Report 1691

The Animal Bones from Berrington St. Hereford.

The animal bones were in an excellent state of preservation, but were very fragmentary, as is often the case with urban medieval remains. Trial samples were weighed from both Saxon and Medieval periods to determine the proportions identifiable, and a figure of 7% for the Saxon and 8% for the Medieval obtained. On casual inspection there appeared to be no difference in size of fragment, but a far higher proportion of the Saxon material turned out to have complete ends from which meaningful measurements could be obtained. The bones were analysed in three groups, Saxon, tenth century and earlier, Postmedieval, 15th century and later, and all intervening periods, including the mixed layers, were classed as medieval; there is thus a certain amount of overlap between the medieval period and the others.

From the identified fragments, the following analyses were made : proportions of identified fragments according to species, anatomical analysis of main bones within the major species (ribs were excluded from the identification) minimum number of individuals, and where possible the age of these individuals was determined. The validity of these statistics is discussed by Chaplin (1969) and Uerpmann (1973) Complete bones, or ends of bones, were measured. The dimensions of complete bones are presented in tabular form (Table 4) and frequently occuring bone ends in graphical form (Figs. 1, 4, 7).

Bird bones, of which there were few compared with other medieval sites worked upon by the author (Noddle & Bramwell 1975 in press) were identified by Mr. Bramwell whose report follows this one.

A total of 5073 fragments from mammalian species was identified, comprising 2838 from the Saxon period, 1689 from the medieval period, and 546 from the post medieval period. This last figure is probably too low for any firm deductions to be made. Table 1. sets out the details of this identification; it lists the number of fragments for each species, the percentage of the total, the minimum number of individuals, and the number of bone fragments per minimum individual; this last is an artificial concept, but a useful method of comparison.

At all periods, cattle bones form at least 50% of the total, and therefore beef forms a very high proportion of the meat consumed. The proportion of sheep rises with the passage of time, being 13% in the Saxon period and rising to 23% in the post-medieval. Pig is much the same, 16% for Saxon and post-medieval periods, but falls to 11% in the medieval. All the other species form a very

small proportion of the total, less than 10% overall; this includes horse, goat and all species of deer. The goat is probably underestimated, as bones which could not be positively identified as goat were classed as sheep, and it is possible that some small fragments of roe deer bone were also classified as sheep. There were very few dog and cat bones, and neither lagomorph or rodent were found. Thus hunted species formed a very low proportion of the meat consumed in this area; higher proportions have been found associated with wealth establishments in other towns (Maddle and Bramwell, 1975). The proportion of cattle bones is also higher than that found in East Anglia.Ryder (1959) has summarised his findings from a number of sites in Yorkshire. At the urban site of York beef bones formed 60% of the total and at Kirkstall Abbey no less than 90%. At Pontefract Priory and Wharram Percy D.M.V. the numbers were well below 50%, the balance being made up by sheep bones. A large volume of data is available from continental sites; these analysed by Professor Boessneck and his students in recent years, from the area around Munich give an average of 27% cattle bones and there the proportions are made up by increased numbers of pigs. Clason (1965) has detailed a number of sites in Holland, and here the proportion is about 50%.

It is not possible to say how much the element of consumer choice enters into the meat eaten. The availability might well be determined by local agricultural conditions. It must always be born in mind that it is only since the industrial revolution that livestock have been reared primarily to provide meat and dairy produce. In the medieval era it is more likely that meat was a bi-product of animals used for traction, wool and hides.

The minimum number of individuals is calculated from the number of the most frequently occurring fragments, with a few more added because they obviously do not belong to any of these specimens (juveniles, extra large specimens, etc.) It is assumed that each archaeological layer contains different individuals, but this is not necessarily so. Thus an area with many small archaeological layers is bound to contain more individuals than a large midden. If the number of fragments is divided by the number of individuals, a useful comparative figure is obtained. Table 1. shows that the number of fragments per individual drops sharply between Roman and Medieval periods, and this is true for all species, but most marked in cattle. This result could be obtained by the change of eating or cooking habits from large kitchens and dining groups to family eating. The same result might be obtained by the introduction of retail butchery selling small portions, but if modern retail butchery is any guide, beef is sold based cut, the bones remaining with the butchery however beef carcasses are much larger nowadays than the medieval beast.

In table 2. the results of anatomical analysis of the bone fragments are set out. The proportions of the most commonly occurring bones are given as a percentage of the total. The animal body does not, of course, contain equal numbers of each bone; there are 24 phalanges, 40 odd vertebrae and only 2 tibiae, for instance. The causes for the loss and preservation of different bones in the group is not fully understood (Lauwerier 1973) but it seems likely that the main differences are due to differences in input, although cancellous bone in vertebrae and at the ends of some long bones is less durable than compact bone, and skulls, as opposed to mandibles, are easily shattered. Some bones get lost because they are small, getting trodden into the floor and not cleared away to the midden. Other bones are preferentially removed for industrial processes - horn cores to the hornworker, phalanges to the tanner along with the hide, metapodials to the bone worker, and their exclusive presence indicates these activities. Thus it is that changes of proportions of the different bones with time are probably more instructive than the absolute values. Bearing this in mind, the following deductions can be made from table 2. Amongst cattle there is a rise in the number of horn cores with the medieval period, and a rise of mandibles together with a drop in vertebrae, a durable and a fragile bone respectively, suggesting increased "bear and tear" on the deposits at this time. Otherwise changes are insignificant other than the large number of pigs teeth found in the Saxon period. When butchered is compared with other sites, proportions of both metapodials and phalanges are high. This might indicate lack of industry to take up these raw materials or cottage level industry.

When the minimum number of individuals is determined, an attempt is also made to age these individuals. This is not done in chronological years and months, because the application of modern ages is not valid, but rather as age stages, which also makes the data easier to present. The age stages employed are juvenile with few permanent teeth erupted and only the earliest maturing bone epiphyses closed, immature with permanent dentition not complete and the latest maturing epiphyses not closed, and mature with complete dentition and all epiphyses closed. In modern terms this would represent animals under about 18 months of age, between 18 months and 4 years, and over 4 years old. Though suckling pig was known to be a delicacy and permanent production requires the skins of young calves it is likely that most juvenile animals are casualties or killed because of food shortage; such animals having produced neither labour, wool nor offspring are giving a minimum economic return and only an affluent society and a high standard of animal husbandry can produce such animals deliberately. Immature animals may have progenerated once or given a couple of wool clips, but they are unlikely to have been slaughtered for purely economic reasons unless there was a strong meat market influencing the local agriculture, or the principal return on these animals was

from their hides. It is known that cattle destined for butchery were mainly in the hands of tanners in the 18 century, at least in East Anglia, and were carefully slaughtered to avoid saturating a small meat market (Carter, personal communication). The percentage of individuals in the different age groups are set out in Table 3. The proportions of cattle at each age remain fairly constant throughout, there being about 40% mature. The proportion of juveniles rises, perhaps a reflection on the standard of husbandry. The proportion of mature sheep rises with the passage of time; this probably indicates an increase in importance of wool production. Medieval Herefordshire sheep, forerunners of the present day Ryeland breed, were famed for their fine wool (Trow Smith 1957); the finest wool is obtained from animals on a low standard of nutrition (Short et al 1958) which might result in the increase of juvenile casualty animals, though the same result may be obtained by using the ewe as a dairy animal and weaning the lambs prematurely. The proportion of mature pigs drops with the passage of time. As pigs have no other economic function than the provision of meat and hides, this may result from a change in husbandry practices, by obtaining a faster growing animal. It is tentatively suggested that this might be the result of sty husbandry as opposed to extensive husbandry on pannage. The same changes have been observed at other sites (Maddle and Drummell, 1975) suggesting that the post medieval findings are a true reflection of facts, although they are based on a very small number of specimens.

The remainder of the report will be devoted to a description of the animals, in so far as this is possible.

Cattle.

The measurements of the complete bones of cattle are set out in Table 4. There were very few of these and Harcourt in his unpublished report on another site in Hereford, obtained far more metapodials, which however covered the same size as that obtained from Berrington St. The dimensions of frequently occurring ends of mature bones is set out graphically in Fig. 1, and an estimate of their live weight, calculated from the astragalus according to the method of Maddle (1973) is set out in Fig. 2. Though the metapodials seem to get shorter with the passage of time, indicating a decrease in stature, there are no clear cut indications of size change from the other data. Plates I and II are photographs of horn cores from Saxon and medieval layers respectively. In both periods they are of medium size in both length and circumference, and are curved upwards and forwards, at least in the cow. The Saxon cattle of East Anglia had more [illegible] horns, as do the modern breeds of red cattle, supposed to be of Saxon

descent (Young 1910). Figure 3 shows a scatter diagram of horn basal circumference against length along outer curvature. The majority of horns show little difference in their relationship of these two dimensions, and certainly there is no clear cut period differentiation. In summary, then, these animals would appear to be average medieval stock in size, weight and horn formation. Colyer (1974) gives some account of the old cattle breeds of Wales, which may give some clue to their appearance.

Sheep.

The complete bones are listed in Table 3, and the distribution of measurements is set out in figure 4. The situation may be confused by the inclusion of the odd goat bone amongst these, but in general there is no clear differentiation between the dimensions of the bones of the different periods, although the medieval animals seem to be rather shorter of stature than the Saxon ones. During the Saxon and medieval eras the sheep of both sexes seem to have been horned, the male sheep very heavily so, but there is a post medieval polled skull (Plate 3.). The horns of the rams were grooved longitudinally, a feature seen on other Saxon sites, and in at least one case the horn core had split into two, which may have resulted in a 4 horned condition in life. The Saxon sheep is supposed to have been black faced, and the Norfold horn, now nearly extinct, carries the horn groove already referred to. The writer has not yet been able to obtain a rams' skull from one of the massively horned whitefaced breeds, except the exotic Merino, where there is no groove. No groove is found in the primitive sheep of the northern short-tailed races, where the multihorned condition is common, or in the present day Welsh Mountain. In the hills near Lampeter in the 18th century was a massively horned black faced breed, the Llanlluni, which gave rise to the present day polled Llanwenog. Figure 6. illustrates an attempt to illustrate whether the sheep were of the long tailed or short tailed variety. A histogram has been prepared of the ratios of length of scapula neck divided by minimum width of scapula neck. In short tailed sheep this ratio is well over unity and the modern meat producing breeds 0.9 or less. These few specimens are not sufficient to give a firm diagnosis, but it would appear that a mixture of forms and possible cross breeds were present at all periods. The low winter nutrition of these animals may to some extent invalidate the data obtained from well fed modern animals.

The goat is most easily identified by its horn core, (Plate 7. shows two cattle and sheep specimens), and as at other medieval urban sites these were quite common.. The medieval animal was more heavily horned than its modern counterpart, and the type of animal is preserved in the welsh feral goat (Creek 1969). Large numbers of goats were maintained in the hills of the Marches in the post medieval period (Thirsk 1965) and by the 18th century it seems likely that some of these were supplying the glove trade of Kidderminster. The meat of these animals would no doubt, have been an acceptable biproduct.

It is always difficult to give much account of the pig of the medieval period. The bones are usually fewer than those of the other major species (Noddle and Bramwell, 1975) and the majority of them are from immature animals from which the size of the adult animal cannot be calculated. It can be stated; however, that all the bones found came from domestic animals. Such bone measurements as were possible are set out in Fig. 7. The majority of them are from the Saxon period, but where there are sufficient medieval ones for a comparison to be made the Saxon animals are rather larger. However, the animals were in any case much smaller than the modern animal, and probably resembled the small hairy slender limbed animals which are portrayed in medieval illuminations.

Insuffisient bone fragments from other species were identified to merit any comment, except perhaps fish, which were conspicuous by their almost complete absence.

There were few cases of pathology or abnormality observed. Plate 8. shows arthritic bovine phalangesfrom the same animal. This is a fairly common condition and might well have resulted from an infected penetrating wound. The condition is not so advanced as is sometimes the case (Harcourt 1971) so perhaps the people of Hereford were less optimistic about self cures than those of other areas, or the meat prices were better ! Plate 9. shows the pathological tibiotarsus of a cock, which by contrast is of very long standing; such a chronic condition might result from keeping the animal tethered by its legs. One other abnormality was conspicuous by its absence; cattle, and less frequently sheep of all periods may lack a posterior pillar on the lower 3rd molar. Not one of the 30 specimens of bovine teeth from this collection had the defect, nor do many of the sheep.

Summary.

The 5,000 identified fragments of animal bone found during this excavation were a fairly typical collection from a medieval urban area. Over 50% of the fragments at all periods derived from cattle. With the passage of time there

was a tendency for all animals to become shorter, and there was an increase in the numbers of mature sheep found. The increasing number of juveniles suggests a deterioration in husbandry. There is a sharp decrease in the number of fragments per minimum individual between the Saxon and medieval periods.

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Captions for Plates.

1. Cattle Horn cores from the Saxon period.
2. Cattle Horn cores from the Saxon period.
3. Cattle horn cores from the medieval period.
4. Part of skull and ram's horn from the Saxon period.
5. Polled sheep's skull from the post-medieval period.
6. Ram's skull, probably multi-horned.
7. Collection of horn cores : Left 2 goats horns, Right and upper centre sheep's horns. The remaining two are bovine.
8. Three phalanges from bovine foot; the left 2 exhibit arthritic changes
9. Tibio-tarsus from cock, with massive osteophytic outgrowth.

Captions for Figures.

1. Figure 1. Cattle. Dimensions of frequently occurring bone fragments
2. Cattle. Proportions of complete horn cores.
3. [illegible].
4. Cattle. Live body weight estimated from dimensions of astragalus.
5. Sheep. Dimensions of commonly occurring bone fragments.
5. Sheep. Proportions of neck of scapula.
6. Pig. Dimensions of commonly occurring bone fragments.

		SAXON	MEDIEVAL	POST-MED.
[illegible]				35
[illegible]	Domestic goose	4	7	9
Anas platyrhynchos variety	- Domestic duck	I	I	2
Anas platyrhynchos	Mallard			? I
Anas crecca	Teal		I	
Accipiter nisus	Sparrow hawk			2
Pavo cristatus	Peafowl		1or2	
Gallus gallus variety	Domest.fowl	8	II	40
Strix aluco	Tawny owl			I
Turdus merula	Blackbird		I	I
Corvus species	Rook/Crow		4	5
Corvus corax	Raven		2	

The figures in the above table indicate the numbers of bones or bone fragments belonging to each species.

DISCUSSION.

The presence of domestic fowl and domestic goose in all three periods shows continuity of occupation but the numbers of bones are insufficient to say whether poultry proportions really altered over the wide period covered, e.g. it appears that in Saxon times half the birds were geese while in post-medieval times the proportion of geese tofowl was only one quarter. It would require hundreds of bones to be sure that this was so. The presence of peafowl is not unexpected in the medieval level. The bird was much prized as an adornment to the larger gardens but was also valued for banquets. Two bones of the sparrow hawk would likewise be more in place in the medieval level as the bird was popular with those engaged in the field sports of hawking and falconry. The blackbird is likely to have been captured on a hawking excursion. Tawny owl is a harmless woodland species which it is difficult to account for, as with rook or crow, but the raven could have been killed as being a menace to poultry chicks, or it may have been a tamed bird. The swan is interesting in that it appears to most of the skeleton of one bird. Had it been eaten at the table the bones left would have been widely scattered in the rubbish pit. It appears to have been thrown in as a whole carcase.

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22.8.74.