Jgg10_CL_Caerleon
Howard Mason, Philip Macdonald, H. E. M. Cool (2010) *The Excavation of the Southern Defences of the Caerleon Legionary Fortress 1982* [data-set]. York: Archaeology Data Service [distributor] https://doi.org/10.5284/1000161
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Jgg10-CL_Caerleon
Caerleon 82 – Report of 1984, Animal Bones.
Pages labelled CL82 01 to CL82 10.
The 1984 animal bone report is included here, as it includes information not included in 2010:- some manuscript edits, Table 3 Age Data, Table 4 Measurements, the References for the bone report, Acknowledgements and manuscript bone sketches.
There's a note, p.90 of the Download 21-Animal Bone report, to say the author (ie Jones, G G) had not been contacted in preparing the 2010 publication.

CL82 for the in H.N. Mason — Excn on the defences at the South corner of the legionary fortress at Caerleon Archaeologia Cambrensis

2010 (ADS) Caerleon GJ RB

Caerleon 1982

The Animal Bones

The animal bone recovered during the excavation was chiefly from the domestic species, including horse, cat, dog, fowl, goose and perhaps duck. Hunted species included red deer and hare. Wild duck, plover and woodcock were caught. A bone of weasel is probably a natural occurrence. One species of fish, viz. trout, was identified.

Description of Material and Method

A summary of the identified mammal and bird bones is given in Table 1.

Table 1 Species present

	Total late 1st-mid 4th C			II 86-120/130		III 120-160/170			IV late 2nd C		V mid3rd-mid 4th		VI 1st-4th C	
	BN	BN%	MN	BN	MN	BN	BN%	MN	BN	MN	BN	MN	BN	MN
Cattle	338	46%	14	46	2	197	44%	5	12	1	73	3	9	3
Sheep	134	18%	12	25	2	84	19%	6	5	1	16	2	4	1
Pig	195	27%	15	25	3	134	30%	7	17	2	17	2	2	1
Horse	3		3						1	1	1	1	1	1
Red deer	3		2			2		1					1	1
Dog	5		3	1	1	2		1			2	1		
Cat (18)	8	1%	1	8	1									
Hare	1		1			1		1						
Weasel	1		1						1	1				
Fowl	29	4%	8	8	2	17	4%	3	1	1	2	1	1	1
Goose	6		3	2	1	3		1			1	1		
Duck* (43)	5		3			5	1%	3						
Plover	2		1			2		1						
Woodcock	1		1			1		1						
(61)														
Total identified bone	730		68	115	12	448		30	37	7	112	11	18	8
Unid	1082													
Total	1812													

Notes.
BN - Number of bones; MN - minimum number of individuals.
*Duck species - see text.

All bone fragments were collected. Some sieving of soil samples was done, but this was not productive of animal bone: a single vole bone was found.

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. These figures are given on Table 2. Almost all the large ribs and vertebrae can safely be taken to be cattle, since horse bones were so few.

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 the side 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), vertebrae, the head of scapulae and acetabulum of pelves, 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).

Table 2 Anatomical Analysis

	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
Head	**24%**	**23%**	**28%**	**24%**	**21%**	**28%**
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	1		4		
Body	**52%**	**55%**	**45%**	**48%**	**54%**	**45%**
carpal/tarsal	19	7	5	16	6	5
metapodial	23	13	20	13	11	20
phalanx	39	11	12	26	4	12
Foot	**24%**	**22%**	**27%**	**28%**	**25%**	**27%**
Total	338	134	195	197	87	134

Unidentified	Total				Phase III			
	A	B	C	D	A	B	C	D
vertebra	100	43			69	28		
rib	313	177	4	18	195	133	4	11
other	270	136	21		170	100	21	
Total unidentified bone			1082					

Notes. A - cattle-size; B - sheep/pig size;
C - small mammal; D - bird.

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 (see Pollen Analysis).

The bone remains from the excavation were not numerous, but are interesting in that their date and source is known in some detail. All the deposits were just within the fortress, between the southern wall and the barrack blocks. Phase II, the period of the building of the stone defences, 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 120-160/170 AD, and consisted chiefly of burnt clay and ash from soldiers' cooking areas (see page 000 above). Cattle bones formed about half of these bones, and pig nearly a third. Sheep formed only a fifth. Soldiers used all parts of the carcase (see Table 2). Ribs and vertebrae were numerous, but bones from the skull and feet were present as well. The phase IV bone, from the cookhouse (which superceded the earlier cooking areas), was unfortunately a very small bone group; of ~~which~~ these nearly half were pig bones. A single horse bone from this phase was from the east wall (D14), not the oven spread, and may therefore not be food debris. Phase V, from levelling deposits behind the rampart, was a rather larger group and consisted mostly of cattle bones.

There was some worked bone from the excavation (see Small Finds p.000). In addition, sawing was observed on a piece of red deer antler (phase VI). Two pieces of cattle scapula, from phase II and III, were worked, using a sharp knife rather than a saw, the piece from phase III also having a hole drilled in it (diameter 5.7mm). And a broken lower tusk from a male pig has been used as a point. The tooth has the enamel worn through and is polished around the tip, in a way not characteristic of normal tooth wear.

Cattle, Sheep and Pig

Some information is presented (Tables 3 and 4) about the size of livestock and the age of slaughter. The small size of the sample means that the conclusions which can be drawn are limited.

Cattle were generally mature when slaughtered. In six, of at least eight individuals ageable by their jaws, the third molar was in full wear (dentine exposed on all cusps). 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.

Table 3 Age Data

Jaws	Cattle	Sheep	Pig
1 birth - M1 up, unworn	1 (1)	1 (1)	2 (2)
2 M1 in wear - M2 up, unworn			2 (1)
3 M2 in wear - M3 up, unworn			3 (1)
4 M3 in partial wear	1 (0)	2 (2)	2 (0)
5 M3 wear on all cusps	6 (3)	1 (1)	2 (1)

Notes. M1 - first molar.
In wear - some dentine is exposed (cattle and sheep); wear visible on the enamel of the tooth (pig).
Figures show the minimum number of individuals at each stage, using data from upper and lower jaws and loose teeth. The figure in brackets uses only lower jaws.
Grant's method (1982):
Cattle: 38, 42e, 43, 49. Sheep: 3, 31e, 38.
Pig: 1e, 19, 23e, 26e, 35e.

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 age of slaughter. The canine tooth, which indicates sex, was not preserved in any of the adult specimens. It was preserved in only three of the jaws, one each in stages 2, 3 and 4, and all were male. The stage 4 jaw would be from an animal between two and three years old. 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, although so few were measurable, were from both small and large beasts, by the standards of the time (a metatarsal greatest length 184 mm, a metacarpal breadth of proximal end 65, see Table 4). The single measurable horn core, from phase VI (1st-4th C.), is alike in size to the small horncores present during the 3rd century, but absent in the post military bone assemblage, at the fortress baths (O'Connor, forthcoming).

Measurements of sheep and pig bones are given, and are comparable with other Roman sites. From the size, no bones of wild pig appear to be present.

The fowl measurements are nearly all within the ranges observed at the fortress baths. They included two which were larger (a humerus GL 75.0 and an ulna 78.7).

Other mammals

Bones of other mamals were rare. Single horse bones were present in the three latest phases, from the late 2nd to 4th centuries. A height estimate of 12½ hands (1.26 m) was obtained from a tibia from phase IV (greatest lateral length 289 mm, distal breadth 66). A tooth from phase V was from a fairly old animal and an unfused distal radius from phase VI was less than about 3½ years old at death.

Dog bones were very 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 is a domestic cat (Table 4).

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 VI was a piece of sawn antler. The pedicel was not present, which means that there is no information on whether the antler was shed or was from a hunted stag.

There were in D4 eight bones of rabbit (at least two individuals). It is likely that the bones are intrusive. The same possibility of intrusiveness applies to the weasel bone.

Bird

Bones from domestic fowl were present in all the phases, and formed 4% of total identified bones. All the recovered bones were mature. Of the tarsometatarsi, one was without a spur, i.e. female, and four were spurred, from cockerels or capons. Measurements of complete bones are given in Table 4.

Goose was present in phases II, III and V. The other bird bones were all from Phase III (mid 2nd century). Duck bones included two from Anas platyrhynchos (mallard or domestic duck), two from Anas platyrhynchos or A. penelope (wigeon) and one shoveller (A. clypeata). The domestic status of both duck and goose is rather uncertain. Plover and woodcock (Scolopax rusticola) were present. The woodcock and shoveller were doubtless caught and eaten. The same is probably also true of the plover, which species was discovered associated with food remains (including edible birds), in the baths' drain deposit (O'Connor, forthcoming), where it is most unlikely to be a natural occurrence. 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 & Simmons 1980).

Butchery marks were not observed on any bird bones.

Oysters, although abundant at other sites in the fortress, were not found, nor were any other shellfish.

Discussion

The bones found give some indication of the soldiers' meat diet. The bone assemblage was, however, a small one, and is certainly a small and therefore not necessarily typical part of the bone which was processed and cooked in this area of the fort over three centuries.

There has been one recent excavation, at the fortress baths (O'Connor, forthcoming and 1983), from which the animal bone has been studied. The third century bone was a very unusual group, consisting largely of chicken and mutton bones from the fills of the drain from the baths, i.e., from food that had been consumed in the baths. It forms an interesting contrast with the present site.

The majority of the bones found at the barracks in the western part of the fort (Prysg Field, Cowley 1931) and the workshops (Jenkin's Field, Cowley 1930) were, like the present site, of cattle and pig. Both bone groups were small. Pig was not particularly frequent at any of the fortress baths bone groups. 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 160 AD (Jones, unpublished). At the Roman native settlements at Biglis and Llandough, also, 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 seems also to be the case at Caerleon. The percentage of cattle in the phase III assemblage is lower than that from phase V and also from the later Roman deposits from the fortress baths. This may will be an indication of a greater area of land being under the pough (see Maltby 1978). 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 of 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. It is worth mentioning the sculpture of a dog fighting a wild beast, probably a lion, found at Caerleon in the 1860's (Lee 1868). It is quite possible that dog fighting occurred, as also cockfighting.

Cat was present only in phase II, the period of the building of the stone defences. It is tempting to think of the cat as having arrived with the soldiers to guard the granaries, a suggestion on which archaeology is silent. 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 3rd and 4th century assemblages at the fortress baths.

The source of supply of meat to the fortress is not understood in detail. There is some evidence of direct land-management. The Goldcliff inscribed stone, found below the modern seawall, three miles from Caerleon, may show the extent of the <u>prata</u> (Boon 1972) and may also indicate 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 involved a wide area. Some meat may have originated as tribute from the Welsh, requisitioning or buying at a fixed price (Davies 1971).

Table 4 Measurements

		N	Range	Mean
Cattle				
horn core	L outer curve		c.90	
	Basal circumf.		104	
	Bas.diam. max/min.		38/25	
astragalus	GL lateral/Bd	2	55.4/35.0; 57.8/35.6	
metacarpal	Breadth proximal	4	47.4-65	52.1
	B distal	7	46.2-56.4	50.6
metatarsal	GL/Bp/SD/Bd/Dd		184/38/22.4/44/25	
1st phalanx	GL peripheral	11	48.6-56.0	51.1
Sheep				
horn core	Bas.diam.max/min.		32/20; 43/29	
humerus	B Trochlea	5	22.7- 29.1	25.5
calcaneum	Greatest length		48.9, 56.4, 60.6	
metacarpal	GL/Bp/SD/Bd		110/19.2/11.8/22.0	
Pig				
lower 3rd molar	L/breadth		30/13.6; 30.1/14.6	
humerus	B trochlea		26.4, 29.5	
radius	B proximal	6	26.7-28.2	27.4
astragalus	GL lateral	4	39.6-41.0	40.4
Cat (86-160/170 AD				
femur	Breadth distal		18.9	
tibia	GL/Bp/SD/Bd		106/21.0/8.0/13.1	
fibula	GL		99.1	
Fowl				
skull	G Height/GB		21.4/28.5	
humerus	GL/Bp/SC		75.0/17.7/7.2	
radius	GL		65.3	
ulna	GL		73.2, 78.7	
carpometacarpus	GL		37.8	
femur	GL/Bp/SC/Bd		72.9/13.4/5.6/-	
			82.4/15.9/7.2/16.0	
tarsometatarsus	GL/Bp/SC/Bd		71.5/12.7/6.4/12.2	no spur
			80.4/13.6/7.5/13.4	spurred
			85.9/14.6/7.2/14.4	spurred

Duck			
mallard or domestic	carpometacarpus	GL	50.1
mallard or wigeon	radius	GL	68.6
	carpometacarpus	GL	53.5
shoveller	carpometacarpus	GL	46.7

Measurements are defined in von den Driesch 1976.

Fish

by A.K.G.Jones.

Fish bones were recovered from phases II and III, as follows:

	II	III
Salmo trutta L. trout		*
Salmo, cf. trutta L.	*	*
Salmonidae salmon family	*	

The one definite identification, of trout, was from a large fish, about 1 metre in total length.

Human

Part of the skeleton of an infant was found in the phase III deposits (D5). Measurements of the humerus, femur and radius (lengths 51.5, 55.5 and 41.5 respectively) indicate an 8-8½ month foetus, i.e., it is a premature baby (Fazekas & Kosa 1978). A similarly aged infant was found at Cowbridge (late 3 rd or 3rd C.)(Jones, unpublished).

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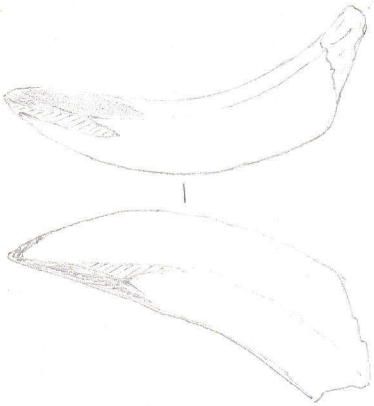
Acknowledgements

The help of Mr. G. Cowles in using the collections of the British Museum, sub-department of Ornithology, is gratefully acknowledged, as is the help of Miss T. Mollison of the British Museum (Natural History), with the human bone.

CL82

CL82
D7

CL82
D5



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D4

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