

### **Animal bone by G G Jones<sup>1</sup>**

A relatively small, but well preserved, assemblage of animal bone was recovered from the excavations. It was chiefly from domestic species, including horse, cat, dog, fowl, goose and perhaps duck. Hunted species included red deer and hare. Wild duck, plover and woodcock were also present. A bone of a weasel is probably a natural occurrence. One species of fish, viz. trout, was identified.

#### **Description of material and method**

All bone fragments were collected. Some sieving of soil samples was untaken, but this was not productive of animal bone: a single vole bone was recovered. A summary of the identified mammal and bird bones is given in Table 1.

The total of identified bones (BN) includes all identified bones and fragments. Vertebrae were only identified when fairly complete, so that fragmentary vertebrae, and all ribs, were recorded as cattle-size, sheep/pig-size or small mammal. Almost all of the large ribs and vertebrae are assumed to be cattle, since there are few identified horse bones in the assemblage. The minimum number (MN) shows the least number of individuals present. It was calculated taking each Phase as one group, from bone elements where more than half was present and taking account of the state of development and size of the body. In order to calculate the minimum number bones were recorded on two lists, designated zones and fragments. On the zone list were recorded complete bones and bones where more than half of the bone element was present. Bone elements comprised: major or easily defined pieces of skull (horncore, occiput, lacrimal, orbital curve of malar bone, premaxilla, large piece of frontal, temporal

bone, maxilla, mandible and tooth), the head of the scapulae and acetabulum of pelvis, astragali and calcanei, and proximal end, shaft and distal end of long bones. The number of bones recorded on the zone list formed 72% of the total identified bone; i.e. 28% of the bones were fragmentary. The cattle bones were more fragmented than those of sheep or pig, 61% of the former being on the zone list in comparison with 83% of both sheep and pig. The same difference can be seen when comparing the number of bones (BN) with the minimum number (MN).

Preservation was good enough for butchery marks to be still visible and the bones were generally hard and light in colour. Modern breaks in the bone were few, and the degree of fragmentation seems mostly the result of ancient breakage. The denser parts of bones were, as is normal, more frequent than the more fragile, cancellous bone; for example, there were seven pieces of proximal humerus and tibia of cattle and sheep in comparison with 19 pieces of the hard distal end of these bones. The generally good preservation, especially in comparison with Welsh upland sites, is indicated by the percentage of loose teeth, which formed only 4.9% of the total identified bones. The soil was generally alkaline.

Although not numerous the bone remains from the excavation are interesting because their date and context is known in some detail. Phase II produced a small group of bones. It is worth noting the presence of cat, dog, fowl and goose. The largest quantity of bone came from Phase III. These deposits date from the second century and consisted chiefly of burnt clay and ash from cooking areas. Cattle bones formed about half of this assemblage, pig nearly a third and sheep only a fifth (Table 2). All parts of the carcass were represented.

Ribs and vertebrae were numerous, but bones from the skull and feet were present too. The Phase VI bone from the cookhouse was a small group of which nearly half were pig

<sup>1</sup> This report was originally written in 1984, but there are some internal indications that it may have subsequently been revised. The author no longer works in archaeology and it has not been possible to contact them in 2010.

	Total		Phase II		Phase III		Phase IV		Phase V		Phase VI	
	BN	BN%	BN	MN	BN	MN	BN	MN	BN	MN	BN	MN
Cattle	338	46	46	2	197	44	5	9	12	1	73	3
Sheep	134	18	25	2	84	19	6	4	5	1	16	2
Pig	195	27	25	3	134	30	7	2	17	2	17	2
Horse	3	-	-	-	-	-	-	1	1	1	1	1
Red Deed	3	-	-	-	2	-	1	1	-	-	-	-
Dog	5	-	1	1	2	-	1	-	-	-	2	1
Cat	8	1	8	1	-	-	-	-	-	-	-	-
Hare	1	-	-	-	1	-	1	-	-	-	-	-
Weasel	1	-	-	-	-	-	-	-	1	1	-	-
Fowl	29	4	8	2	17	4	3	1	1	1	2	1
Goose	6	-	2	1	3	-	1	-	-	-	1	1
Duck*	5	-	-	-	5	1	3	-	-	-	-	-
Plover	2	-	-	-	2	-	1	-	-	-	-	-
Woodcock	1	-	-	-	1	-	1	-	-	-	-	-
<b>Total</b>	<b>730</b>	<b>-</b>	<b>115</b>	<b>12</b>	<b>448</b>	<b>-</b>	<b>30</b>	<b>18</b>	<b>37</b>	<b>7</b>	<b>112</b>	<b>11</b>

Table 1: Animal species present  
 Notes: BN – Number of bones; MN – minimum number of individuals. \*Duck species – see text

	Total fragments			Phase III		
	Cattle	Sheep	Pig	Cattle	Sheep	Pig
Horncore	9	5	-	1	3	-
Skull	25	5	17	22	3	17
Jaw	29	11	14	14	7	14
Tooth	17	11	7	9	5	7
<b>Head</b>	<b>24%</b>	<b>23%</b>	<b>28%</b>	<b>24%</b>	<b>21%</b>	<b>28%</b>
Vertebra	35	16	5	13	10	5
Scapula	31	6	7	21	14	7
Humerus	10	11	5	5	8	5
Radius/ulna	27	12	16	14	6	16
Pelvis	31	16	7	13	10	7
Femur	18	4	10	11	1	10
Tibia/fib.	18	11	10	13	6	10
Patella	4	2	-	4	-	-
<b>Body</b>	<b>52%</b>	<b>55%</b>	<b>45%</b>	<b>48%</b>	<b>54%</b>	<b>45%</b>
Carpal/tarsal	19	7	5	16	6	5
Metopodial	23	13	20	13	11	20
Phalanx	39	11	12	26	4	12
<b>Foot</b>	<b>24%</b>	<b>22%</b>	<b>27%</b>	<b>28%</b>	<b>25%</b>	<b>27%</b>
Total	338	134	195	197	87	134

Table 2: Anatomical analysis of the cattle, sheep and pig bones (fragment number)

bones. A single horse bone from this Phase was from the east wall (D14), not the oven spread, and may therefore not represent food debris. Phase VI was a rather larger group and consisted mostly of cattle bones.

### Cattle, Sheep and Pig

Cattle were generally mature when slaughtered. In six, of at least eight individuals aged by their jaws, the third molar was in full wear. Only one bone of calf was found. There were no unfused metapodials or distal tibiae, but a few late-fusing epiphyses of long bones

were unfused (5 unfused, 3 fusing and 10 fused). The age of fusion of the late-fusing epiphyses is thought to be about 3½-4 years (Silver 1969). The degree of wear on the third molar tooth of cattle at this stage of bone development is not known, i.e. it is not certain whether or not some of the cattle whose jaws are in the latest tooth wear stage had a fully developed skeleton. This last uncertainty aside, epiphyseal fusion confirms tooth data in indicating that few two to three year-olds were present, and that adult and also some sub-adult cattle were slaughtered.

The number of ageable sheep jaws was too small to be useful. Bones of lambs, immature and mature sheep were present. Pig jaws were rather more numerous and suggest a wide range of slaughter. The canine tooth, which indicates sex, was not preserved in any of the adult specimens; including loose teeth and fragmentary jaws, eight canines were from boars and two were from sows. Overcrowding of teeth in pig jaws was not observed. Nor were there any dental anomalies in the cattle and sheep jaws, with the exception of one cattle third molar with no accessory pillars.

Cattle bones were from both small and large animals by the standards of the time. The single measurable horn core, from Phase IV, is similar in size to the small horncores present during the third century, but absent in the post-military assemblage, at the Fortress Baths (O'Connor 1986). The measurements of sheep and pig bones are comparable with other Roman sites. From the size, no bones of wild pig appear to be present.

### Other mammals

Bones of other mammals were rare. Single horse bones were present in the three latest Phases. A height estimate of 12½ hands (1.26m) was obtained from a tibia from Phase V (greatest lateral length 289mm, distal breadth 66mm). A tooth from Phase VI was from a fairly old animal and an unfused distal radius from Phase IV was from an animal less than about 3½ years old at death. Dog bones were few, but were present in the three Phases with more than 100 identified bones. Gnawmarks were not observed on any of the bones of other species. The dog bones included a puppy of 1-2 months (Phase II) and a femur from a rather small dog (breadth of proximal end 28.2). Several cat bones, probably from one individual were found in Phase II. Measurements suggest it was a domestic cat. Red deer and hare were present in the Phase III bone sample; both were probably hunted.

There were only two red deer bones, but both bore butchery marks. The specimen of red deer from Phase IV was a piece of sawn antler. The pedicle was not present making it impossible to ascertain whether it was a shed antler or one from a hunted stage. There were eight rabbit bones, representing at least two individuals, from the upper fills of the interval turret (D4 Phase III). It is possible that the, and the weasel bone, are intrusive.

### Birds

Bones from domestic fowl were present in all Phases, and formed 4% of the identified bones. All the recovered bones were mature. Of the tarsometatarsi one was without a spur, i.e. female, and four were spurred, i.e. from cockerels or capons. Goose was present in Phases II, III and VI. The other bird bones were all from Phase III. Duck bones included: two *Anas platyrhynchos* (mallard or domestic duck), two *Anas platyrhynchos* or *A. penelope* (widgion) and one *A. cybeata* (shoveller). The domestic status of both duck and goose is uncertain. Plover and woodcock (*Scolopax rusticola*) were present. The woodcock and shoveller were doubtless caught and eaten. The same is also probably also true of the plover, which species was discovered associated with food remains (including edible birds), in the Fortress Baths drain deposit (O'Connor 1986). The plover bones were identified as either grey or golden plover (*Pluvialis squatarola* or *P. apricaria*). The present distribution of the two species suggests that it is more likely to be a golden plover (Cramp and Simmons 1983, 202-3, 217). Butchery marks were not observed on any of the bird bones.

### Fish<sup>1</sup>

One definite identification of a large trout (*Salmo trutta* L.) c. 1m in length came from a Phase III context. Possible evidence for trout and fish of the salmon family were also

1 Identified by A.K.G.Jones

recovered from Phase II contexts but were not securely identified to species.

### Discussion

The bones give some indication of the diet at the fortress, however, the assemblage is small and therefore not necessarily typical. There has been one recent excavation, at the Fortress Baths (O'Connor 1983; O'Connor 1986), from which the animal bone has been studied. The third century bone was an unusual group, consisting largely of chicken and mutton bones from the fills of the baths' drain and representing food that had been consumed in the baths. It forms an interesting comparison with the present assemblage. The majority of the bones recovered from the barracks in the western part of the fortress (Prysg Field; Cowley 1932) and the workshops (Jenkins's Field; Cowley 1929) were, like the present assemblage, small and consisting mostly of cattle and pig. While mutton, lamb and chicken were being served at the baths, beef and pork or bacon may, then, have been the more usual fare. The proportion of pig bones is variable on Roman sites and is high at several military ones (King 1978). The meat which was most useful when on campaign, was bacon (for discussion see Davies 1971) and the organisation of pig keeping must have been important. Of other local sites, bones from the small Roman town of Cowbridge indicated cattle and sheep to be the commonest species, with cattle increasing in importance after about A.D. 160 (Jones, unpublished). At the Roman native settlements of Biglis and Llandough, cattle and sheep bones predominated (Whitbourne, unpublished). In southern England sheep were usually kept in greater numbers in relation to cattle during the Iron Age, with Roman native sites tending to continue this pattern (King 1978).

Cattle were generally kept in proportionately greater numbers in the later Roman period. This also seems to have been

the case at Caerleon. The percentage of cattle in the Phase III assemblage is lower than that from Phase VI and also from the later Roman deposits from the Fortress Baths. This may well be an indication of a greater area of land being under the plough (see Maltby 1979). Most of the cattle had been slaughtered when adult, which suggests they are largely culled working beasts.

The evidence suggests that few dogs were kept, which is rather to be expected from a military site. The dogs found were perhaps hunting dogs or local strays. There certainly was some hunting and the keeping of dogs for this purpose is virtually certain. In this context it is worth noting the sculpture of a dog fighting a wild beast, probably a lion, found at Caerleon in the 1860's (Lee 1868). It is possible that dog, as well as cock, fighting occurred at Caerleon. Cat bones were recovered from Phase II only. It is tempting to think of the cat as having arrived with the soldiers to guard their granaries. Cat was absent from Iron Age bone samples from Dinas Powys (Alcock 1963), Whitton (Kinnes 1981) and Coygan Camp (Westley 1967). It was not recorded in bone from the earlier excavations at Caerleon (for references see King 1978, site no. 70), but was present in third and fourth century assemblages at the Fortress Baths.

The source of supply of meat to the fortress is not well understood. There is some evidence of direct land-management. The Goldcliff inscribed stone, found below the modern sea wall, three miles from Caerleon, may show the extent of the *prata* (Boon 1972) and may also represent some reclamation of land from the sea (Frere 1967, 315). It is known that supplies of grain came to Caerleon from England and also the Mediterranean (Boon 1972, 20). Meat supplies were doubtless more local but may have come from a wide area. Some meat may have originated as tribute from the native population, requisitioning or buying at a fixed price (Davies 1971).