotarsus, distal tarsometatarsus.

The pelvis and main long bones were recorded for amphibians.

Horncores with a complete transverse section and "non-countable" elements of particular interest were recorded, but not included in the counts.

The separation of sheep and goat was attempted on the following elements: dP_3, dP_4, distal humerus, distal metapodials (both fused and unfused), distal tibia, astragalus, and calcaneum using the criteria described in Boessneck (1969), Kratochvil (1969) and Payne (1969; 1985). All equid post-cranial bones were identified simply as "equid".

The closely related galliforms - domestic fowl (*Gallus gallus*), guinea fowl (*Numida meleagris*) and pheasant (*Phasianus colchicus*) - are difficult to distinguish. The presence of a spur on tarsometatarsi was considered a diagnostic character of male domestic fowl/pheasant (being absent from guinea-fowl), whereas the lack of a continuous posterior keel on the tarsometatarsus was considered a diagnostic character for distinguishing between pheasant and domestic fowl/guinea fowl. Therefore, a spurred tarsometatarsus lacking the posterior continuous keel was securely identified as "domestic fowl". The presence or absence of an air-sac foramen on the proximal end of the femur was used to distinguish between pheasant and domestic fowl/guinea fowl. MacDonald's (1992) criteria for the scapula and carpometacarpus were used to distinguish domestic fowl/pheasant from guinea fowl.

Wear stages were recorded for all P_4s, dP_4s and for the lower molars of cattle,

sheep/goat and pig, both isolated and in mandibles. Tooth wear stages follow Grant (1982) for cattle and pig and Payne (1973; 1987) for sheep/goat.

The bones from this site are presently kept in the headquarters of the Oxford Archaeological Unit and will eventually be stored in the Northamptonshire Museum in Northampton.

Provenance and preservation

The preservation of the bone surface was reasonably good in both Iron Age and Saxon levels. The level of fragmentation was typical of assemblages mostly deriving from butchery and kitchen refuse. This was assessed looking at the proportion of loose teeth and jaws (assuming that the higher the percentage of isolated teeth, the higher the fragmentation). The results are illustrated in TABLE 1, which shows that there are no perceivable differences in the level of fragmentation between the two main phases, with loose teeth being in both periods twice as common as jaws. Pig mandibles and maxillae tend to be less fragmented and in all three species (but less so in pig) a much higher proportion of loose teeth is found in the sieved assemblage. It is obvious that most loose teeth were lost in the hand-collected assemblage.

The presence of gnawing marks in some contexts (TABLE 2) suggests that some of the bones may not have been found in the place where they were originally discarded. The frequency of gnawing is higher in the later period, but the difference is slight and the sample small. A number of bones were found in articulation, possibly suggesting a primary deposit or at least the existence of a short hiatus between the moment of initial discard and eventual burial.

The Iron Age bones derive from pits and ditches, which were part of the enclosure located to the north of the Saxon settlement. The Saxon bones from phase 1 derive predominantly from the sunken-featured buildings of area A, though some are also from pits and post-holes (TABLES 3-5). The phase 2 bones come mainly from the ditch of the oval enclosure, though again some were found in pits from area B. The bones of phase 4 were found in ditches, pits, gullies and post-holes of areas B and C.

Occurrence and frequency of species

As expected the animal bones mainly belong to domestic species (TABLE 6). Wild species such as deer (PLATE 1), hare and badger (PLATE 2) are present but rare. A fragment of a large male lower canine of pig from phase 1 may belong to a wild boar.

Of the three most common mammals cattle is the one found in greatest numbers, though this is likely to be partly due to a recovery bias. Once the sieved material is taken into account, cattle and sheep/goat were present in almost equal numbers (TABLES 7-8). Using the MNI (minimum number of individuals) as a quantification system, sheep/goat becomes predominant in the early Saxon, and pig in the mid Saxon period (TABLE 9). The MNI is not a very reliable method when applied to small samples but is less affected by a recovery bias (Albarella & Davis

1996) and tends therefore to be closer to the NISP figures provided by the sieved, rather than the hand-collected, assemblage. A predominance of sheep over cattle would be more in line with what is known from historical sources (Albarella 1999a). Pigs are relatively common in both the main phases, as seems typical of the Saxon period countrywide. This species started declining after the Norman conquest, perhaps as a consequence of the reduction of the woodland (Albarella 1999b). There are no significant differences in the faunal composition between the two main phases, though there is a hint that pigs may have been more frequent in the middle Saxon period.

A comparison of the frequency of the species between the Iron Age and the Saxon levels (TABLE 10) proves that the high frequency of cattle in the latter period is not only an artefact of the recovery techniques. However small, the Iron Age group was probably excavated in a similar fashion and suggests a predominance of sheep. Even assuming that both assemblages are strongly biased against the smaller species, it is highly likely that cattle were more important in Saxon than in Iron Age times, at least on this site.

A comparison of the frequency of the three mains species between Kings Meadow Lane and other Saxon sites in central England (TABLE 11; FIGURE 1) shows that mid Saxon sites have, on average, more pigs than earlier and later sites, but there is a fair degree of variation. A few sites stand out as unusual, but most of the others follow the general pattern found at Higham Ferrers (NISP count), with cattle as the most common species, followed by sheep and pig. Differences between sites will depend greatly on recovery and taphonomic factors, but the fact that most early/mid Saxon sites are rural and most of the late ones are urban should also be considered.

St.Albans Abbey (Crabtree 1983) is the only ecclesiastic site considered and, with its very high frequency of pig bones, stands out from all other sites. Caister-on-Sea (Harman 1993a) is the only other high status site, but this has much less pig than St.Albans' and a quite clear predominance of cattle. What these two sites have in common is the relatively high occurrence of deer bones (roe at St Albans' and red at Caister-on-Sea). Kings Meadow Lane is intermediate between these two sites as concerns the distribution of the main species, but has very little wild fauna (TABLE 6) and, in this respect, does not seem to have the characteristics of a high status site. Hunting was a privilege of the aristocracy and deer bones are never found in great numbers on sites of lower social status. In contrast, they are very common in later medieval castles, particularly after the introduction of the fallow deer by the Normans.

Among the caprine bones sheep is predominant, though a few goat bones were found (PLATE 3). Goat postcranial bones are often found on Saxon sites, but always in small numbers. In some cases, goat horncores are as common or even more common – such as at early Saxon Ipswich (Jones & Serjeantson 1983) - than those of sheep. Kings Meadow Lane is in this respect different from other sites in having only one horncore out of four goat specimens (TABLE 6). One of the two bones from the early Saxon level is a deciduous fourth premolar (identified after Payne 1985). This is well worn and is, in this respect, different from the very juvenile goat mandibles - with barely worn milk teeth - that occasionally turn up at high status medieval sites (Albarella & Davis 1996; Richard Thomas, work in progress on the animal bones from Dudley Castle, West Midlands).

None of the equid bones have been attributed to species, but, on the basis of their size, they are all likely to belong to horses. Dogs, cats and the other minor mammals, with the exceptions of deer, rodents and insectivores, are only represented in the middle Saxon phase. The few goose and duck bones are of a size consistent with that of an unimproved domestic form.

Body parts

An in depth analysis of the distribution of body parts is prevented by the small size of the assemblage. It is, however, worth noting that there is no clear evidence of the importation or exportation of selected parts of the body (TABLES 13-14). The predominance of teeth – particularly evident in sheep/goat and pig – is probably a consequence of the greater durability of these elements. The abundant evidence of these cranial elements suggests, however, that whole carcasses would have been slaughtered or, at least, processed on site. There are no obvious differences in the distribution of anatomical elements between the two periods.

In addition to the isolated bones, a number of partial skeletons were found in ditch fills of phase 2 (TABLE 6). These include parts of the trunk and forelimbs of an adult horse (context 2303), the fore limbs of an adult dog (context 1056) and the almost complete skeleton of a sub-adult cat (context 2440). These animals are likely to have been casualties and seem, therefore, to indicate that the ditches were used at some point in the middle Saxon period for the disposal of animal carcasses. A number of articulated cattle bones were found in fills of sunken-featured buildings in phase 1 (contexts 564 and 1254) and 2 (context 550) and in other ditch fills in phase 2 (context 564). The presence of this material in the sunken-featured buildings suggests that, at the moment in which the bones had been discarded, such features had gone into disuse.

Age at death

Once again no extensive analysis is possible due to the limited size of the assemblage. Mandibular wear stages are provided in TABLE 15. While the small amount of data suggests caution, it is interesting to note that most of the sheep/goat are from relatively young animals, which were slaughtered at an age which would suggest that meat production was the main concern. This suggests a greater cultural link with the earlier Roman tradition, than with the intensive use of sheep for wool that typifies the later Middle Ages in Britain. The slaughter of sheep at a relatively young age is typical of most Saxon sites in central England. A predominance of sub-adult animals, suggesting an emphasis on meat production, has been found at early Saxon sites such as Redcastle Furze (Wilson 1995) and West Stow (Crabtree 1989), mid-Saxon Walton Lodge (Sadler 1989), late Saxon Castle Mall (Albarella et al. 1997) and at various late Saxon sites in Lincoln (O'Connor 1982; Dobney *et al.* Undated). Mid Saxon Caister-on-Sea (Harman 1993a), Chicheley (Jones 1980) and Ipswich (Jones & Serjeantson 1983) are different. The first two have a predominance of adult individuals (wool

production?) and the third a high frequency of juveniles (milk production?). Kings Meadow Lane therefore supports the general pattern of a possible emphasis on mutton production in the Saxon period. Overall, however, there seems to have been a fair amount of variability, with some sites possibly already geared towards wool production, which will dominate the later medieval period.

Cattle range from sub-adult to elderly individuals, possibly suggesting beef production and traction use. Most pigs are young, ranging from juveniles to sub-adults. The relatively high number of sub-adult and adult pigs (as opposed to juvenile or immature) is not surprising, as in this period the husbandry regime was unlikely to be very intensive and the animals would have not grown as rapidly as improved breeds.

A few sheep/goat bones from phases 1 and 2 derive from neonatal animals, whereas a tibia from the mid-Saxon phase is more likely to be foetal (following Prummel 1989). Two cattle bones from phase 1 and one pig bone from phase 2 are also from animals not much older than new-borns. The sheep and cattle neonatal bones might represent indirect evidence for the use of the milk of these animals or natural casualties. They also indicate on-site breeding, as animals of such a young age were unlikely to have been imported.

Butchery and other human modifications

Butchery marks are infrequent at Kings Meadow Lane (TABLE 16) and are mostly confined to cattle bones. Cut marks were probably caused during skinning or severing of the tendons. One metacarpal from phase 1 was chopped and burnt on the mid-shaft. This technique is mainly known from prehistoric sites, though it is found in later periods too (personal observations of one of the authors – UA; Dale Serjeantson pers. comm.). It is likely to be suggestive of marrow extraction. Two proximal phalanges (one from phase 1 and the other from phase 2) were chopped, which is unusual and probably indicates a rather crude system of skinning and separation of the feet from the rest of the carcass. One of the very young pig bones bears a cut mark. The meat of these piglets was therefore consumed, although they may have died of natural causes, as the slaughtering at such young age is not economically sound. It is also possible that piglets were considered a luxury food and were therefore occasionally killed.

The cut marks on horse bones were found on astragali from the mid-Saxon period. They are probably associated with skinning. In this period horses were more likely to be used for riding than for carrying out work in the field (see Langdon 1986), but inevitably in old age their strength would start to decline and they would be slaughtered. Once dead their skin would be valued for the production of leather. Evidence of horse skinning has also been found at early Saxon West Stow (Crabtree 1989) and late Saxon Burystead and Langham Road (Davis 1992b). To what extent Saxon people consumed horse meat is unknown. Butchery marks have been found on horse ribs at Thetford (Jones 1984), on metapodials at Droitwich (Locker 1992) and on a number of different elements at Spong Hill (Bond 1995) and Mill Lane (Albarella 1999b). At West Stow the butchery marks on horses are not dissimilar from those found on cattle, and there is also evidence of decapitation and marrow

extraction (Crabtree 1989). The cut marks from Kings Meadow Lane can possibly be interpreted as butchery but, as mentioned above, they are more likely to result from skinning.

Two dog skulls from the mid-Saxon phase are smashed at their backs in similar fashion. Although the evidence is unclear it is possible that these may have been broken on purpose at time of death. Should this interpretation be correct, the action would suggest the extraction of the brain, possibly for human consumption.

Some of the cattle horncores from phases 1 and 2 were chopped near the base (PLATE 4), which suggests the possible use of horn for craft work. The chops were sufficiently close to the base to indicate that they were unlikely to be due to primary butchery. The only red deer specimen (phase 1) is represented by a worked piece of shed antler. Antler was also very valuable for making objects, and the raw material could be picked up in the woods with no need to kill the animal.

Size and shape

Like other areas of this analysis, the investigation of the size of the animals present in different periods at Kings Meadow Lane is hampered by the small size of the assemblage which can only provide limited information. The measurements taken are listed in TABLE 17 and provide a useful set of data to be added to those already known for Saxon livestock. The analysis of the measurements of cattle astragali suggests that no major differences can be detected between Kings Meadow Lane and later Saxon sites in Norfolk (FIGURE 2). One large specimen from the early Saxon phase stands out in comparison with the other specimens from Kings Meadow Lane, but it is within the range of the other more numerous specimens from Norwich and Thetford. The largest specimens - including the one just mentioned - may belong to oxen, although no obvious clusters could be detected.

The few sheep/goat measurements are close to the average for other Saxon sites. Both pig teeth and post-cranial bones are similar in size to those from Saxon animals from East Anglia (FIGURE 3). This suggests that a rather homogeneous type of pig was present across the country in this period. These animals were relatively small compared to more recent breeds, and certainly much more slender. More subtle differences in the size and shape of pig populations may emerge through the analysis of larger samples of measurements.

As at other Saxon sites, the Kings Meadow Lane horses were rather small animals. Withers heights calculated from five complete bones – all from phase 2 – using the coefficients of Vitt (1952), indicate a range from 131 to 135 cm (i.e. 13 hands and up to 13 hands and 2 inches). Being all shorter than 14 hands and 2 inches these animals would be defined today as "ponies". Horses of small size were also found at the other Saxon sites of Burystead and Langham Road (Davis 1992b), Broughton Lodge (Harman 1993b), West Stow (Crabtree 1989) and Thetford (Jones 1993; Albarella 1999b).

Non-metrical traits and abnormalities

No pathological conditions of any relevance were noticed during the analysis. Non-metrical traits were recorded on a regular basis only for teeth. In both cattle mandibles (one from phase 1 and the other from phase 2) in which the condition could be observed the second premolar was present. The ten recorded 3rd molars (3 from phase 1, 6 from phase 2 and 1 from phase 4) all had a fully formed third cusp (or hypoconulid). Similarly, the four sheep/goat mandibles in which the condition could be observed (2 from phase 1, 1 from phase 2 and 1 from phase 4) all had a 2nd premolar, or an alveolus for it. In contrast, in two pig mandibles (both from phase 2) the first premolar was absent.

The occurrence of these traits is known to vary and it has an interesting archaeological potential, because it can help in identifying populations genetically. Our knowledge of these phenomena, however, is still poor, and for the Saxon period in particular information on the subject is scarce. This means that at the moment it is not possible to do much more than make the raw data available. Once a larger data set has been generated this might well provide a useful insight on this problem and its archaeological interpretation.

The fish bones

A very small quantity of fish bone was recovered from the residues of five sieved samples (TABLE 18), mainly from contexts dating to Phase 2, the mid-Saxon period. The fish remains were identified through comparison with specimens in the reference collection at the Environmental Archaeology Unit, University of York. Identification to species was attempted for all vertebrae, and to family or species for most complete cranial elements. Identification was not attempted for fin rays, spines and fragments of other elements, all of which were recorded as 'unidentified' fish.

A total of 42 fragments comprised the very small fish assemblage recovered from this site. Most fish bones were recovered from the 2-4 mm fraction of the residues, only Sample 49 (Context 2006) yielded fish bones from the larger (4-10 mm) and smaller (1-2 mm) fractions. Species present include eel (*Anguilla anguilla* L.), ?Pleuronectid, herring (*Clupea harengus* L.), ?perch (cf. *Perca fluviatilis* (L.)) and several species of Cyprinid (TABLE 18). Although the bones of various Cyprinid species are all very similar morphologically some differences do exist, particularly in the pharyngeal bones. On this basis most of the Cyprinid bones have been tentatively assigned to the following species; dace (*Leuciscus leuciscus* (L.)), chub (*Leuciscus cephalus* (L.)), roach (*Rutilus rutilus* (L.)), and rudd (*Scardinius erythropthalmus* (L.)). Eel bones were most numerous (16 fragments), although the Cyprinids as a family contribute 21 fragments to the assemblage.

Conclusions

The results of this study provide insight into the life of a Saxon rural community. The animal economy was mainly based on the exploitation of domestic livestock with the occasional hunting of deer or other wild animals, such as hare and badger. Cattle probably provided the greatest amount of meat, though sheep were likely to be the most numerous animals, providing primarily mutton, but also milk and wool. Pigs were also quite common, and they were likely to have been left to roam and feed freely in local woodland, which in this period was probably still reasonably intact. Pigs are particularly common in the mid-Saxon period, perhaps suggesting that no substantial decline in the woodland coverage occurred after early Saxon times.

Birds and fish were also consumed, though it is difficult to assess in what quantity. All the bird bones are likely to derive from domesticates, with chicken as the most common. The majority of the fish bones come from species that inhabit freshwater for either the whole or part of their lifecycle. These would be expected at an inland site near a reasonably large river (the River Nene in this case). The presence of two marine species implies that the inhabitants of this site had trade links with coastal fisheries, but this interpretation should be treated with caution, as it is based on just two fragments.

The small Iron Age assemblage has a higher proportion of sheep/goat, but no substantial differences in the use of animals could be detected between early and middle Saxon times. Important differences occur however in the use of features for the disposal of animal remains. In the earlier Saxon period most bones were disposed of in pits or in abandoned buildings, whereas later, undoubtedly as a consequence of the construction and eventual demise of the oval enclosure, they ended up in ditches, either as butchery and kitchen remains or as carcasses of casualty animals. It is possible that the different type of settlement may have encouraged a more organised system of waste disposal.

The inhabitants of Kings Meadow Lane were likely to produce most of their food of animal origin themselves. There is evidence that some of the animals were bred on site and that most of the butchery also occurred locally.

There is little zooarchaeological evidence from this site that indicates a community of a high social status. Piglets may be regarded as a luxury food, but their presence in the assemblage may also be a result of unintentional premature death. Moreover, wild animals –which are found in relatively high numbers on high status sites – are rare, and there is no evidence of the importation of any exotic foodstuffs or selected cuts of meat. However, the assemblage is small and, since any conclusions have to be regarded as tentative, the animal bones cannot independently rule out the hypothesis of a high status site.

With broadly equal numbers of bones of the three main mammal species and an emphasis on mutton production, the animal bone assemblage from Kings Meadow Lane appears to be typical of the Saxon period, although, as has been shown, variations do occur. A fuller understanding of the interaction between people and animals in this period will only be achieved through integration of the zooarchaeological evidence with other archaeological information. The development

of a larger body of zooarchaeological data, by including even small assemblages such as that of Kings Meadow Lane, will be essential to understanding the economy and other aspects of Saxon Britain in future synthetic studies.

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From hand-collection:					
Phase		Cattle	heep/goa	Pig	Total
5th-6th cent.	Loose teeth	15	25	6	46
	Jaws	9	4	10	23
7th-8th cent.	Loose teeth	37	15	16	68
	Jaws	8	6	21	35
From sieving:					
Phase		Cattle	heep/goa	Pig	Total
5th-6th cent.	Loose teeth	8	8	3	19
	Jaws	0	1	1	2
7th-8th cent.	Loose teeth	5	13	7	25
	Jaws	0	2	2	4

TABLE 1. Kings Meadow Lane, Higham Ferrers. Numbers of loose teeth and jaws for the main taxa. A tooth is considered to be set within a jaw if at least one complete tooth or alveolus lay adjacent to the recorded tooth or, if there is no adjacent alveolus, an equivalent length of bone is present.

	5th-6th cent.			7th-8th cent.		
	tot	burnt	gnawed	tot	burnt	gnawed
Cattle	58	3	6	65	-	12
Sheep/goat	15	-	1	24	-	3
Pig	16	-	1	20	-	5
Equid	1	-	1	25	-	2
Chicken	3	-	-	13	-	1
Goose	2	-	-	1	-	-
Total	95	3 (3%)	9 (9%)	148	-	23 (16%)

TABLE 2. Kings Meadow Lane, Higham Ferrers. Numbers of burnt and gnawed postcranial bones.

	Phase	5th-6th cent.	7th-8th cent.	9th-10th cent.	Total
Area/Trench	13			8	8
	14		68		68
	15		14		14
	16		146		146
	21		8		8
	29		4		4
	A	182			182
	B	14	102	70	186
	Total	196	342	78	616

TABLE 3. Kings Meadow Lane, Higham Ferrers. Number of "countable" specimens by phase and area. Areas are in letters and trenches in numbers. Hand-collected and sieved combined. Area information not available in all cases.

	Area/Trench	13	14	15	16	21	29	A	B	Total
Type of feature	Beam slot								2	2
	Ditch	4	68	14	146	8	4		86	330
	Gully								30	30
	Grave								8	8
	Pit							40	56	96
	Post-hole	4						14	4	22
	SFB							130		130
	Total	8	68	14	146	8	4	184	186	618

TABLE 4. Kings Meadow Lane, Higham Ferrers. Number of "countable" specimens by area/trench and type of feature. Areas are in letters and trenches in numbers. Hand-collected and sieved combined. Area/type information not available in all cases.

	Phase	5th-6th cent.	7th-8th cent.	9th-10th cent.	Total
Type of feature	Beam slot		2		2
	Ditch		308	22	330
	Gully			30	30
	Grave		8		8
	Pit	52	22	20	94
	Post-hole	14	2	6	22
	SFB	130			130
	Total	196	342	78	616

TABLE 5. Kings Meadow Lane, Higham Ferrers. Number of "countable" specimens by phase and type of feature.
Hand-collected and sieved combined. Information on feature type not available in all cases.

	5th-6th cent.	7th-8th cent.	9th-10th cent.	Total
Cattle (*Bos taurus*)	80	95	23	198
Sheep/goat (*Ovis/Capra*)	41	42	19	102
[Sheep (*Ovis aries*)]	[2]	[4]	[2]	[8]
[Goat (*Capra hircus*)]	[2]	[1]	[-]	[3]
Pig (*Sus scrofa*)	32	52	9	93
Equid (*Equus* sp.)	3	31*	3	37
Dog (*Canis familiaris*)	-	21*	-	21
Dog/fox (*Canis/Vulpes*)	-	1	-	1
Cat (*Felis catus*)	-	25*	-	25
Red deer (*Cervus elaphus*)	+	-	-	
Roe deer (*Capreolus capreolus*)	1	-	-	1
Hare (*Lepus* sp.)	-	1	-	1
Badger (*Meles meles*)	-	1	-	1
Human (*Homo sapiens*)	-	1	-	1
Chicken (*Gallus gallus*)	3	8	-	11
Goose (*Anser* sp.)	2	1	-	3
Duck (*Anas* sp.)	-	+	1	1
Rook/crow (*Corvus frugilegus/corone*)	-	1	-	1
Frog/toad (*Rana/Bufo*)		1	1	2
Total	162	281	56	499

TABLE 6. Kings Meadow Lane, Higham Ferrers. Number of hand-collected mammal, bird and amphibian bones (NISP). "Sheep/goat" also includes the specimens identified to species. Numbers in squared parentheses are not included in the total of the phase. "+" means that the taxon is present but no specimens could be "counted" (see methods). * these numbers include specimens from partial skeletons in the following quantities: equid 11 bones, dog 11 bones, cat 21 bones

	5th-6th cent.	7th-8th cent.	9th-10th cent.	Total
Cattle (*Bos taurus*)	10	20	-	30
Sheep/goat (*Ovis/Capra*)	10	14	1	25
[Sheep (*Ovis aries*)]	[1]	[2]	-	[3]
[Goat (*Capra hircus*)]	[-]	[-]	[-]	[-]
Pig (*Sus scrofa*)	4	14	-	18
Small rodent (Rodentia)	-	-	1	1
Mole (*Talpa europaea*)	-	-	4	4
Chicken (*Gallus gallus*)	-	5	-	5
Toad (*Bufo bufo*)	-	1	-	1
Frog/toad (*Rana/Bufo*)	-	2	1	3
Total	24	56	7	87

TABLE 7. Kings Meadow Lane, Higham Ferrers. Number of mammal, bird and amphibian bones (NISP) from coarse sieving (4 and 10 mm). "Sheep/goat" also includes the specimens identified to species. Numbers in squared parentheses are not included in the total of the phase.

	5th-6th cent.	7th-8th cent.	9th-10th cent.	Total
Sheep/goat (*Ovis/Capra*)	2	4	-	6
Dog (*Canis familiaris*)	1	-	-	1
Field vole (*Microtus agrestis*)	-	2	-	2
Small vole (small Microtinae)	1	10	-	11
Mouse (small Murinae)	-	1	1	2
Small rodent (Rodentia)	6	14	3	23
Mole (*Talpa europaea)*	-	-	1	1
Frog/toad (*Rana/Bufo*)	1	8	2	11
Total	11	39	7	57

TABLE 8. Kings Meadow Lane, Higham Ferrers. Number of mammal, bird and amphibian bones (NISP) from fine sieving (0.5 mm).

	5th-6th cent.		7th-8th cent.		9th-10th cent.		Total	
	NISP1	%	NISP1	%	NISP1	%	NISP1	%
Cattle (*Bos taurus*)	80	*52*	95	*50*	23	*45*	198	*50*
Sheep/goat (*Ovis/Capra*)	41	*27*	42	*22*	19	*37*	102	*26*
Pig (*Sus scrofa*)	32	*21*	52	*28*	9	*18*	93	*24*
Total	153		189		51		393	
	5th-6th cent.		7th-8th cent.		9th-10th cent.		Total	
	NISP2	%	NISP2	%	NISP2	%	NISP2	%
Cattle (*Bos taurus*)	90	*50*	115	*48*	23	*44*	228	*48*
Sheep/goat (*Ovis/Capra*)	53	*30*	60	*25*	20	*38*	133	*28*
Pig (*Sus scrofa*)	36	*20*	66	*27*	9	*17*	111	*24*
Total	179		241		52		472	
	5th-6th cent.		7th-8th cent.		9th-10th cent.		Total	
	MNI	%	MNI	%	MNI	%	MNI	%
Cattle (*Bos taurus*)	3	*27*	4	*29*	2	*40*	9	*30*
Sheep/goat (*Ovis/Capra*)	5	*45*	4	*29*	2	*40*	11	*37*
Pig (*Sus scrofa*)	3	*27*	6	*43*	1	*20*	10	*33*
Total	11		14		5		30	

TABLE 9. Kings Meadow Lane, Higham Ferrers. Frequencies of the three most common domestic mammals by number of identified specimens (NISP) and minimum number of individuals (MNI). NISP 1 = only hand-collected; NISP2 = hand-collected and sieved combined, MNI = only hand-collected.

	HC	CS	FS	Total
Cattle (*Bos taurus*)	13	-	-	13
Sheep/goat (*Ovis/Capra*)	29	3	-	32
[Sheep (*Ovis aries*)]	[4]	[-]	[-]	[4]
Pig (*Sus scrofa*)	3	3	-	6
Equid (*Equus* sp.)	2	-	-	2
Dog (*Canis familiaris*)	2	-	-	2
Small vole (small Microtinae)	-	-	1	1
Mouse (small Murinae)	-	-	1	1
Small rodent (small Rodentia)	-	-	11	11
Pigeon (*Columba* sp.)	1	-	-	1
Passerine (Passeriformes)	-	-	1	1
Frog/toad (*Rana/Bufo*)	5	-	-	5
Toad (*Bufo bufo*)	2	-	-	2
Total	57	6	14	77

TABLE 10. Kings Meadow Lane, Higham Ferrers. Number of mammal, bird and amphibian bones (NISP), from the mid-Iron Age site. HC = hand-collected, CS = coarse sieved (4 or 10 mm), FS = fine sieved (0.5 mm). "Sheep/goat" also includes the specimens identified to species. Numbers in squared parentheses are not included in the total of the phase.

Site	County	Reference	Date	Taxon	n	%
Maxey 60	CAM	Seddon et al. 1965.	Early Saxon	Sheep/goat	191	43
				Cattle	194	44
				Pig	59	13
Spong Hill VII	NOR	Bond 1995.	Early Saxon	Sheep/goat	72	12
				Cattle	491	84
				Pig	24	4
West Stow (animal husbandry)	SUF	Crabtree 1989	Early Saxon	Sheep/goat	28399	45
				Cattle	26012	41
				Pig	9192	14
Caister-on-Sea 51-5	NOR	Harman 1993.	Mid Saxon	Sheep/goat	108	22
				Cattle	305	62
				Pig	77	16
Ipswich AML 3951	SUF	Jones & Serjeantson 1983.	Mid Saxon	Sheep/goat	1809	25
				Cattle	3408	47
				Pig	1973	27
St Peters St (Nhtn) 73-6	NHA	Harman 1979.	Mid Saxon	Sheep/goat	228	48
				Cattle	162	34
				Pig	88	18
St.Albans' Abbey	HRT	Crabtree 1983.	Mid Saxon	Sheep/goat	102	14
				Cattle	104	15
				Pig	506	71
Burystead 84-87 AML 71/92	NHA	Davis 1992b	Late Saxon	Sheep/goat	365	37
				Cattle	454	46
				Pig	171	17
Castle Mall AML 72/97	NOR	Albarella et al. 1997.	Late Saxon	Sheep/goat	236	22
				Cattle	541	51
				Pig	277	26
Flaxengate 72-6	LIN	O'Connor 1982.	Late Saxon	Sheep/goat	6106	32
				Cattle	11301	58
				Pig	2174	11
Ipswich AML 3951	SUF	Jones & Serjeantson 1983.	Late Saxon	Sheep/goat	114	18
				Cattle	398	63
				Pig	119	19
Lincoln sites (bones)	LIN	Dobney et al. Undated.	Late Saxon	Sheep/goat	449	27
				Cattle	1037	61
				Pig	203	12
St Peters St (Nhtn) 73-6	NHA	Harman 1979.	Late Saxon	Sheep/goat	2006	59
				Cattle	1042	30
				Pig	377	11
The Green 83	NHA	Harman 1996.	Late Saxon	Sheep/goat	452	50
				Cattle	321	35
				Pig	137	15
Thetford 48-59	NOR	Jones 1984.	Late Saxon	Sheep/goat	145	25
				Cattle	323	57
				Pig	101	18
Thetford 73-80	NOR	Jones 1984.	Late Saxon	Sheep/goat	650	38
				Cattle	919	36
				Pig	394	26

TABLE 11. List of sites used for a comparison with Higham Ferrers in FIGURE 1. CAM = Cambridgeshire, NOR = Norfolk, SUF = Suffolk, NHA = Northamptonshire, HRT = Hertfordshire, LIN = Lincolnshire. The site names have been listed in the format found in the Environmental Archaeology Bibliography (EAB) (Hall & Tomlinson 1996).

	5th-6th cent.			7th-8th cent.			9th-10th cent.		
	NISP	MNI	%	NISP	MNI	%	NISP	MNI	%
Upper milk + perm. premolars	12	2	67	8	2	50	4	1	50
Upper M1/2	9	3	100	13	4	100	8	2	100
Upper M3				5	3	75	1	1	50
Lower milk + perm. incisors	8	1	33	8	1	25	4	1	50
Lower milk + perm. premolars	9	2	67	14	3	75			
Lower M1/2	8	2	67	13	4	100	1	1	50
Lower M3	3	2	67	6	3	75	1	1	50
Horncore	2	1	33	3	2	50	1	1	50
Cranium				1	1	25	1	1	50
Atlas				1	1	25			
Axis				1	1	25	1	1	50
Scapula	4	2	67	3	2	50	1	1	50
Humerus	4	2	67	2	1	25			
Radius	5	3	100	1	1	25	1	1	50
Ulna	6	3	100	3	2	50			
Carpal				2	1	25			
Metacarpal	2.5	2	67	5	3	75			
Pelvis	3	2	67	4	2	50			
Femur	3	2	67	5	3	75			
Tibia	3	2	67	3	2	50	2	1	50
Astragalus	5	3	33	4	2	50			
Calcaneum	3	2	67	5	3	75	1	1	50
Scafocuboid	1	1	33						
Metatarsal	2.5	2	67	2	1	25			
Phalanx 1	10	2	67	11	2	50	1	1	50
Phalanx 2	2	1	33	4	1	25			
Phalanx 3	2	1	33	8	1	25			

TABLE 12. Kings Meadow Lane, Higham Ferrers.
Body parts of **cattle** by number of fragments (NISP) and minimum number of individuals (MNI).
Hand-collected and sieved material combined. The MNI has been calculated
as follows: incisors have been divided by 8 for cattle, deciduous + permanent premolars by 6,
M1/2 by 4, phalanges by 8 and all other elements, except metapodials and vertebrae, by 2.
Metacarpal = (MC1 + MC2/2 + MP1/2 + MP2/4) / 2; Metatarsal = (MT1 + MT2/2 + MP1/2 + MP2/4) / 2, where:
MC1 = complete distal metacarpal; MC2 = half distal metacarpal; MT1 = complete distal metatarsal;
MT2 = half distal metatarsal; MP1 = complete distal metapodial; MP2 = half distal metapodial.
% = frequency of an element expressed in relation to the most common one (by MNI).

	5th-6th cent.			7th-8th cent.			9th-10th cent.		
	NISP	MNI	%	NISP	MNI	%	NISP	MNI	%
Upper milk + perm. premolars	3	1	20	10	2	50	7	2	100
Upper M1/2	3	1	20	7	2	50	4	1	50
Upper M3	1	1	20	3	2	50	1	1	50
Lower milk + perm. incisors	6	1	20	4	1	25	3	1	50
Lower milk + perm. premolars	14	3	60	13	3	75	6	1	50
Lower M1/2	17	5	100	13	4	100	4	1	50
Lower M3	3	2	40	2	1	25	2	1	50
Horncore	1	1	20				1	1	50
Cranium							1	1	50
Atlas	1	1	20						
Axis	1	1	20	1	1	25			
Scapula	4	2	40						
Humerus	3	2	40	1	1	25			
Radius	1	1	20	1	1	25			
Ulna				1	1	25			
Carpal									
Metacarpal				0.5	1	25			
Pelvis	2	1	20	5	3	75			
Femur				2	1	25			
Tibia	1	1	20	5	3	75	1	1	50
Astragalus							1	1	50
Calcaneum				1	1	25			
Scafocuboid									
Metatarsal				1.5	1	25			
Phalanx 1	1	1	20	2	1	25			
Phalanx 2				1	1	25			
Phalanx 3				1	1	25			

TABLE 13. Kings Meadow Lane, Higham Ferrers.
Body parts of **sheep/goat** by number of fragments (NISP) and minimum number of individuals (MNI).
Hand-collected and sieved material combined. The MNI has been calculated as follows:
incisors have been divided by 8 , deciduous + permanent premolars by 6,
M1/2 by 4, phalanges by 8 and all other elements, except metapodials and vertebrae, by 2.
Metacarpal = (MC1 + MC2/2 + MP1/2 + MP2/4) / 2; Metatarsal = (MT1 + MT2/2 + MP1/2 + MP2/4) / 2, where:
MC1 = complete distal metacarpal; MC2 = half distal metacarpal; MT1 = complete distal metatarsal;
MT2 = half distal metatarsal; MP1 = complete distal metapodial; MP2 = half distal metapodial.
% = frequency of an element expressed in relation to the most common one (by MNI).

	5th-6th cent.			7th-8th cent.			9th-10th cent.		
	NISP	MNI	%	NISP	MNI	%	NISP	MNI	%
Upper milk + perm. incisors	2	1	33	3	1	17			
Upper milk + perm. canines	3	2	67	1	1	17	1	1	100
Upper milk + perm. premolars	5	1	33	7	2	33			
Upper M1/2	4	2	67	4	1	17			
Upper M3	1	1	33	1	1	17			
Lower milk + perm. incisors	1	1	33	13	3	50	2	1	100
Lower milk + perm. canines	3	2	67	4	2	33			
Lower milk + perm. premolars	1	1	33	31	6	100			
Lower M1/2	7	2	67	21	6	100	3	1	100
Lower M3	5	3	100	4	2	33	1	1	100
Cranium				1	1	17			
Atlas									
Axis									
Scapula	2	1	33	1	1	17			
Humerus	1	1	33	3	2	33	1	1	100
Radius									
Ulna	5	3	100	2	1	17			
Carpal									
Metacarpal	0.5	1	33	1	1	17			
Pelvis	1	1	33	1	1	17			
Femur				1	1	17	1	1	100
Tibia	1	1	33	2	1	17	1	1	100
Astragalus				1	1	17	1	1	100
Calcaneum	2	1	33	3	2	33			
Cuboid									
Metatarsal	3	1	33	2	1	17			
Phalanx 1									
Phalanx 2				1	1	17			
Phalanx 3									

TABLE 14. Kings Meadow Lane, Higham Ferrers.
Body parts of **pig** by number of fragments (NISP) and minimum number of individuals (MNI). Unfused epiphyses are not counted. Only hand-collected material is included. The MNI has been calculated as follows: incisors have been divided by 6, deciduous + permanent premolars by 6, M1/2 by 4, metapodials by 4, phalanges by 8 and all other elements, except vertebrae, by 2.
% = frequency of an element expressed in relation to the most common one (by MNI).

Period	Taxon	P4	dP4	M1	M2	M3	Mandibular wear stage
5th-6th	Cattle		j	f			sub-adult
5th-6th	Cattle		j	g	d		sub-adult
5th-6th	Cattle		k	g			sub-adult/adult
5th-6th	Cattle				l	l	elderly
7th-8th	Cattle		j	c			immature
7th-8th	Cattle		j	f			sub-adult
7th-8th	Cattle	e		k			adult/elderly
7th-8th	Cattle	g		m	k	k	elderly
7th-8th	Cattle	g		m	k	k	elderly
5th-6th	Sheep		16L	8A	5A		D (1-2yrs)
5th-6th	Sheep/goat	11S		14A	10A	11G	H (6-8yrs)
7th-8th	Sheep		14L	6A			C (6-12months)
7th-8th	Sheep		14L	7A			C (6-12months)
7th-8th	Sheep		16L	9A	1A		D (1-2yrs)
7th-8th	Sheep/goat		23L	9A			D (1-2yrs)
7th-8th	Sheep/goat	9A		9A	9A	6A	E (2-3yrs)
9th-10th	Sheep		11L	E			B (2-6months)
9th-10th	Sheep/goat	2A		9A	7A		D/E (1-3yrs)
5th-6th	Pig			c	a	V	immature
5th-6th	Pig				c	H	sub-adult
5th-6th	Pig				f	a	sub-adult
5th-6th	Pig			f	d	a	sub-adult
7th-8th	Pig		e	H			juvenile
7th-8th	Pig		g	a			juvenile
7th-8th	Pig		g	a			juvenile
7th-8th	Pig		g	a			juvenile
7th-8th	Pig		g	b			immature
7th-8th	Pig			c	C		immature
7th-8th	Pig	b		f	c		sub-adult
7th-8th	Pig			g	c		sub-adult
7th-8th	Pig	b		h	e	a	sub-adult
7th-8th	Pig	e		n	f	a	sub-adult
7th-8th	Pig	c		k			sub-adult/adult
7th-8th	Pig	e		m	k	g	adult
9th-10th	Pig			h	f	b	adult

TABLE 15. Kings Meadow Lane, Higham Ferrers. **Mandibular wear stages**.
Tooth wear stages for cattle and pig follow Grant (1982) and for sheep/goat follow Payne (1973;1987).
Mandibular wear stages for cattle and pig follow O'Connor (1988) and for sheep/goat
follow Payne (1973). Only mandibles with two or more teeth (with recordable wear stage)
in the dP4/P4-M3 row are given.

	5th-6th cent.				7th-8th cent.			
	tot	chops	cuts	tot butchery	tot	chops	cuts	tot butchery
Cattle	58	4	6	10 (17%)	65	2	8	9 (14%)
Sheep/goat	15	-	-	-	24	-	1	1 (4%)
Pig	16	-	-	-	20	-	2	2 (10%)
Equid	1	-	-	-	25	-	2	2 (8%)
Chicken	3	-	1	1 (33%)	13	-	2	2 (15%)
Goose	2	-	1	1 (50%)	1	-	-	-
Total	95	4	8	12 (13%)	148	2	15	16 (11%)

TABLE 16. Kings Meadow Lane, Higham Ferrers. Numbers of butchered postcranial bones. Total butchery included chop and cut marks (one cattle bone was chopped *and* cut).

Phase	Sub-phase	Taxon	P4L	P4W	dP4L	dP4W	M1L	M1W/WA	M1WP	M2W/WA	M2WP	M3L	M3W/WA	M3WC
1		Cattle											153	
1		Cattle											155	
1		Cattle										359	153	
2	A	Cattle										355	152	
2	c	Cattle											158	
2	c	Cattle											167	
2	c	Cattle										350	151	
2	c	Cattle										356	152	
4	A	Cattle										345	147	
1		Sheep/goat											84	
1		Sheep/goat											85	
1		Sheep/goat								81			84	
2	b	Sheep/goat											85	
2	c	Sheep/goat											83	
2	c	Sheep/goat				59								
4		Sheep/goat											79	
4		Sheep/goat											87	
1		Sheep				66		76		83				
2	b	Sheep				67								
2	c	Sheep						74						
2	c	Sheep				62								
4		Sheep				55								
1		Goat				72								
1		Pig										e325	145	145
1		Pig								124	126			
1		Pig								134	139	334	158	151
1		Pig						92	106	121	129		c142	
1		Pig						105	115		146			
2	A	Pig						93	102	120	126			
2	a	Pig								121	119	e325	158	141
2	a	Pig								122	122			
2	b	Pig			193	88								
2	b	Pig			c206	85								
2	c	Pig										320	158	152
2	c	Pig								128		c278	145	143
2	c	Pig						96	100					
2	c	Pig						97	101					
2	c	Pig						99	105	122	127	e325	135	

2	c	Pig						109							
2	c	Pig				86									
2	c	Pig			183	86									
2	c	Pig			195	84		101	106						
2	c	Pig			195	86		100	104						
2	c	Pig			c197	87		99	105						
2	c	Pig			e193	83		100	104						
4	C	Pig						104	c109	126	126	e330	151	145	
2	c	Dog					239	96							
2	c	Dog	122	58			237	86							
2	c	Dog	130	67			225	89							
2	c	Dog	130	67			227	87							
2	b	Cat					72	31							
2	b	Cat	66	27			72	32							

TABLE 17. Kings Meadow Lane, Higham Ferrers. Measurements of teeth. All measurements are in tenths of a millimetre. c = approximated; e = estimated. Pig measurements follow Payne and Bull (1988), but in addition the width of the central cusp of M3 was measured (WC). For other taxa L = max length, W = max width.

Phase	Sub-phase	Taxon	Element	Fusion	GH/GL	GB/Bd	BFd/Dd	LmT/BT	HTC	SD
1		Equid	Astragalus		617	628	561	630		
2	c	Equid	Astragalus		553	560	530	494		
2	c	Equid	Astragalus		557	561	490	530		
2	c	Equid	Humerus	F				709	364	
2	c	Equid	Humerus	F	c2635			c701	364	360
2	b	Equid	Metacarpal	F	2165	481	363			328
2	c	Equid	Metacarpal	F	2105	476	361			338
2	c	Equid	Metacarpal	F	2120	475				340
2	c	Equid	Phalanx 1	F	805	424	235			360
2	c	Equid	Phalanx 1	F	808	429	240			361
2	c	Equid	Phalanx 1	F	827	451	240			367
2	c	Equid	Radius	F	3270					380
2	c	Equid	Radius	F	3275					382

Phase	Sub-phase	Taxon	Element	Fusion	GL/GLI	Bd	DI/3	BT	HTC	LA	SD	BatF	a	b
		Cattle	Astragalus		668	437	375							
1		Cattle	Astragalus		590	377	325							
1		Cattle	Astragalus		597	372	327							
1		Cattle	Astragalus		621	374	331							
1		Cattle	Astragalus		657	432	361							
2	B	Cattle	Astragalus		604	391	348							
2	c	Cattle	Astragalus		594	376	343							
2	c	Cattle	Astragalus		595	374	343							
2	c	Cattle	Calcaneum	F	1341									
2	c	Cattle	Calcaneum	F	1363									
1		Cattle	Humerus	F				647	297					
1		Cattle	Humerus	F				665	300					
1		Cattle	Humerus	UX					278					
2	c	Cattle	Humerus	F	2580			720	317		335			
1		Cattle	Metacarpal	F		545	268					509	256	259
2	A	Cattle	Metacarpal	F	1865	593	281				299	508	282	286
2	b	Cattle	Metacarpal	F	1810	527	245				283	481	254	247
2	c	Cattle	Metacarpal	F	1825	539					291	504		
2	c	Cattle	Metacarpal	UM	1065						200			
1		Cattle	Metatarsal	F		510	261				236	470	225	235
1		Cattle	Metatarsal	F	e2070	484	258					463	233	223
2	c	Cattle	Metatarsal	F	2070	508	252				247	484	232	227
1		Cattle	Pelvis	F						594				
2	a	Cattle	Pelvis	F						677				
2	b	Cattle	Pelvis	F						656				
2	c	Cattle	Radius	G	2890									

1		Cattle	Tibia	UE		638
2	c	Cattle	Tibia	F		649
2	c	Cattle	Tibia	UX		464
4	A	Cattle	Tibia	F		545
4	A	Cattle	Tibia	F		647

Phase	Sub-phase	Taxon	Element	Fusion	GL	Bd	BT	HTC	LA	SD	a	b	1	4
		Sheep/goat	Humerus	UM	751									
1		Sheep/goat	Humerus	F			275	140						
1		Sheep/goat	Humerus	UM	751									
2	c	Sheep/goat	Humerus	G			293	142						
2	b	Sheep/goat	Metatarsal	UM	750									
1		Sheep/goat	Pelvis	F					e270					
2	c	Sheep/goat	Pelvis	F					204					
2	A	Sheep/goat	Radius	UM	772									
1		Sheep/goat	Tibia	F		260								
2	b	Sheep/goat	Tibia	UE		228								
2	b	Sheep/goat	Tibia	UM	501									
1		Sheep	Humerus	F			254	134						
2	c	Sheep	Tibia	F		259								
4	A	Sheep	Tibia	F		260								
2	b	Goat	Humerus	F			281	130						
1		Goat	Metacarpal	F	1115	278				156	125	118	91	87

Phase	Sub-phase	Taxon	Element	Fusion	GL	Bd	BT	HTC
2	c	Pig	Astragalus		412			
1		Pig	Humerus	H			307	199
2	c	Pig	Humerus	G			302	197
2	c	Pig	Humerus	H			265	170
4	A	Pig	Humerus	H			286	188
1		Pig	Tibia	G		266		
4	A	Pig	Tibia	F		290		

Phase	Sub-phase	Taxon	Element	Fusion	GL
2	b	Dog	Calcaneum	F	427

Phase	Sub-phase	Taxon	Element	Fusion	Bd
2	b	Cat	Humerus	F	159
2	b	Cat	Humerus	F	159

Phase	Sub-phase	Taxon	Element	GL	Bd	Dd	SC	Lm
2	c	Chicken	Femur	698	130	113	61	652

2	A	Chicken	Tarsometatarsus		111		53	unspurred
2	c	Chicken	Tarsometatarsus	661			54	unspurred
2	A	Chicken	Femur		c122	111		
2	A	Chicken	Humerus	626	c140		64	

Phase	Sub-phase	Taxon	Element	Bd	Dd
1		Goose	Humerus	203	
2	b	Goose	Humerus	238	
1		Goose	Tibia	185	183

TABLE 18. Kings Meadow Lane, Higham Ferrers. Measurements of bones. All measurements are in tenths of a millimetre.
c = approximated; e = estimated. F = fused; H = fused/ing; G = fusing; UM = unfused metaphysis; UE = unfused epiphysis; UX = unfused metaphysis+epiphysis. Length measurements of unfused bones are taken without the epiphyses.
Most measurements are taken according to von den Driesch (1976). All pig measurements follow Payne & Bull (1988).
Humerus HTC and BT and tibia Bd measurements were taken for all species as suggested by Payne & Bull (1988) for pigs.
Measurements on cattle and caprine metapodials follow Davis (1992).

	5th-6th cent.	7th-8th cent.	9th-10th cent.	Total
Herring (*Clupea harengus* L.)	-	1	-	1
Cyprinind (Cyprinidae)	-	12	-	12
?Dace (cf. *Leuciscus leuciscus* (L.))	-	1	-	1
?Chub (cf. *Leuciscus cephalus* (L.))	-	1	2	3
?Roach (cf. *Rutilus rutilus* (L.))	-	2	-	2
?Rudd (cf. *Scardinius erythropthalmus* L.)	-	2	-	2
?Perch (cf. *Perca fluviatilis* (L.))	-	-	1	1
Eel (*Anguilla anguilla* L.)	1	13	2	16
?Flatfish (cf. Pleuronectidae)	1	-	-	1
Subtotal	2	32	5	39
Unidentified fish	2	1	3	6
Total	4	33	8	45

Table 19. Kings Meadow Lane, Higham Ferrers, Northamptonshire. Fish bones.
All from fine sieving (0.5 mm).

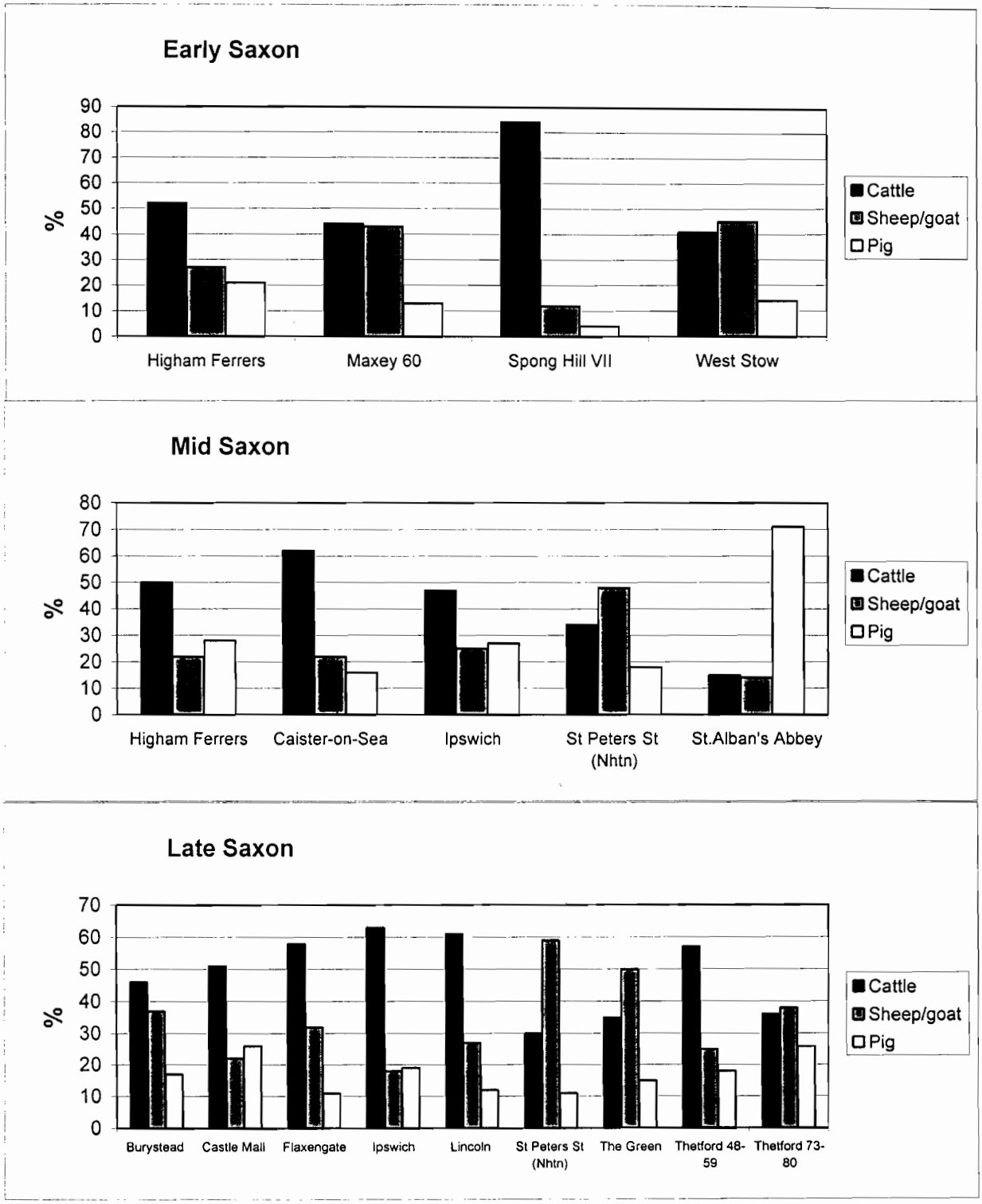


FIGURE 1. The frequency of of the main mammals (NISP) at Higham Ferrers, compared with a number of other Saxon sites in central England. Only hand-collected material is considered.

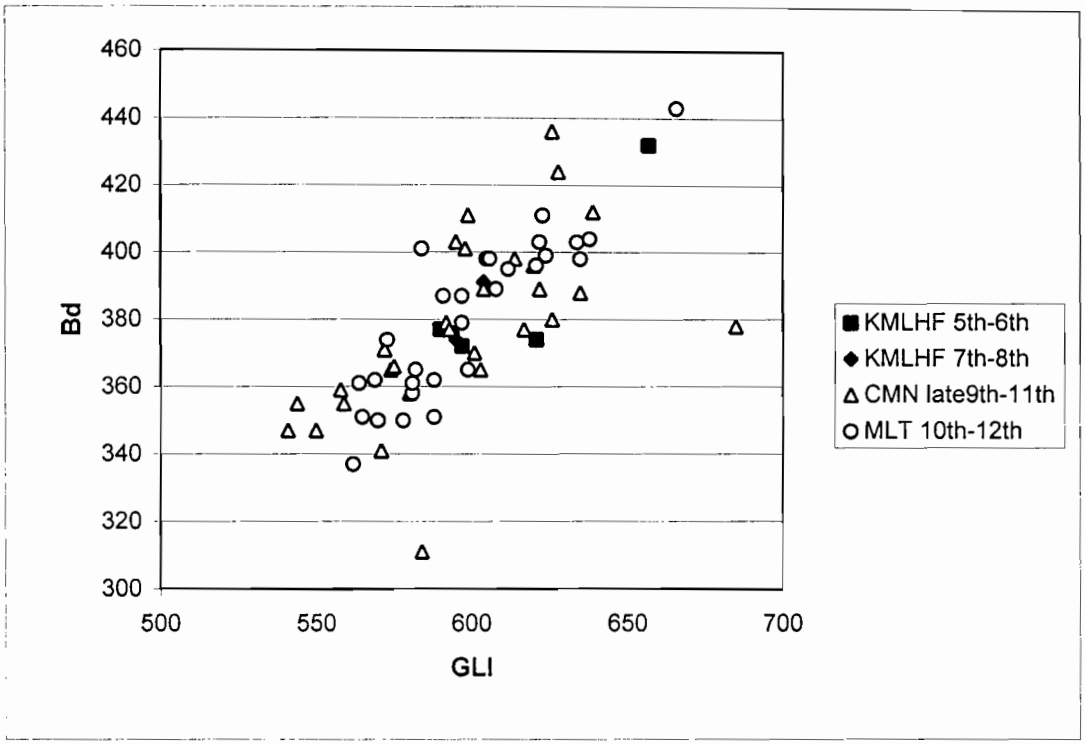
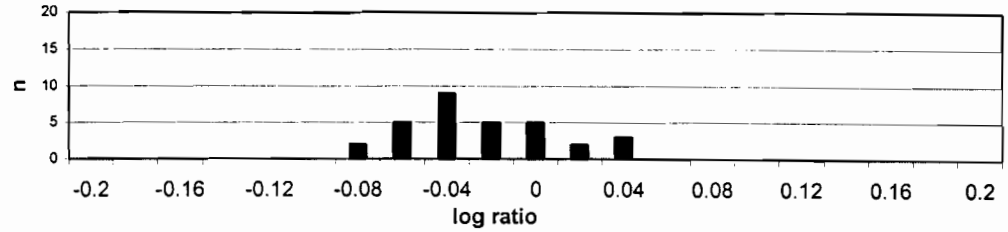
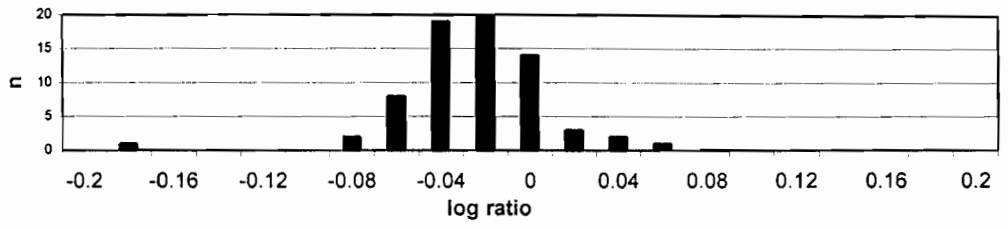


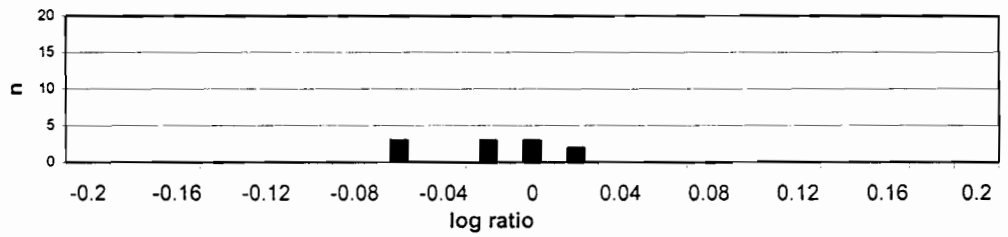
FIGURE 2. Size of **cattle astragali** at Kings Meadow Lane, Higham Ferrers (KMLHF) in comparison with Castle Mall, Norwich (CMN) and Mill Lane, Thetford (MLT).
Measurements in tenths of mm.



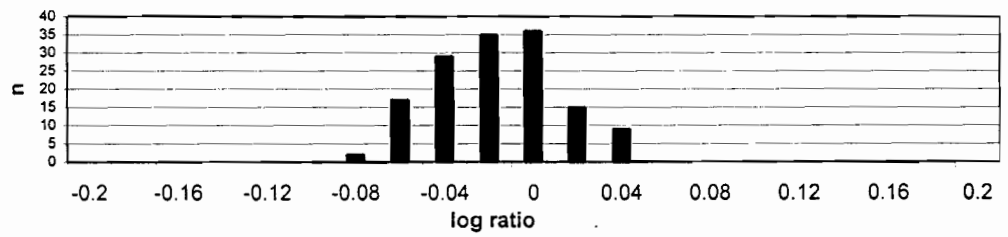
Castle Mall (Norwich) bones



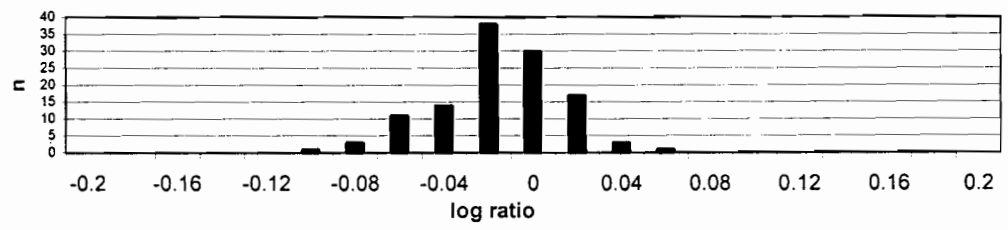
Mill Lane (Thetford) bones



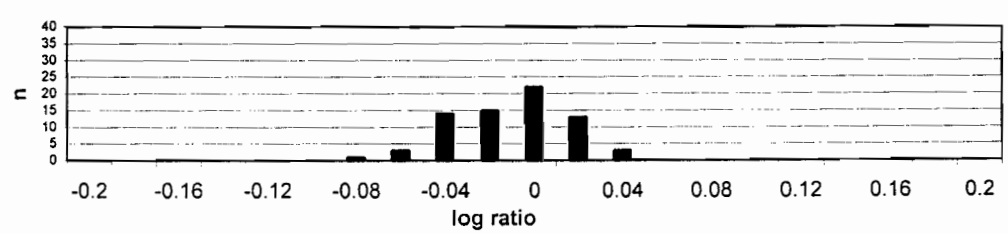
Kings Meadow Lane (Higham Ferrers) bones



Castle Mall (Norwich) teeth



Mill Lane (Thetford) teeth



Kings Meadow Lane (Higham Ferrers) teeth

FIGURE 3. Comparison of pig measurements from Thetford, Mill Lane (10th-12th AD), Norwich, Castle Mall (late 9th-11th AD) and Kings Meadow Lane, Higham Ferrers (Saxon). Tooth and post-cranial bone measurements are compared with a standard sample of Neolithic domestic pigs (Albarella and Payne unpublished data) (the "0" in the histograms), using the log ratio technique (Payne and Bull 1988).

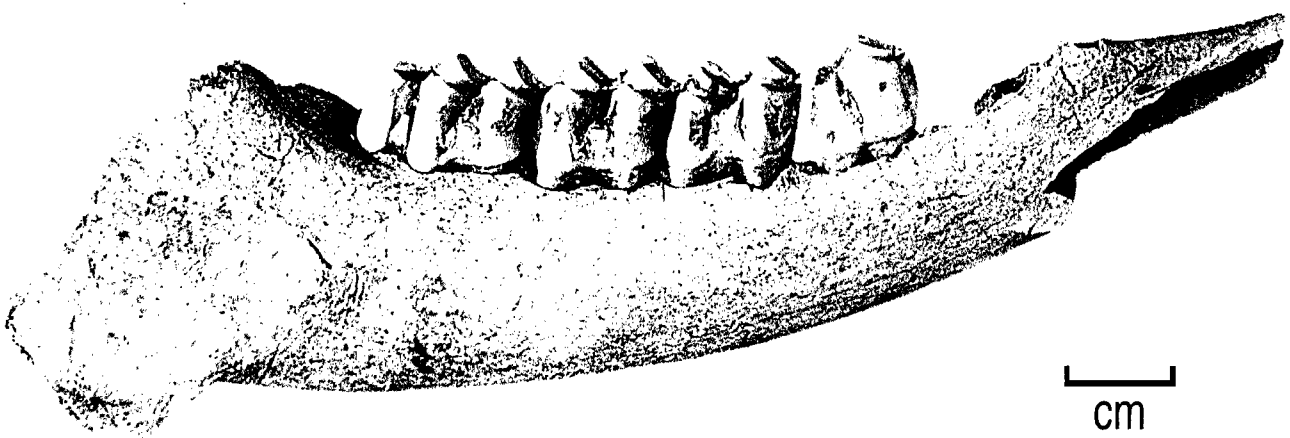


PLATE 1. Roe deer (*Capreolus capreolus*) mandible from phase 1 (context 1254)

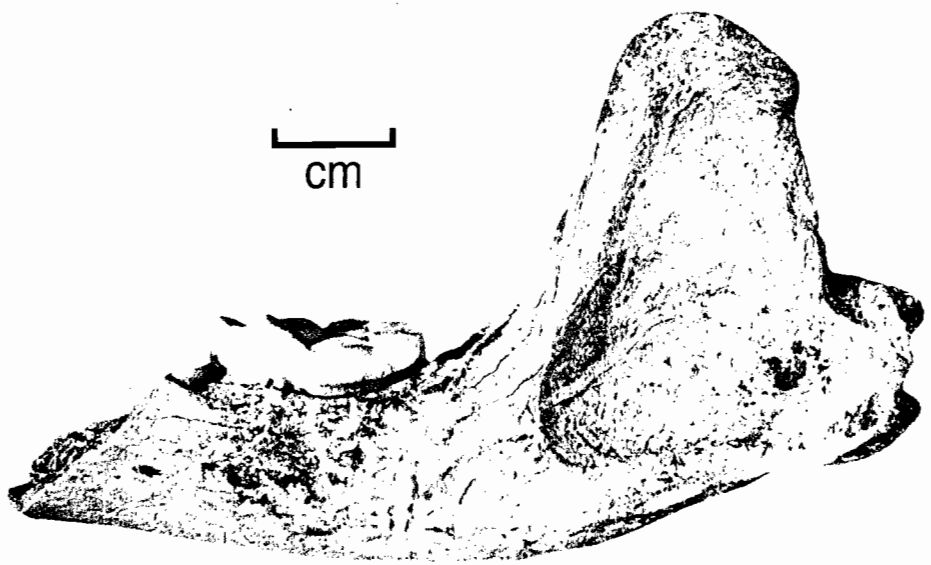


PLATE 2. Badger (*Meles meles*) mandible from phase 2 (context 2438)

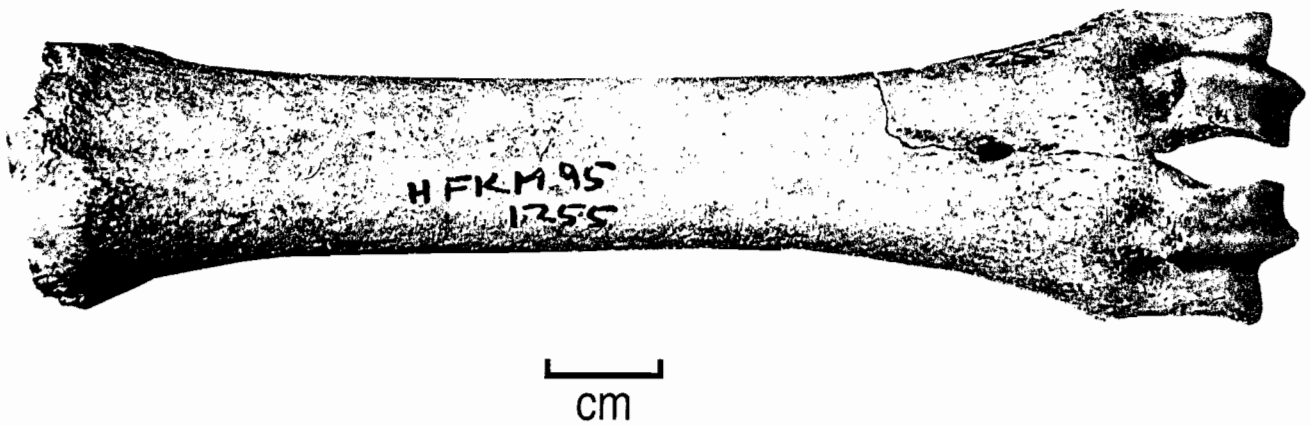


PLATE 3. Goat (*Capra hircus*) metacarpal from phase 1 (context 1255)

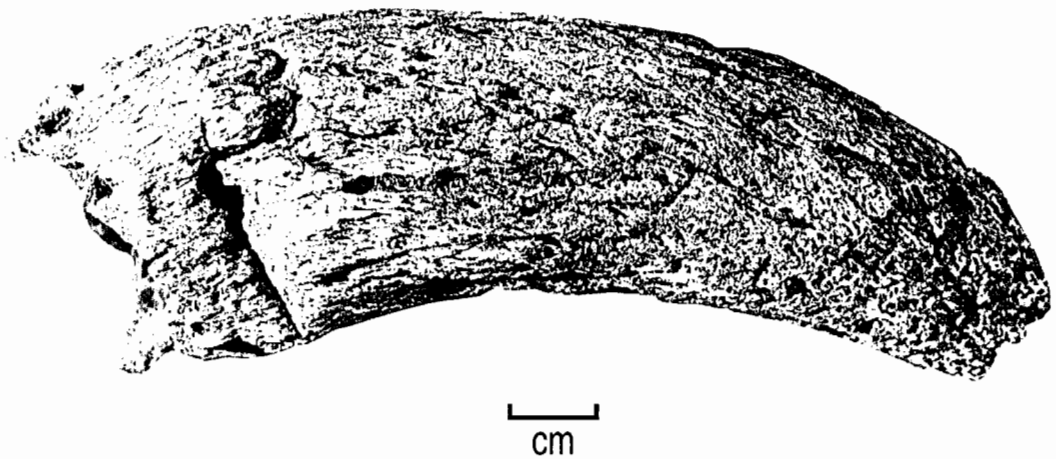


PLATE 4. Cattle (*Bos taurus*) horncore with chopping marks at its base from phase 1 (context 1268)