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Ancient Monuments Laboratory
Report 47/1999

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Summary

1381 hand recovered animal bones and teeth were identified and recorded from the late Iron Age site at Wardy hill. Most belonged to sheep (50%), cattle (27%), pig (13%) and horse (4%) and a small number of other species. However, consideration of the teeth alone indicates that sheep were perhaps even more abundant with a sheep: cattle:pig ratio of the order 6:2:1. The rather high frequency of sheep is typical of many though not all Iron Age sites in England. The presence of several aquatic taxa including otter and pike attest to the wet environment.

The sheep were small and slender-limbed and the majority were slaughtered within the first three years of life indicating that they were probably kept primarily for their meat.

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ANCIENT MONUMENTS LABORATORY REPORTS SERIES

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Simon JM Davis

Abstract

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Animal bones from the Iron Age site at Wardy Hill, Coveney, Cambridgeshire, 1991/92 excavations

Simon JM Davis

Introduction

The Iron Age site at Wardy Hill, Coveney, is 5km west of Ely in Cambridgeshire (TL 478820). It was excavated by the Cambridge Archaeological Unit under the direction of Christopher Evans over a period of four months in 1991 and 1992. The site had been known from cropmarks which indicated a double-ditched enclosure. With an elevation of 2.7m Wardy Hill is one of the lowest sites known for this period and was probably situated on the Iron Age fen-edge and protected nearly all round by the fen. The enclosure had remarkable defences at its landward entrance and contained circular dwellings. Wardy Hill is thought to have served as a local centre for the many Iron Age sites in the Ely region. Other finds included lithics, worked stone, metal and metalworking debris, fired clay and ceramics. One extraordinary find was a decorated stave from a bucket or tankard (see Evans 1992 and 1997). This report describes the rather small collection of animal bones and teeth.

The vertebrate remains (tables 1 and 2)

Most of the animal remains derive from the late Iron Age dated to between 100 BC to c. 50 AD and were recovered by hand. Some smaller bones of large animals and bones of smaller animals and isolated teeth may well have been missed. A total of 1053 bones, mandibles and isolated teeth were recorded. They will be stored at the Museum of Archaeology and Anthropology, University of Cambridge, Downing Street. A programme of sieving was undertaken, but sadly the small bones retrieved as a result have been lost. This has serious implications regarding the proportion of smaller species especially fish and bird, as it is impossible to estimate their original abundance.

Methods

For a full description of the methods used see Davis (1992). In brief, all mandibular teeth and a restricted suite of "*parts of the skeleton always recorded*" (ie a predetermined set of articular ends/epiphyses and metaphyses of girdle, limb and foot bones) were recorded and used in counts (see table 1). In order to avoid multiple counting of very fragmented bones, at least 50% of a given part had to be present for it to be counted. Single, metapodial condyles of caprines and cattle were counted as halves, as were each of the two central pig metapodials.

A mammal-bone epiphysis is described as either "unfused" or "fused" - "unfused" when there are no spicules of bone connecting epiphysis to shaft so that the two separate easily, and "fused" when it cannot be detached from the metaphysis. Caprine teeth were assigned to the eruption and wear stages of Payne (1973 and 1987), pig and cattle teeth were assigned to the eruption and wear stages of Grant (1982).

Measurements taken on the humerus and cattle metapodials are illustrated in Davis (1992: figures 1 and 2) and on pig teeth follow Payne and Bull (1988). In general, other measurements taken are those recommended by von den Driesch (1976).

Results and discussion

a) Preservation and recovery.

Most bones (and their surface structures) are well preserved, though some, prior to incorporation into the soil, have suffered from the action of carnivores (see below).

b) Species represented and their size (tables 1 - 3, and appendix)

Sheep and goat. Caprine teeth and bones are generally difficult to determine to species. Some, such as the dP_3 and dP_4, astragalus, metapodials and terminal phalanges (Payne, 1969, 1985 and Boessneck, 1969) are relatively easy to identify as either sheep or goat. As table 1 indicates, all or nearly all the caprine bones at Wardy Hill belonged to sheep. There was no evidence for the presence of goat. In the British Iron Age goats are believed to have been kept in very small numbers only (Grant, 1984a). For the purposes of further study (eg biometry and age at death) the sheep/goat teeth and bones are referred to herein as sheep.

The sheep at Wardy Hill as well as sheep from several other Iron Age, Roman, Medieval and post-Medieval sites in England are compared with a sample of 26 modern unimproved Shetland ewes by means of a log ratio diagram (see figures 1-3). Sheep stature and shape undoubtedly changed in the course of time in England, though evidence for this is only beginning to emerge from zoo-archaeological studies. As more assemblages are studied biometrically it is becoming increasingly clear that sheep significantly increased in size during the early part of the post-Medieval.

The Medieval - post-Medieval data from Launceston Castle (Albarella and Davis, 1996) are shown in the figures to serve as a scale against which earlier changes may be compared. These figures show that the Wardy Hill sheep bones were similar to those from the other Iron Age sheep in Hampshire as well as the small sample from Barrington in Cambridgeshire. These Iron Age sheep were clearly small with the majority of the measurements falling well to the left of the "0" line in the log-ratio plots. Since the standard sample comprised ewes only and the archaeological sheep probably included some rams (which are larger than ewes), these Iron Age sheep must have been very small indeed. Moreover, the lengths of a number of the Wardy Hill bones lie well to the left (figure 2) and suggest that many of the Wardy Hill sheep were of very short stature also. Of the two Roman samples, Owslebury and Lanes (Carlisle), those from Owslebury are somewhat more robust ($t = 3.1$ $p < 0.01$) but the difference is slight. The Medieval sheep from Launceston, however, are more robust than the Iron Age and Roman ones shown here.

Cattle. The cattle at Wardy Hill were fairly small - similar to the ones found at Barrington (Table 4; Davis, 1995).

Equids. Equid bones and teeth can also be difficult to identify to species (most ass and horse bones for example are easily confused). The Wardy Hill equid teeth undoubtedly belonged to horse: the enamel folds on the biting surfaces of the mandibular teeth had "U" shaped lingual folds and the buccal folds partially penetrate between the flexids in the molars (see Eisenmann, 1981). Given the difficulties in distinguishing skeletal remains of horses and donkeys, the presence of the latter species cannot entirely be ruled out.

There are four horse metatarsals (see appendix). Their lateral lengths in millimetres are 218.6 (context 605), 219.7 (context 603), 231.7 (context 355) and 245.6 (context 404). Multiplying these measurements by Kiesewalter's factor (ie 5.33; von den Driesch and Boessneck, 1974), indicates their withers heights ranged from 1.17 to 1.31 metres or from 11 hands 2 inches to 13 hands. Since the pony - horse boundary lies at 14 hands 2 inches, the Wardy Hill metatarsals belonged to ponies rather than horses. According to Coy and Maltby (1987) Iron Age ponies ranged from 10-14 hands.

Pigs. The absence of any especially large specimens of *Sus* suggests that the small sample of pig bones and teeth belonged to the domestic pig rather than its large relative, the wild boar, which survived in England until the 17th century (Harting, 1880; 102). In figure 4 the pig measurements are compared with the "standard" values calculated from the Neolithic sample of pigs from Durrington Walls (Albarella and Payne, forthcoming). This method allows a comparison to be made of different measurements. Thus most of the Wardy Hill pig measurements are to the left of the "0" Durrington "standard" line. It seems likely then that after the Neolithic the size of the English pig decreased.

Dog. There is nothing particularly remarkable about the dog bones and teeth at Wardy Hill. Most of their measurements (see appendix) indicate dogs of medium size. By way of comparison most fall in between the AML reference collection Collie (18 inches at the shoulder) and the AML reference collection Labrador (23 inches at the shoulder). Small lap dogs, almost certainly a luxury, did not apparently appear in Britain until Roman times and were, as indeed they are today, a luxury (Harcourt, 1974).

Otter. Otter-hunting was once a popular amusement in England "pursued with much pomp and circumstance" (Bell, 1837; 132). Bailey et al. (1981) found an otter mandible in the Iron Age at Meare Village West.

Galliform. The bones of chicken (known from the late Iron Age in Britain; Bate, 1934), guinea fowl and pheasant (both of which were known to the Romans) are difficult to distingish, although some such as the tarso-metatarsus and the femur can help in this respect (MacDonald, 1992). Unfortunately no diagnostic galliform bones were found at Wardy Hill. The chicken is descended from the red jungle fowl of south and south-east Asia. It was introduced westwards by the Medo-Persian invaders and had become common in the Mediterranean by the 6th century BC (Hehn, 1888; Crawford, 1984). Chicken is known from Hallstatt-La Tène periods in central Europe and was perhaps introduced into Britain during the centuries before the Roman invasion. Julius Caesar wrote that chickens were kept by the ancient Britons for amusement but they considered it unlawful to eat them (Gallic War, V, 12).

Pike. Apart from a pike mandible, 9 pike vertebrae were found in contexts 328 and 329. They measure approx 18 x 16 mm in diameter and therefore derive from large fish - probably over a metre long (Locker pers. comm.). This "exceedingly common" fresh-water fish was, according to Yarrell (1836), highly esteemed in Medieval times. He quotes (page 384) a Rev. Sheppard who noticed "an annual migration of Pikes which takes place in spring in the Cam into which river they come in great shoals, doubtless from the fens in the neighbourhood of Ely". Yarrell also describes how pike are caught in the Norfolk broads using liggers or cylindrical floats, made of wood, cork or rushes 8 - 15 feet long from which hooked bait is suspended.

Other taxa. The remains, though scarce, of hare, fox, badger, and birds as well as the pike and otter all testify to some hunting, fowling and fishing by the inhabitants of Wardy Hill. It is most probable that there were more fish, bird and small animal bone. The loss of the sieved samples is to be regretted. There are two fragments of deer (probably red deer) antler, one is sawn, suggesting the use of this material for tool production. The absence of other deer bones is worth noting, but in view of the total size of the assemblage, may not be of any great significance. According to Grant (1984a) wild animals are very rare on most Iron Age sites in Britain.

c) Frequencies of taxa

To take the site as a whole, of the 1412 recorded bones and teeth, 50% belonged to sheep, 27% to cattle and 13% to pig. A close look at the counts of teeth and bones in table 1 indicates that the "minimum numbers" of the different species can be estimated as follows: sheep 60 (first + second molars divided by 4); cattle 17 (third molars divided by 2); pig 10 (first + second molars divided by 4); horse 3 (deciduous + permanent fourth pre-molars divided by 2). Undoubtedly hand collection has meant that many of the smaller bones and teeth, especially of the smaller taxa, were lost during excavation. A closer look at table 1 shows that sheep were probably considerably more common than cattle than is indicated by the total bone counts. There are approximately three times as many sheep molars (324) than cattle molars (97). (See also under "d" below.) These teeth tend to preserve well, are less likely to be destroyed by dogs, and are easier to see on excavation. They may therefore provide a better estimate of the ratio of sheep to cattle at Wardy Hill, ie 3 to 1. While the molars suggest three times as many sheep as cattle, the bones suggest a very much lower sheep:cattle ratio - note there are 18 sheep and 11 cattle humeri, 15 sheep and 16 cattle ischia and only 12 sheep but 22 cattle calcanea. Similarly the pig to cattle ratio was perhaps 1:2 with 56 pig molars and 97 cattle molars. In sum then the ratio of sheep:cattle:pig was probably 6:2:1. Given the small size of sheep teeth, sheep were probably even more common than this "molar ratio" suggests. Notwithstanding recovery (as well as preservation) biasses, and given the greater size of cattle (a cow in the Iron Age probably equalled six sheep in terms of dietary yield), the inhabitants of Wardy Hill probably had two beef meals for every one of lamb/mutton and pork.

How does Wardy Hill compare in terms of the relative numbers of cattle and sheep with other contemporary fen-edge sites, and with other Iron Age sites in England in general? At Cat's Water, Peterborough, cattle comprise 45% and sheep only 39% (Biddick, 1984). At Outgang Road, Market Deeping, cattle comprise 42% and sheep only 38% (Albarella, 1997). But at another fen-edge settlement - Upper Delphs, Haddenham - sheep far outnumber cattle (Evans and Serjeantson, 1988). In general terms, with its high sheep:cattle ratio Wardy Hill is typical of contemporary sites across the country (table 3). The abundance of sheep compared to cattle appears to be a characteristic of first millennium Iron Age sites in England, especially the second half. This general increase in the numbers of sheep throughout the first millennium is linked to the spread of downland arable, with even higher frequencies of sheep occurring on sites located on higher ground such as chalk downland (Grant, 1984a; Cunliffe, 1991). At Danebury for example sheep numbers were as high as 70% (Grant, 1984b). Robinson and Wilson (1987) noted that the percentages of sheep remains on 12 Iron Age sites in the midlands ranged between 25% and 63% while on 15 Romano-British sites these percentages dropped to between 12% and 45% with pig and cattle becoming more frequent (see also King, 1978). Thus with its predominance of sheep over cattle and pig the Wardy Hill fauna is typical of most but not all Iron Age sites in southern Britain. However, given the problems of recovery and preservation, variations of the sheep:cattle ratios must be regarded cautiously. Another point of interest is the rather low percentage of pig. Annie Grant (in press) suggests that in the Iron Age there is a correlation between relatively high proportions of pig remains and high status occupation, although she cautions that the 'high' percentages are rather lower than those of Roman and Medieval periods. Those with little pig are low status or ordinary rural sites. The Celts prized pork above all other flesh and regarded it as the food of the gods (Ross, 1967; 313).

d) Parts of the skeleton present, carnivore activity and butchery marks.

There are insufficient bones to investigate possible body-part preferences in any detail. There is little evidence from the counts of postcranial bones in table 1 for any especial preference for particular parts of the skeleton. All parts of the skeleton of cattle, sheep and pig are represented if rather unequally. Variations between the different parts probably reflect differential preservation (Brain, 1967) and recovery (Payne, 1975).

As mentioned above, the numbers of teeth compared to bones in table 1 reveals a very striking disparity. Take the sheep for example. From the teeth alone 60 animals (ie numbers of $[M_1 + M_2 + M_{1/2}] \div 4$) are represented, while there are at most only 11 individuals (from the numbers of tibiae) indicated by the limb-bones. This exceptionally high ratio of teeth to bones is probably due in part to the poorer rate of preservation of bone as well as the action of dogs, who tend to avoid teeth, and appears to characterise many rural sites where the rate of deposition may have been lower (than in towns) and dogs were perhaps more common (Albarella and Davis, 1994). Indeed some bones at Wardy Hill had been gnawed (21 or 13% of cattle, 6 or 14% of pig, 3 or 10% of horse and only 6 or 4% of sheep; see table 5). Several bones, all small sheep bones, show the typical pattern of partial digestion (as described by Payne and Munson, 1985). They are: two astragali (contexts 55 and 352), two calcanea (contexts 316 and 328) a distal metapodial condyle (context 401) and a complete proximal phalanx (context 31). They and the gnawed bones probably reflect carnivore activity. This generally poor rate of preservation makes it difficult to draw safe conclusions regarding the age-at-death pattern of the more common animals (see below). (In contrast, the *low* ratio of horse teeth to horse bone is worth noting, but difficult to explain.)

A few bones (two cattle, three sheep and two pig) had cut marks and a few (three cattle and one pig bone) had chop marks (table 5), but these numbers are too small to allow meaningful comparisons between taxa. It is a little surprising that so few animal bones appear to show signs of butchery.

e) Age distribution of animals culled (table 6)

Given (see above) the extremely poor preservation of the faunal assemblage at Wardy Hill, age-at-death data have to be treated with caution. One standard technique used by zoo-archaeologists is to assign complete or nearly complete mandibles to eruption and wear stages (for caprines the criteria of Payne, 1973 are often used). This works well for sites where the majority of teeth are still in their mandibles. However, for assemblages of very fragmented bones - and Wardy Hill certainly falls in this category - many of the younger (more fragile) mandibles will have broken up. Hence a bias results which favours adult mandibles. Over 60% of the sheep/goat ageable mandibles at Wardy Hill are in Payne's (1973) age classes "F" (3-4 years) and "G" (4-6 years). Closer inspection of tables 1 and 6, however, indicates a very different picture. Note firstly the high proportion of dP_4s. This last milk pre-molar tooth is not shed in sheep/goat until the end of the second year when it is replaced by P_4. The ratio dP_4:P_4 is 64:49. I would not interpret this as indicating a predominance of 1 and 2 year old animals, since P_4 is a much smaller tooth than dP_4 and therefore much less likely to be recovered, especially in an assemblage such as Wardy Hill consisting of mostly isolated teeth. Perhaps it is safer to consider the dP_4:M_3 ratio. The third molar, of similar size to dP_4, erupts at about the same time as the dP_4-P_4 replacement. The dP_4:M_3 ratio, 64:85, indicates that perhaps around 43% of the sheep were slaughtered before reaching the age of 24 months. And (see table 6) the scarcity of dP_4s in very young wear stages suggests many of these were from sheep slaughtered over 6 months of age (see Deniz and Payne, 1982). Since many of the M_1s are in stage 9 which lasts until animals are into their third or fourth year, the overall pattern is one of culling in the first three or four years of life suggesting an emphasis on meat-production. This does not of course mean that sheep were not milked nor shorn of their fleeces too, merely that the *emphasis* was on meat. A similar conclusion can be drawn from the cattle teeth data, with a dP_4:M_3 ratio of 22:33, again indicating a probable emphasis on meat.

This emphasis on mutton and beef is similar to that observed at Outgang Road where Albarella (1997) interpreted the dental data as indicating sheep were probably kept for their meat as well as wool and milk, and the cattle were probably more highly valued for their traction power and milk. At Barrington too the majority of the sheep were culled quite young suggesting an emphasis on meat (Davis, 1995) and Albarella (1997) suggests that meat may have been the main product of sheep husbandry during the English Iron Age. However, according to Grant (1984a) there was considerable variation in sheep-husbandry practises in the Iron Age. Wool may have become increasingly important as evidenced by the findings of loom weights, spindle whorls and weaving combs (Ryder, 1983). Robinson and Wilson (1987) suggest too that the provision of meat from relatively young animals was a major aim of sheep husbandry, though there may well have been considerable demand for secondary products. Subsequently, evidence suggests that the Romans slaughtered sheep at later ages implying greater emphasis on milk and wool (Robinson and Wilson, 1987).

As is generally the case for pig, an animal bred mainly for its meat and fat, most of the pigs at Wardy Hill were culled when young. The dental eruption and wear data for pigs indicate that the majority were probably slaughtered in their second and third years. Note that there are relatively few dP_4s in comparison to P_4s (the dP_4 is shed and P_4 erupts during the pig's second year; Bull and Payne, 1982) and most of the M_2s are in early wear stages. Unfortunately there are insufficient pig bones to corroborate the dental evidence.

Small numbers of bones/teeth of foetal or new-born sheep, pigs, cattle and horses indicate that these animals were probably bred at Wardy Hill, rather than being imported from elsewhere. This, rather unsurprisingly, suggests that the people of Wardy Hill were themselves husbanders of livestock.

These culling patterns for the Wardy Hill sheep and cattle may corroborate the archaeological interpretation of the site. If indeed it served as a "local centre" (Evans, 1992 and 1997) then the animal bones may represent the left-overs of meals served to the guests visiting this centre. In other words rather than being a small farming settlement existing at subsistence level, the farmers of Wardy Hill were having to supply meat meals to their guests. A word of caution is required here. If Wardy Hill was a high status settlement, then its inhabitants, in addition to locally reared livestock, may have purchased prime meat animals from surrounding settlements - whose economy might well have been based upon milk and/or wool. One way to test this will be to study the animal bones from surrounding settlements to see whether those sheep were slaughtered at a later stage of their lives.

f) Other anomalies and pathology

In artiodactyls the lower third molar tooth is characterised by having three pillars. (First and second molars only have two.) The third pillar, or hypoconulid, is somewhat smaller, and occasionally fails to develop. The cause of this failure is not understood and it may be an inherited trait. Of the 31 cattle M_3s at Wardy Hill whose completeness could be seen, 2 have missing hypoconulids. Note however that due to a high degree of fragmentation at Wardy Hill, most teeth are isolated. Hence one or two M_3s with missing hypoconulids, ie with only two pillars, (and therefore resembling M_1s or M_2s) may have been identified as $M_{1/2}$s. Of 12 M_3s in their mandibles containing at least one other tooth (ie cases where identity of the tooth as M_3 is certain), one has a missing hypoconulid. So perhaps it is more prudent to suggest that the frequency of cattle M_3s at Wardy Hill with missing hypoconulids is 1/12.

An equid distal femur from context 120 has an eburnated articular surface. A distal cattle metatarsal from context 307 has rather pronounced eburnation on its articular surface and the medial condyle had expanded medially giving the whole distal part of the bone an asymmetric appearance. These conditions may develop in old individuals and could be associated with old work animals and animals which have suffered excessive strain to their limbs.

g) The environment

The presence of otter, water vole, geese, ducks, swan and amphibia indicate the presence of water at or near the site which is hardly surprising given its fen-edge location. At other fen-edge Iron Age sites such as Haddenham (Evans and Serjeantson, 1988) and Outgang Road (Albarella, 1997) these taxa were also found, though unlike these two sites, beaver is strikingly absent from the Wardy Hill assemblage. Peter Murphy tells me that the plant remains from Wardy Hill, currently under study, also indicate a wet environment.

h) Variation across the site

With so few bones, comparisons between different dwellings have little statistical significance. However, the following three main feature types: the *main building*, the *inner ringwork circuit* and the *outer ringwork circuit* (Evans, pers. comm.) contain between them approximately 80% of the animal remains from Wardy Hill. I have tried to examine to what extent these three feature types differ zoo-archaeologically. The species frequencies (table 7) reveal that there are rather more bones of large animals (cattle and horse) and dogs than small food-animals (sheep and pig) in the outer ringwork circuit than in the inner ringwork circuit or the main building, indeed almost all the dog bones derive from the outer ringwork circuit. One possible explanation for this discrepancy between inner and outer precincts is simply that large bones, being more obtrusive, and bones of animals which were not consumed (dog and ?horse) tended to be preferentially jettisoned to the periphery of the site. Wilson (1992) discusses the deposition of animal bones on Iron Age sites and considers that it is not surprising that bones of horse and dog were treated differently from those of the main food animals. At the Iron Age site of Mingies Ditch, Wilson (1992) writes "horse and dog bones appeared less commonly associated with domestic activity areas (hearths and houses) and occurred peripherally, ... a pattern suggesting waste disposal of coarse debris including articulated bones of dog."

Besides species frequencies, I have also considered (table 8) the ratio of limb-bones to proximal+terminal phalanges (phalanges are small). If indeed larger bones were preferentially jettisoned away from the site's centre then we might expect the limb-bone:phalanges ratio to be higher in the outer ringwork circuit than in more central areas of the site. For the cattle bones this does appear to be the case since there are more cattle limb-bones than phalanges in the outer ringwork circuit than in the main building, although the inner ringwork circuit resembles the outer one! The result, however, for the sheep bones is unclear - they do not show any explainable pattern.

Summary and conclusions

Most of the faunal remains from Wardy Hill belonged to sheep (at least 60 individuals), cattle (at least 17 individuals), pig (at least 10 individuals) and horse (at least 3 individuals). Teeth are hugely over-represented compared to bones - probably due to considerable attrition by dogs and weathering prior to the animal remains becoming incorporated into the archaeological record. The probable ratio of sheep:cattle:pigs on the basis of the numbers of their molar teeth was probably 6:2:1. Given the greater weight of cattle compared to sheep, the frequencies of the species at Wardy Hill indicate that more of the meat consumed was probably beef, followed by lamb/mutton and some pork. The relatively high percentage of sheep (as indicated by the dental remains) seems to concur with many, though not all, Iron Age sites in England.

The sheep (there was no evidence for goat) were similar in size (and probably also conformation) to Roman and Medieval sheep. They were small compared to modern unimproved Shetland sheep. The rather higher proportion of lamb as opposed to adult sheep teeth suggests that the sheep were kept with an emphasis upon meat production. No doubt their milk and wool were exploited too.

There were also remains of medium-size dogs. The presence of aquatic animals such as otter, swan, ducks and pike is hardly surprising in view of the site's location at the edge of the fen.

Acknowledgements

I am grateful to Christopher Evans for inviting me to study this collection of animal remains. I have had useful discussions with Sebastian Payne - especially concerning the problem of interpreting the dental wear stages. Umberto Albarella and Dale Serjeantson both gave me useful advice concerning Iron Age England. Polydora Baker confirmed my identification of the pike bones. I thank Umberto Albarella and Sebastian Payne for commenting upon an earlier version of this report, and Kate Clark for kindly arranging the electronic despatch of measurements of Iron Age sheep bones from the Southampton University ABMAP data base.

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		Cattle	Sh/Goat	Pig	Horse	Dog	Hare	Others
Teeth (mandibular)	I	22	15	24	[14]*	-	-	Water vole 3
	dI	3	2	2	-	-	-	
	C	-	-	19 (13m+6f)	[3]*	[6]*	-	Cat 1
	dC	-	-	-	-	-	-	
	P_1	-	-	-	-	-	-	
	P_2	4	-	4	3	2	-	
	P_3	11	30	12	-	3	-	Cat 1, Fox 1, Otter 1
	P_4	13	49	19	2	4	-	Cat 1, Otter 1
	dP_2	10	16	-	-	-	-	
	dP_3	16	41 (37=Sh)	1	2	-	-	
	dP_4	22	64 (64=Sh)	3	3	-	-	
	M_1	19	79	17	-	5	-	Cat 1, Otter 2, W vole 2
	M_2	16	62	17	-	4	-	Fox 1, Water vole 2
	M_3	33	85	16	1	1	-	
	$M_{1/2}$	29	98	6	1	-	-	
Scapula (glenoid)	U	-	5	1	-	-	-	?Red deer 1
	F	8	9	4	2	1	-	
	?	4	4	3	1	-	-	
Distal humerus	UM	1	1	-	-	-	-	
	UE	-	-	-	-	-	-	
	F	10	17 (11=Sh)	9	4	3	-	Badger 2
Distal radius	UM	2	7	1	1	-	-	
	UE	1	-	2	-	-	-	
	F	4	4	-	-	1	-	
Distal metacarpal	UM	-	7	.5	-	-	-	
	UE	-	-	-	-	-	-	
	F	6	4 (4=Sh)	-	-	-	-	Fox 1
C2		1	1	-	-	-	-	
Ischium (acetabulum)		16	15	3	3	-	-	
Distal femur	UM	2	3	1	-	-	-	
	UE	1	3	-	-	-	1	
	F	2	2	-	1	1	-	Fox 1
Distal tibia	UM	1	8	3	-	-	-	
	UE	-	1	1	-	-	-	
	F	15	13	4	4	1	1	
Calcaneum	U	4	4	-	-	-	-	
	F	1	5	-	-	-	-	
	?	17	3	2	1	-	-	
Astragalus		11	9 (3=Sh)	4	2	1	-	
Distal metatarsal	UM	2	4	-	-	-	-	Otter 1
	UE	1	-	-	-	-	-	
	F	6	5 (5=Sh)	.5	4	-	-	
Phalanx 1 proximal	UM	6	11	1	-	-	-	
	UE	1	-	-	-	-	-	
	F	29	18	1	6	5	-	
Phalanx 3		17	1 (1=Sh)	3	1	-	-	
Distal metapodial	UM	1.5	.5	-	-	-	-	
	UE	1	2	-	-	-	-	
	F	1.5	.5	-	1	7	-	
Other bones								2 Red deer antler frags
Totals		371	708	183	52	42	2	
%		27	51	13	4	3	present	

Table 1. Numbers of mammal teeth and bones from Wardy Hill. Some sheep/goat bones could be identified to species and their numbers are given in brackets, where this was possible all were sheep (=Sh). UM = unfused metaphysis, UE = unfused epiphysis, F = fused end, m = male, f = female. The antler fragments are red deer. * The count of horse incisors and horse and dog canines include both upper and lower teeth, their totals are therefore halved to compute the total bone counts.

	n	%	n_{molars}	$\%_{molars}$
Cattle	371	27	97	20
Sheep/goat	708	50	324	64
Pig	183	13	56	12
Red deer	+		-	
Horse	52	4	2	
Hare	2		-	
Dog	42	3	10	2
Fox	4		1	
Cat	4		1	
Otter	5		2	
Badger	2			
Water vole	7		4	1
Galliform	5		-	
Raven	3		-	
Corvid	2		-	
Duck	12	1	-	
Goose	2		-	
Swan	1		-	
?Crane	1		-	
Woodcock	1		-	
?Thrush	1		-	
Buzzard	1		-	
Amphibia	2		-	
Pike	1		-	
Total =	1412		496	

Table 2.

Animal bones and teeth at Wardy Hill. The right hand column considers the numbers of molar teeth only, and in view of the probable poor preservation of many of the bones - especially the sheep - these numbers may well provide a truer estimate of the original frequencies of mammals at Wardy Hill.

	Wardy Hill	Cat's Water	Hadden -ham	Barring -ton	Dane- bury	Market Deeping	Baldock	Meare village
Sheep/goat	50	39	63	47	58	37	49	61
Cattle	27	45	18	25	21	41	28	24
Pig	13	7	4	14	11	7	18	13
Red deer	+	+		?+	1	+		
Horse	4	7		5	4	13	5	1
Dog	3	2		3	4	2	1	2
N	1412	5782	840	670	46358	320	(80)	1876

Table 3

Percentages of the main species of animals at Wardy Hill compared to those from some other Iron Age assemblages in England: Cat's Water Fengate (Biddick, 1984), Haddenham (Evans and Serjeantson, 1988), Barrington (Davis, 1995), Danebury (Grant, 1991), Outgang Road, Market Deeping (Albarella, 1997), Baldock (Chaplin and McCormick, 1986), and Meare village, Somerset Levels (Bailey et al. 1981). "N" is the total count of identifiable bones from which these percentages have been calculated. An exception is Baldock where the minimum numbers of individual animals were used and N is the total MNI.

	Barrington			Wardy Hill		
	n	mean	sd	n	mean	sd
M_3 length	5	36.3	1.8	22	35.2	1.6
M_3 width	10	16.1	0.8	25	15.5	1.0
Tibia Bd	9	56.3	5.0	10	54.3	3.4
Astragalus GLl	5	61.4	2.4	9	57.4	2.9
Astragalus Bd	7	38.6	2.5	9	36.2	2.7
Metatarsal Bd	3	50.4	3.1	4	51.6	4.3

Table 4.

Cattle measurements, Wardy Hill compared to Barrington

	Butchered/total bones	Gnawed/total bones
Cattle	5/182	21/182
Horse	?1/30	3/30
Pig	3/44	6/44
Sheep	3/170	12/170 [6 of which are semi-digested]
Dog	0/20	0/20

Table 5.

Wardy Hill - numbers of butchered and gnawed bones.

Sheep/goat

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	Unassigned
dP_4	-	-	-	-	-	-	-	-	-	-	-	1	-	11	37	1	1	2	3	3	-	-	1	1	-	3
P_4	-	-	-	-	1	-	2	1	5	10	-	2	25	1	1	1	-	-	-	-	-	-	-	-	-	-
M_1	-	-	1	-	1	2	5	6	3	32	2	2	12	-	3	8	-	-	-	-	-	-	-	-	-	2
$M_{1/2}$	-	-	4	3	4	6	9	17	7	37	-	1	2	-	1	1	-	-	-	-	-	-	-	-	-	2
M_2	2	-	3	-	-	2	3	3	1	41	1	1	1	-	-	-	-	-	-	-	-	-	-	-	-	2
M_3	5	1	4	1	6	5	4	2	6	8	9	27	-	-	-	-	-	-	-	-	-	-	-	-	-	2

Cattle

	a	b	b/c	c	c/d	d	e	f	g	h	j	k	l	m	n	Unassigned
dP_4	1	1	-	1	-	-	-	9	-	-	6	4	-	-	-	-
P_4	-	-	-	-	-	1	1	6	4	-	-	-	-	-	-	1
M_1	1	-	-	-	-	-	-	3	2	1	6	4	2	-	-	-
$M_{1/2}$	3	5	-	1	-	-	1	5	3	-	3	4	2	-	1	1
M_2	2	1	-	-	-	-	-	2	5	1	1	1	3	-	-	-
M_3	3	5	1	2	1	-	1	1	8	1	2	4	1	3	-	-

Pig

	a	b	c	d	e	f	g	h	j	k	l	m	n	Unassigned
dP_4	-	-	1	-	-	-	-	-	1	1	-	-	-	-
P_4	-	3	8	5	1	-	1	-	-	-	-	-	-	1
M_1	-	1	-	4	2	4	1	1	3	-	-	-	-	-
$M_{1/2}$	-	-	1	2	2	-	-	-	-	-	-	-	-	-
M_2	2	-	5	5	2	-	2	-	-	-	-	-	-	-
M_3	9	3	2	1	-	-	-	-	-	-	-	-	-	1

Table 6.

Dental wear stages of the sheep/goat (after Payne 1987), cattle (after Grant, 1982) and pigs (after Grant, 1982) at Wardy Hill.

	Main Building		Inner Ringwork Circuit		Outer Ringwork Circuit	
	Bones	Mndbls	Bones	Mndbls	Bones	Mndbls
Cattle	41	18	34	0	43	46
Sheep	45	58	50	84	20	31
Pig	11	23	8	16	6	0
Horse	3	0	8	0	16	0
Dog	0	0	1	0	15	23
n =	188	65	87	25	86	13

Table 7

Distribution of animal bones (Bones) and mandibles with two or more teeth (Mndbls) in different parts of Wardy Hill. The figures are percentages, and n represents the total counts for each column. Note that sample sizes are small especially for the mandibles so interpretation must be treated with caution.

	Main Building		Inner Ringwork Circuit		Outer Ringwork Circuit	
	Cattle	Sheep	Cattle	Sheep	Cattle	Sheep
Limb bones	31	57	14	22	23	14
Phalanges 1+3	29	11	5	16	8	1

Table 8

Distribution of numbers of main limb-bones (scapula, humerus, radius, metapodials, pelvis, femur and tibia) and phalanges (proximal and terminal) of cattle and sheep in different parts of Wardy Hill. Note that sample sizes are small so interpretation must be treated with caution.

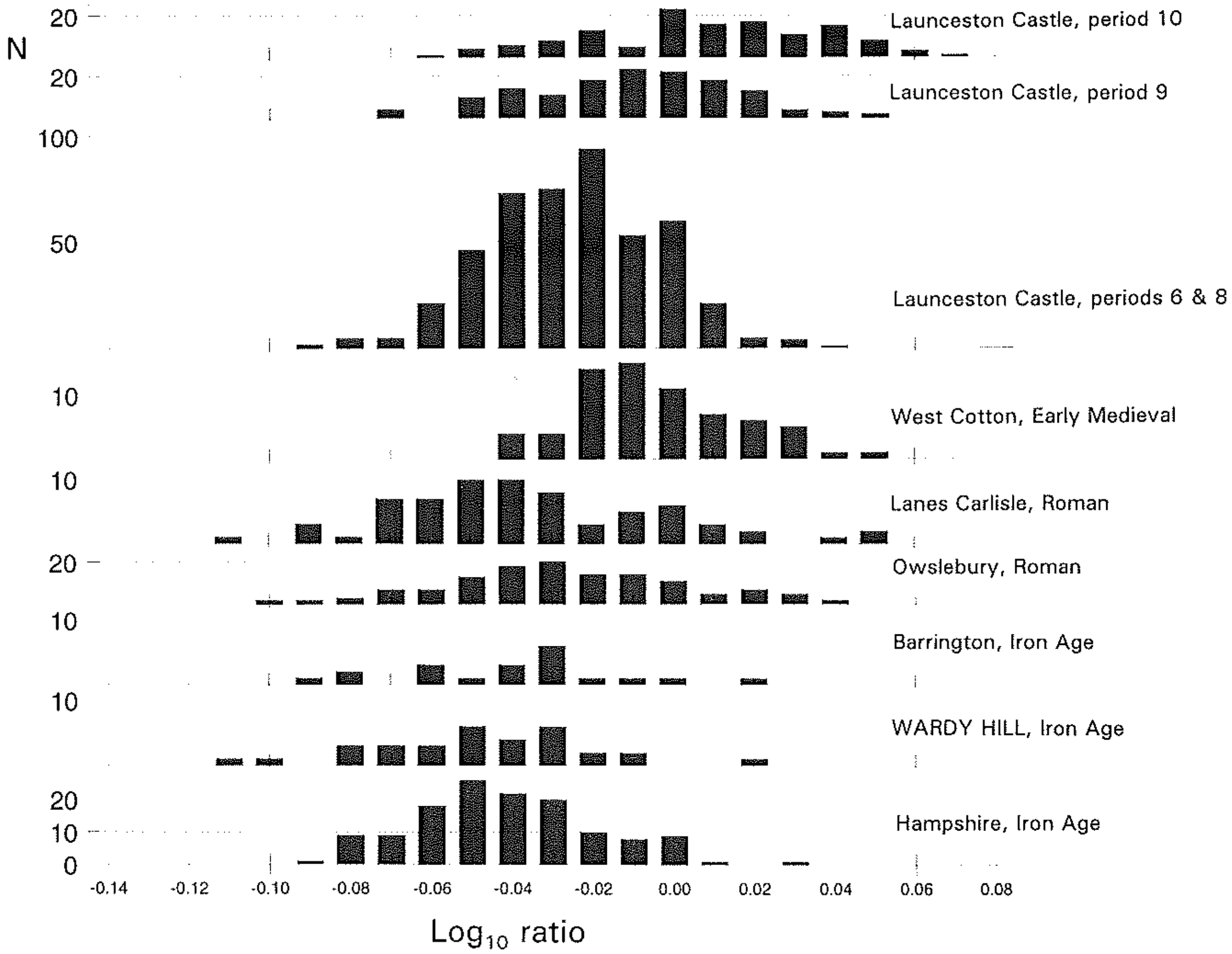

Figure 1

Sheep size in England. Measurements of the widths of the Wardy Hill sheep bones compared with the mean values of widths (the "0" line) of a sample of 26 modern Shetland ewes - Log ratio diagrams (from Davis, 1996). The following measurements are pooled: [humerus BT + metacarpal Bd + tibia Bd + astragalus Bd + metatarsal Bd]. Values which are greater than the Shetland mean are positive and lie to the right of the zero line, values which are less are negative and lie to the left. Samples of sheep bones from other sites are included for comparison, as follows, from bottom to top: four Iron Age sites in Hampshire (Balksbury, Micheldever Wood, Owslebury and Rope Lake Hall; from the 'Animal Bones Measurement project' of the University of Southampton - ABMAP); Wardy Hill, Cambridgeshire (this report); Barrington, Cambridgeshire, (Davis, 1995); Owslebury, Hampshire (Maltby, 1987); Lanes, Carlisle (Connell and Davis, in prep); West Cotton, Northamptonshire (Albarella and Davis, 1994); Launceston Castle, Cornwall (Periods 6 and 8 are Medieval, periods 9 and 10 are post-Medieval; in Albarella and Davis, 1996). Data from Owslebury were kindly supplied by Mark Maltby, and from ABMAP by Kate Clark.

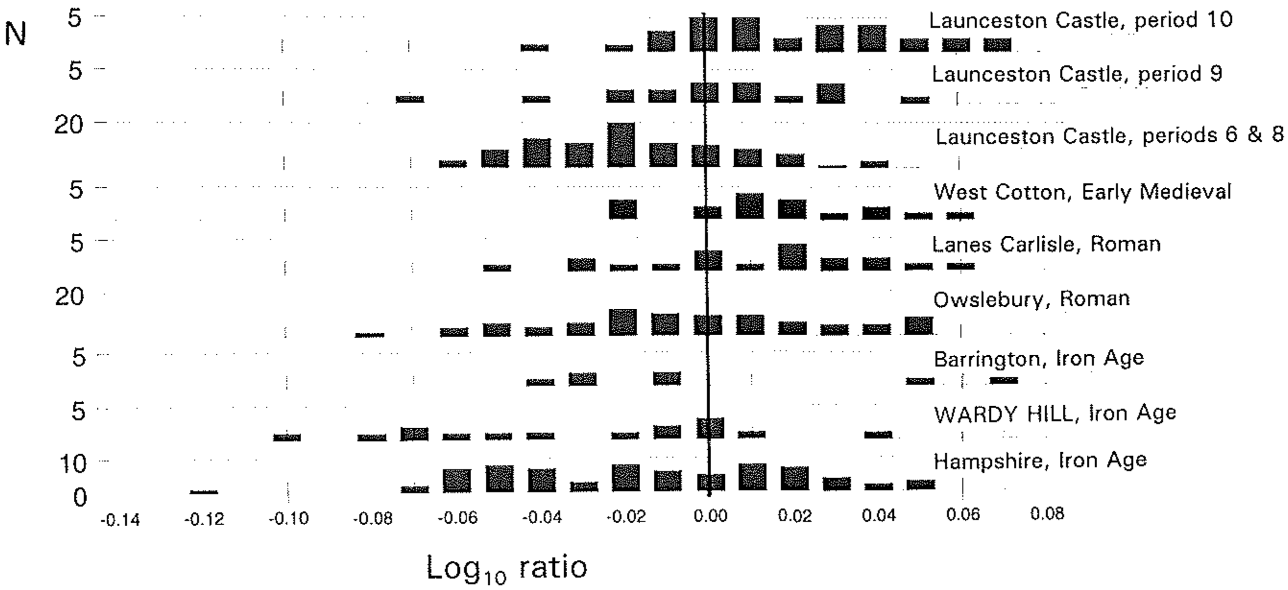

Figure 2

Sheep size in England. Measurements of the lengths of the Wardy Hill sheep bones compared with the mean values of lengths (the "0" line) of a sample of 26 modern Shetland ewes - Log ratio diagrams (from Davis, 1996). The following measurements are pooled: [metacarpal GL + tibia GL + calcaneum GL + astragalus GL + metatarsal GL]. Values which are greater than the Shetland mean are positive and lie to the right of the zero line, values which are less are negative and lie to the left. Samples of sheep bones from other sites are included for comparison, as follows, from bottom to top: four Iron Age sites in Hampshire (Balksbury, Micheldever Wood, Owslebury and Rope Lake Hall; ABMAP); Wardy Hill, Cambridgeshire (this report); Barrington, Cambridgeshire, (Davis, 1995); Owslebury, Hampshire (Maltby, 1987); Lanes, Carlisle (Connell and Davis, in prep); West Cotton, Northamptonshire (Albarella and Davis, 1994); Launceston Castle, Cornwall (Periods 6 and 8 are Medieval, periods 9 and 10 are post-Medieval; in Albarella and Davis, 1996). Data from Owslebury were kindly supplied by Mark Maltby, and from ABMAP by Kate Clark.

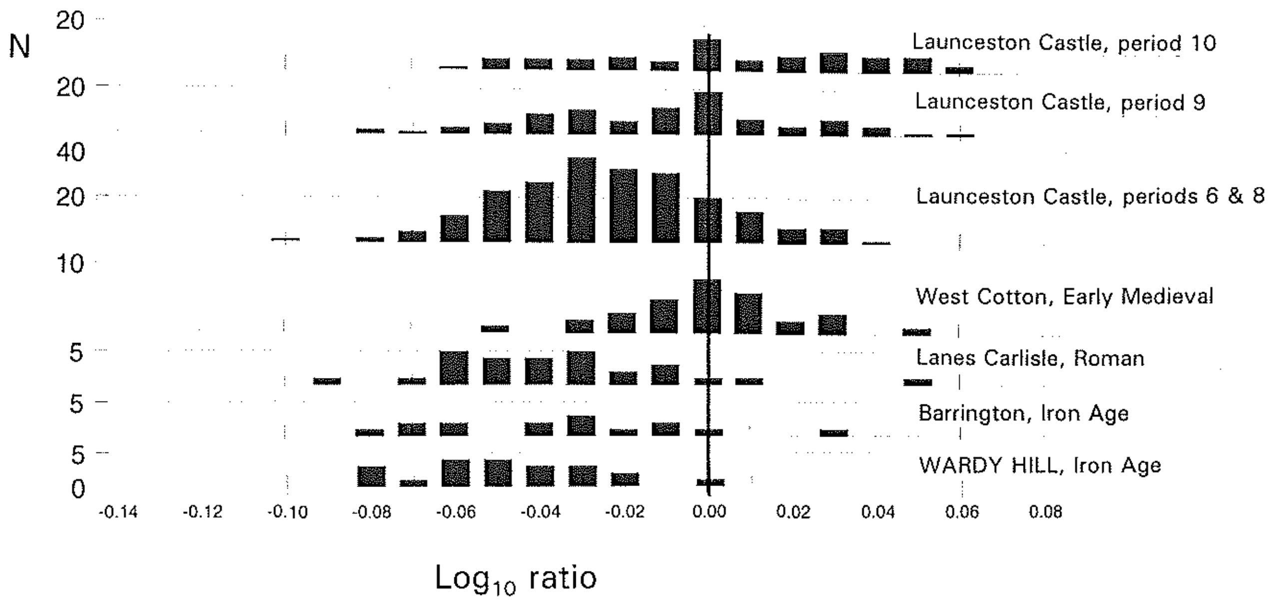

Figure 3

Sheep size in England. Measurements of the depths of the Wardy Hill sheep bones compared with the mean values of depths (the "0" line) of a sample of 26 modern Shetland ewes - Log ratio diagrams (from Davis, 1996). The following measurements are pooled: [humerus HTC metacarpal DEM + astragalus Dd]. Values which are greater than the Shetland mean are positive and lie to the right of the zero line, values which are less are negative and lie to the left. Samples of sheep bones from other sites are included for comparison, as follows, from bottom to top: Wardy Hill, Cambridgeshire (this report); Barrington, Cambridgeshire, (Davis, 1995); Lanes, Carlisle (Connell and Davis, in prep); West Cotton, Northamptonshire (Albarella and Davis, 1994); Launceston Castle, Cornwall (Periods 6 and 8 are Medieval, periods 9 and 10 are post-Medieval; in Albarella and Davis, 1996).

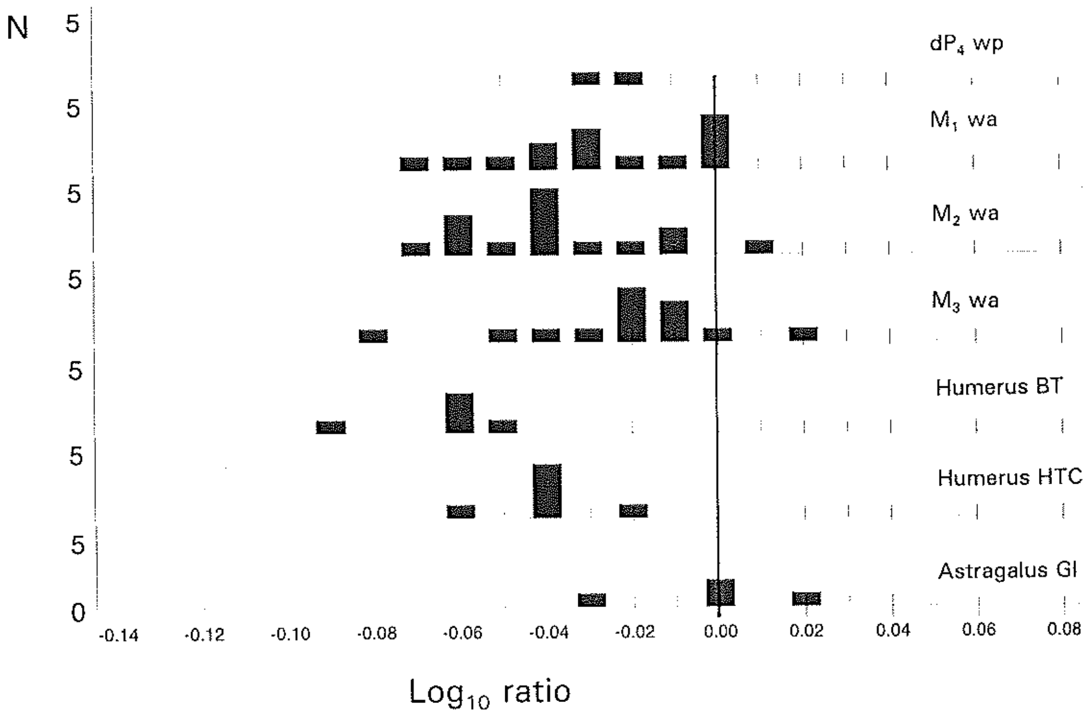

Figure 4

Measurements of the Wardy Hill pig teeth, humeri and astragali compared with the mean values (the "0" line) of a sample of Neolithic pig teeth from Durrington Walls (Albarella and Payne, forthcoming) - Log ratio diagrams. Values which are greater than the Durrington Walls "standard" are positive and lie to the right of the zero line, values which are less are negative and lie to the left.

Appendix

Measurements in tenths of a millimetre of mammal bones and teeth and bird bones from Wardy Hill, arranged by part of skeleton and taxon.

Measurements taken are as in von den Driesch (1976), Payne & Bull (1988) for pig teeth, and Davis (1996) for artiodactyl metapodials. Approximate values are in parentheses.

Key

Box

The animal bones box number.

Elem

Bones are coded as follows:

HU	humerus
UL	ulna
MC	metacarpal
CmC	carpometacarpal
FE	femur
TI	tibia
CA	calcaneum
AST	astragalus
MT	metatarsal
TmT	tarsometatarsal
P1	proximal (first) phalanx

Tax

Sh/G are sheep or goat (probable sheep)

Fus

The state of fusion of the epiphysis is coded as follows:

F	fused
UE	epiphysis unfused

Pig teeth:

Box	Feature	Context	CatNumb	Tax	DP4l	DP4w	M1l	M1wa	M1wp	M2l	M2wa	M2wp	M3l	M3wa	M3wc	M12l	M12wa	M12wp
1	2	20	869	Pig												198	121	118
5	41	110	1222	Pig												207	126	127
14	6	204	1257	Pig					106									
18	21	169	1473	Pig													98	
20	13	336	2422	Pig														98
20	25	333	1646	Pig													133	131
21	26	354	1672	Pig												172	105	109
18	21	174	1490	Pig									317	156	147			
6	39	124	2118	Pig									325	150	136			
6	12	146	1325	Pig									330	151	145			
22	26	357	1733	Pig									352	158	146			
6	34	188	2028	Pig									357	155	147			
21	26	355	1677	Pig									374	154	154			
14	6	207	1177	Pig				96		181	126	131	332	145	146			
12	38	605	2446	Pig				97		187	124	131		131	137			
22	26	359	1681	Pig						202	126	126	310	147	137			
16	6	222	1824	Pig						202	122	128	327	141	139			
20	13	336	2422	Pig				104		210	135	135		150				
20	13	347	1653	Pig						214	142	153	386	167	168			
14	6	205	1717	Pig			143	94	98	197	121	120						
16	6	221	1665	Pig			146	90	94									
13	2	624	2636	Pig			147	89	95									
14	6	203	1156	Pig			152		103	204	118	134						
20	25	332	1630	Pig			155	92	100	207	126	132						
9	32	294	1985	Pig			156	102	102	203	127	129	327	150	140			
6	2	148	1607	Pig			156	104	108	208	128	140						
22	26	358	2133	Pig			156	100	103	209	125	125						
19	25	310	1547	Pig			164	103	110									
14	6	204	1257	Pig			165		111	217	131	142						
23	20	436	1372	Pig			166	105	111	216	135	133						
16	6	223	1830	Pig			179	97	101	211	122	126						
14	6	206	1726	Pig	176	84	166	97	106									
17	6	268	1884	Pig	192	82												

Cattle teeth:

Box	Feature	Context	CatNumb	Tax	M3l	M3wa
99	26	356	1769	Cattle	352	
99	6	221	1665	Cattle	300	137
22	26	358	2133	Cattle		138
99	1	404	2160	Cattle	351	143
99	49	179	2046	Cattle	343	145
5	38	119	1312	Cattle	341	149
99	6	253	1879	Cattle	356	150
99	25	306	1450	Cattle	336	150
99	6	206	1726	Cattle	340	151
99	67	219	1813	Cattle	347	151
99	12	553	2458	Cattle	362	152
99	37	239	2151	Cattle		152
99	12	553	2458	Cattle	356	153
3	1	53	1081	Cattle	352	154
99	6	206	1726	Cattle	342	154
99	6	225	1842	Cattle	345	154
99	1	61	1014	Cattle	362	155
99	37	630	2685	Cattle	352	156
99	37	666	2342	Cattle	377	160
99	6	204	2102	Cattle		161
99	61	268	1881	Cattle	380	161
99	6	269	1900	Cattle	364	162
20	13	336	2422	Cattle		163
21	26	356	1764	Cattle	364	164
99	6	202	1708	Cattle	366	178
99	20	440	1387	Cattle	352	182

Box	Feature	Context	CatNumb	Elem	Tax	Fus	Gl	Bd	BT	HTC
2	2	33	1110	HU	Cattle	F				300
6	37	154	1624	HU	Cattle	F				272
7	37	239	2151	HU	Cattle	F				278
10	12	393	2244	HU	Cattle	F				296
16	6	221	1665	HU	Cattle	F			649	319
17	61	268	1881	HU	Cattle	F			(654)	295
19	25	310	1547	HU	Cattle	F				292
6	46	158	1330	HU	Equid	F				338
10	1	413	2252	HU	Equid	F			632	322
12	1	606	2670	HU	Equid	F				335
12	1	606	2670	HU	Equid	F			(683)	344
7	37	239	2151	HU	Sh/G	F				122
20	25	333	1646	HU	Sh/G	F				119
1	2	31	974	HU	Sheep	F			253	127
1	2	31	974	HU	Sheep	F			266	126
4	2	85	1210	HU	Sheep	F			286	137
6	43	152	1118	HU	Sheep	F			262	119
10	1	411	1986	HU	Sheep	F			251	122
11	76	576	2461	HU	Sheep	F				124
13	130	662	2524	HU	Sheep	F				120
16	6	233	1748	HU	Sheep	F			238	120
21	26	356	1764	HU	Sheep	F			258	130
22	26	357	1733	HU	Sheep	F			249	122
22	26	357	1733	HU	Sheep	F			252	123
6	12	146	1325	HU	Pig	F			258	183
6	34	188	2028	HU	Pig	F			274	175
7	52	230	2079	HU	Pig	F			274	182
19	25	308	1454	HU	Pig	F			285	182
20	13	347	1653	HU	Pig	F				190
22	26	357	1733	HU	Pig	F			274	181
18	21	170	1477	HU	Dog	F		312		118
11	121	582	2462	HU	Dog	F	(1670)	317		132

Box	Feature	Context	CatNumb	Elem	Tax	Fus	Gl	Bd
18	21	163	1399	TI	Cattle	F		496
6	52	194	2017	TI	Cattle	F		(514)
8	2	279	2156	TI	Cattle	F		523
2	2	32	978	TI	Cattle	F		534
14	6	203	1156	TI	Cattle	F		535
5	38	118	1309	TI	Cattle	F		542
1	2	30	968	TI	Cattle	F		546
11	1	495	2258	TI	Cattle	F		566
8	1	271	1945	TI	Cattle	F		620
12	1	606	2670	TI	Cattle	F	3054	554
4	29	69	983	TI	Equid	F		(690)
21	26	356	1764	TI	Sh/G	F		200
22	26	357	1733	TI	Sh/G	F		210
20	13	331	1601	TI	Sh/G	F		214
14	6	202	1708	TI	Sh/G	F		216
18	6	418	1998	TI	Sh/G	F		223
7	27	215	2129	TI	Sh/G	F		226
17	63	267	1848	TI	Sh/G	F		229
10	1	412	2204	TI	Sh/G	F		230
18	21	163	1399	TI	Sh/G	F		236
15	6	220	1818	TI	Sh/G	F	1853	215
6	10	198	1114	TI	Dog	F		229

Box	Feature	Context	CatNumb	Elem	Tax	Gl	Bd	Dd
5	45	116	1300	AST	Cattle		411	
7	58	214	2102	AST	Cattle	527	328	
16	6	225	1842	AST	Cattle	541	327	295
4	31	71	1282	AST	Cattle	551	348	314
13	13	680	2557	AST	Cattle	571	368	317
12	2	621	2570	AST	Cattle	584	392	331
12	1	606	2670	AST	Cattle	589	(358)	323
13	13	680	2557	AST	Cattle	589	361	324
22	26	357	1733	AST	Cattle	598		331
19	13	330	1594	AST	Cattle	613	363	343
20	13	336	2422	AST	Sh/G	232	149	(124)
21	26	349	1637	AST	Sh/G	267	166	143
2	2	34	937	AST	Sheep	217	139	123
22	26	357	1733	AST	Sheep	230	149	123
22	26	357	1733	AST	Sheep	239	155	
6	2	148	1607	AST	Pig	387		
19	25	312	1353	AST	Pig	415		
20	13	336	2422	AST	Pig	417		
8	2	281	2186	AST	Pig	435		
20	25	332	1630	AST	Equid	Bd = 451, GH = 510, LmT = 517		
6	10	198	1114	AST	Dog	267		

Box	Feature	Context	CatNumb	Elem	Tax	Fus	Gl
21	26	356	1764	CA	Sh/G	F	443
21	26	356	1764	CA	Sh/G	F	457
5	3	122	1318	CA	Sh/G	F	480

Box	Feature	Context	CatNumb	Elem	Tax	Fus	Gl	Bd	Dd	SD	Bp	Dp*
1	2	28	940	P1	Equid	F				312		
8	2	279	2156	P1	Equid	F				274		
4	29	69	983	P1	Equid	F	774	449		359	526	333
15	6	220	1818	P1	Equid	F	729	403	214	343	502	325

*Dp = proximal depth

Box	Feature	Context	CatNumb	Elem	Tax	Fus	Gl	Bd	SD	BatF	A	B	1	2	3	4	5	6
17	63	267	1848	MC	Cattle	F		478		422	233	225	212	282	245	197	275	252
12	1	606	2670	MC	Cattle	F	1685	546	272	527	267	258	227	297	264	211	286	264
12	2	621	2570	MC	Cattle	F	1777	572	294	499	276	269	236	306	270	214	295	267
9	37	293	2146	MC	Cattle	F	1844	518	276	466	250	244				202		254
17	6	268	1884	MC	Cattle	F	1767		278		258		219	288	252			
18	21	174	1490	MC	Sheep	F		215			98	104	86			93		
19	25	306	1450	MC	Sheep	F	1091	215	108		103	100	95			88		
13	13	680	2557	MC	Sheep	F	1111	213	104		100	96	93			89		
21	26	354	1672	MC	Sheep	F	1164	222	(107)		109	106	94			89		

Box	Feature	Context	CatNumb	Elem	Tax	Fus	Gl	Bd	Dd	SD	BatF	A	B	1	2	3	4	5	6
12	2	621	2570	MT	Cattle	F	2027	562		247	514	281	257	219	298	263			256*
12	2	616	2626	MT	Cattle	F	(2110)	(458)		(226)	423	221	206	205	285	254	194	278	260
5	1	90	985	MT	Cattle	F	2270	516		255	497	246	228	218	306	272			266
10	1	397	2262	MT	Cattle	UE		528				257	242	217	295	258	199	284	258
15	6	209	1723	MT	Cattle	F	2018						218				184	281	254
7	37	239	2151	MT	Sheep	F		207	139										
21	26	356	1764	MT	Sheep	F		217	146										
13	13	680	2557	MT	Sheep	F	1196	206	141	91									
6	2	150	1613	MT	Sheep	F	1238	209	142	97									
11	1	495	2258	MT	Sheep	F	1349			95									
12	38	605	2446	MT	Equid	F	2247	411	310										
12	1	603	2410	MT	Equid	F	2250			238									
21	26	355	1677	MT	Equid	F	2407			257									
10	1	404	2160	MT	Equid	F	2528	458	(364)	260									

* (slightly assymetric)

Carnivores mandibles/teeth:

Box	Feature	Context	CatNumb	Tax	Measurements:
2	2	34	937	Dog	M1l = (215). M1w = 85
10	1	404	2160	Dog	M1l = 232. M1w = 90. P3l = 112. P3w = 58. P4l = 121. P4w = 67. P2-P4l = 372. P1-P4 = 433. ramus depth behind M1 = 274
5	10	109	1253	Dog	M1l = 232. M1w = 91. M1-M3l = 370. P2l =97. P2w = 49. P3l = 112. P3w = 54. P4l = 123. P4w = 68. ramus depth behind M1 = 248
99	1	412	2204	Dog	M1l = 213. M1w = 83. M1-M3l = 354. ramus depth behind M1 = 220
3	2	60	2501	Cat	M1l = 84. M1w = 36. P3-M1l = 223. P3l = 60. P3w = 28. P4l = 71. P4w = 34. ramus depth behind M1 = 113
18	32	290	2287	Otter	M1w = 69. ramus depth behind M1 = 148
19	13	329	2431	Otter	M1l = 137. M1w = 74. ramus depth behind M1 = 153

Bird bones:

Box	Feature	Context	CatNumb	Elem	Tax	Gl	Bd	Dd	Bp	Dp	DiP
20	13	331	1601	HU	*cf Anas*		135				
1	2	27	1004	HU	*Corvus corax*		200				
9	38	344	2222	HU	*Corvus corax*		209				
19	13	328	1591	HU	*Gallus/Numida/Phasianus*		147				
19	25	316	1534	HU	*Scolopax rusticola*		103				
19	25	306	1450	UL	*Gallus/Numida/Phasianus*	673			673		130
19	25	305	1444	CmC	*Anas cf platyrrhynchos*	531			124		
19	13	327	1588	CmC	*Anas cf platyrrhynchos*	538					
21	26	354	1672	CmC	*Anas cf platyrrhynchos*	563					
22	25	377	1686	CmC	*Cygnus cf cygnus*	1345					
1	2	26	918	FE	*Corvus corone*	516	(106)	81	105	58	
5	38	117	1303	TI	*Gallus/Numida/Phasianus*		94	98			
5	38	117	1303	TI	*Gallus/Numida/Phasianus*		99	98			
10	1	413	2252	TmT	*Corvus cf corone*		74				
9	38	344	2222	TmT	*Corvus corax*		97				