

EXCAVATIONS IN THE ROMAN LEGIONARY FORTRESS AT CAERLEON

THE PRIORY FIELD STORE BUILDING

Peter Guest and Andrew Gardner



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Excavations in the Roman Legionary Fortress at Caerleon

The Priory Field Store Building, 2007-2010

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Cover: Room 1 being cleaned for final photography (front) and Soil Block 1 from Room 2 prior to lifting (back)

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4.6 Animal Bone (Murray Andrews)

Introduction and Methodology

In total, 15,046 specimens of animal bone, weighing 110.3 kg, were recovered during the excavations. Most of this material was hand-collected, although a small amount (<5% of the total assemblage) derives from the sieving of deposits that were considered particularly finds-rich or important to the stratigraphic sequence. Preservation was generally poor and most of the assemblage is highly fragmentary; nearly 50% of all animal bones could only be assigned to broad size-based groups (e.g., cow-size, pig-size), while an additional 20% could only be assigned to class (e.g., *mammalia*, *aves*).

As noted in the introduction to this chapter, the Roman animal bones from Priory Field have an unusually strong association with deposits related to the store building's construction and destruction. Therefore, much of animal bone assemblage is likely to consist primarily of redeposited refuse, deliberately brought to the store site from other parts of *Isca* for use in ground levelling, or the dumping of rubbish in the abandoned and semi-derelict building. If so, this might constrain the site-specific significance of the assemblage, but would not preclude its broader contribution to an understanding of the livestock economies and environmental settings of the fortress as a whole, particularly in its earliest decades (late-first and early-second centuries), and towards the end of its history in the fourth century. This point is underlined by the relatively large size of the Priory Field assemblage, which is one of the most significant stratified animal bone assemblages recovered from Roman Caerleon.

Animal bones were identified at the UCL Institute of Archaeology using the Institute's comparative collection. Specimens were recorded on a Microsoft Access database with fields for the following attributes: taxon; element; body side; sex; age; fragmentation; size; as well as subsequent modifications including burning; butchery; digestion and gnawing; root etching and weathering; pathology; and evidence of working. Separation of sheep and goat was attempted using criteria outlined by Prummel and Frisch (1986), but given the degree of fragmentation rarely yielded practicable results (specimens of both taxa are combined as 'sheep/goat' in this report).

Age-at-death data was systematically recorded for mammalian taxa in the form of epiphyseal fusion stages, tooth eruption and wear states, and cattle horn core states. Dental classification follows Grant (1982) for cattle and pigs and Payne (1973; 1987) for sheep/goats, while cattle horn cores were classified by Armitage (1982) stages. Aged mandibles have been organised into

age classes following Hambleton (1999). Where possible, long bone measurements were taken using a measuring box and 150 mm digital Vernier calliper (the metrics adopted are those of von den Driesch 1976). Greatest length (GL) measurements from complete bones were converted into withers height estimates using separate formulae for cattle (von den Driesch and Boessneck 1974), pigs (May *et al.* 1996), sheep/goat (Teichert 1975), and dogs (Koudelka 1885).

Results

Attributes of phased animal bones from Priory Field are summarised in Tables 4.32 – 4.39, and are synthesised by occupation phase below.

Phase 0: Pre-store activity

Phase 0 contexts produced 165 animal bones (1% of the total assemblage), most of which derive from Phase 0ii levelling and clearance deposits. Just under half derive from Room 6, including significant groups from charcoal layers (G3112) and (G3127) and deposit (G3116). The assemblage is dominated by cattle, pigs, and sheep/goats, most of which were culled as adults; an exception is provided by a juvenile sheep phalanx from the charcoal deposit (C3112). Cattle and sheep/goats are represented by a wide range of skeletal elements, suggesting that animals were driven to the fortress on-the-hoof before slaughter. Cattle metapodials are particularly common, and may represent primary butchery waste from carcass processing near the Priory Field site. Pigs, meanwhile, are mainly represented by vertebrae and rib fragments, which may reflect consumption waste from pre-processed chops or loin steaks. Thick chopmarks on twelve specimens suggest that these cuts were prepared using heavy cleavers, a form of processing observed in the Flavian-Trajanic drain deposits at the Fortress Baths site (O'Connor 1986, 227). Small numbers of limb bones from chickens, mallards, and geese were also recorded from this phase. These probably represent 'snack joints' of wings and legs, a form of consumption attested at the Fortress Baths (O'Connor 1986, 227) and Museum (Hamilton-Dyer 1993, 135) sites.

Phase 1: Construction of the masonry store building

Phase 1 contexts produced 1884 animal bones (13% of the total assemblage), of which nearly 50% derived from (G2122), a group of Phase 1ii levelling deposits in the later entranceway (Room 4). Most bones are of pig, sheep/goat and cattle, whose mortality profiles evidence distinctive culling practices. Cattle were usually slaughtered as adults, a pattern that has been observed at the Fortress Baths (O'Connor 1986, 232), Museum (Hamilton-Dyer 1993, 134) and British Telecom (Hamilton-Dyer n.d.) sites, as well as other first-century

Table 4.32 Quantification of faunal taxa (NISF) by Phase

Taxon	0i	0ii	1i	1ii	2	3	4	5	6	7	u/s
Cattle (<i>Bos f. domestic</i>)	4	25	9	293	52	180	93	503	261	260	2
Pig (<i>Sus f. domestic</i>)	13	32	6	429	181	106	65	236	163	84	-
Sheep/Goat (<i>Ovis/Capra f. domestic</i>)	10	20	13	303	99	97	52	249	155	104	7
Horse (<i>Equus sp.</i>)	-	-	-	-	1	2	4	13	11	19	-
Dog (<i>Canis familiaris</i>)	-	-	2	2	2	1	1	3	-	1	-
Cat (<i>Felis catus</i>)	-	-	-	-	-	-	-	2	-	-	-
Red deer (<i>Cervus elaphus</i>)	-	-	-	-	-	-	-	1	1	-	-
Fallow deer (<i>Dama dama</i>)	-	-	-	-	-	-	-	3	2	-	-
Roe deer (<i>Capreolus capreolus</i>)	-	-	-	-	-	1	-	-	-	-	-
Mouse (<i>Mus sp.</i>)	-	-	-	-	-	1	-	4	-	-	-
Rat (<i>Rattus sp.</i>)	-	-	-	-	-	-	-	4	1	-	-
Large mustelid (<i>Martes sp.?</i>)	-	-	-	-	-	-	-	1	-	-	-
Cow-size	-	11	4	133	12	94	43	482	207	226	3
Pig-size	2	-	-	176	129	375	291	1870	1031	615	6
Sheep-size (medium dog to medium sheep)	8	1	2	132	83	132	53	439	248	161	7
Medium sheep to medium cattle	-	-	-	-	-	-	-	4	1	2	-
Medium dog to wild boar	-	-	-	8	-	-	-	3	16	1	-
Hare-size (rabbit to medium dog)	1	5	1	41	3	10	5	43	10	4	-
Microfauna (smaller than rabbit)	-	-	1	-	-	-	-	1	-	-	-
Uncertain mammal	5	22	14	218	298	395	307	720	801	336	-
Chicken (<i>Gallus f. domestic</i>)	-	2	-	73	46	56	12	105	52	20	6
Mallard (<i>Anas platyrhynchos</i>)	1	2	-	4	6	8	4	10	7	6	-
Teal (<i>Anas crecca</i>)	-	-	-	-	4	6	5	8	10	-	-
Pheasant (<i>Phasianus sp.</i>)	-	-	-	4	6	3	-	9	1	4	-
Snipe (<i>Gallinago sp.</i>)	-	-	2	1	4	3	-	3	7	-	-
Goose (<i>Anser sp.</i>)	-	1	-	-	3	1	-	2	4	-	-
Godwit (<i>Limosa sp.</i>)	-	-	-	1	-	-	1	5	2	-	-
Woodcock (<i>Scolopax sp.</i>)	-	-	-	-	-	-	1	4	1	1	1
Crow/Raven (<i>Corvus sp.</i>)	-	-	-	-	1	2	-	1	2	-	-
Grouse (<i>Lagopus sp.</i>)	-	-	-	1	2	-	-	2	1	-	-
Falcon (<i>Falco sp.</i>)	-	-	-	4	-	-	-	-	-	-	-
Partridge (<i>Perdix sp.</i>)	-	-	-	-	2	2	-	-	-	-	-
Crane (<i>Grus grus</i>)	-	-	-	-	1	-	-	-	2	-	-
Lapwing (<i>Vanellus sp.</i>)	-	-	-	-	-	-	-	1	-	1	-
Owl (<i>Strigiformes</i>)	-	-	-	-	2	-	-	-	-	-	-
Blackbird (<i>Turdus merula</i>)	-	-	-	-	1	-	-	-	-	-	-
Cormorant (<i>Phalacrocorax sp.</i>)	-	-	-	-	-	-	-	-	-	1	-
Plover (<i>Pluvialis sp.</i>)	-	-	-	-	-	-	1	-	-	-	-
Medium bird	-	-	-	1	-	-	-	1	-	2	-
Small bird	-	-	-	-	2	-	-	-	-	-	-
Uncertain bird	-	-	-	6	8	7	1	9	7	3	-
Total	44	121	54	1830	948	1482	939	4741	3004	1851	32

EXCAVATION OF THE PRIORY FIELD STORE BUILDING IN CAERLEON

Table 4.33 Quantification of faunal taxa (MNI) by Phase

Taxon	0i	0ii	1i	1ii	2	3	4	5	6	7	u/s
Cattle (<i>Bos f. domestic</i>)	1	1	1	7	3	5	2	8	6	5	1
Pig (<i>Sus f. domestic</i>)	1	1	1	4	3	3	2	9	5	2	-
Sheep/Goat (<i>Ovis/Capra f. domestic</i>)	1	1	1	4	2	4	3	11	5	2	2
Horse (<i>Equus sp.</i>)	-	-	-	-	1	1	1	1	1	1	-
Dog (<i>Canis familiaris</i>)	-	-	1	1	1	1	1	1	-	1	-
Cat (<i>Felis catus</i>)	-	-	-	-	-	-	-	1	-	-	-
Red deer (<i>Cervus elaphus</i>)	-	-	-	-	-	-	-	1	1	-	-
Fallow deer (<i>Dama dama</i>)	-	-	-	-	-	-	-	1	1	-	-
Roe deer (<i>Capreolus capreolus</i>)	-	-	-	-	-	1	-	-	-	-	-
Mouse (<i>Mus sp.</i>)	-	-	-	-	-	1	-	1	-	-	-
Rat (<i>Rattus sp.</i>)	-	-	-	-	-	-	-	1	1	-	-
Large mustelid (<i>Martes sp.?</i>)	-	-	-	-	-	-	-	1	-	-	-
Chicken (<i>Gallus f. domestic</i>)	-	1	-	7	3	5	3	11	3	2	2
Mallard (<i>Anas platyrhynchos</i>)	1	2	-	1	1	2	1	2	3	1	-
Teal (<i>Anas crecca</i>)	-	-	-	-	1	1	2	2	4	-	-
Pheasant (<i>Phasianus sp.</i>)	-	-	-	1	3	3	-	2	1	1	-
Snipe (<i>Gallinago sp.</i>)	-	-	2	1	1	2	-	2	2	-	-
Goose (<i>Anser sp.</i>)	-	1	-	-	1	1	-	1	1	-	-
Godwit (<i>Limosa sp.</i>)	-	-	-	1	-	-	1	1	1	-	-
Woodcock (<i>Scolopax sp.</i>)	-	-	-	-	-	-	1	1	1	1	1
Crow/Raven (<i>Corvus sp.</i>)	-	-	-	-	1	1	-	1	1	-	-
Grouse (<i>Lagopus sp.</i>)	-	-	-	1	2	-	-	1	1	-	-
Falcon (<i>Falco sp.</i>)	-	-	-	1	-	-	-	-	-	-	-
Partridge (<i>Perdix sp.</i>)	-	-	-	-	1	1	-	-	-	-	-
Crane (<i>Grus grus</i>)	-	-	-	-	1	-	-	-	1	-	-
Lapwing (<i>Vanellus sp.</i>)	-	-	-	-	-	-	-	1	-	1	-
Owl (<i>Strigiformes</i>)	-	-	-	-	1	-	-	-	-	-	-
Blackbird (<i>Turdus merula</i>)	-	-	-	-	1	-	-	-	-	-	-
Cormorant (<i>Phalacrocorax sp.</i>)	-	-	-	-	-	-	-	-	-	1	-
Plover (<i>Pluvialis sp.</i>)	-	-	-	-	-	-	1	-	-	-	-
Total	4	7	6	29	27	32	18	61	39	18	6

Table 4.34 Cattle skeletal zones by Phase

Skeletal zone	0i	0ii	1i	1ii	2	3	4	5	6	7
Head	-	1	-	17	5	14	8	52	19	8
Vertebrae and Ribs	1	3	3	73	7	20	4	55	4	6
Shoulder and Proximal Forelimb	-	-	1	63	4	12	10	37	25	11
Distal Forelimb	1	1	2	7	2	7	3	15	10	5
Pelvis and Proximal Hindlimb	-	-	1	17	4	3	6	23	12	6
Distal Hindlimb	-	-	-	9	1	8	1	12	4	5
Metapodials, Carpals and Tarsals	1	9	2	28	9	35	9	80	52	39
Phalanges	-	2	-	9	9	27	13	101	46	34
Loose Teeth	-	-	-	14	-	45	35	117	89	146

Table 4.35 Pig skeletal zones by Phase

Skeletal zone	Oi	Oii	1i	1ii	2	3	4	5	6	7
Head	-	-	-	30	9	8	7	17	6	5
Vertebrae and Ribs	13	23	6	284	85	28	19	31	11	2
Shoulder and Proximal Forelimb	-	-	-	7	2	5	6	16	11	5
Distal Forelimb	-	-	-	5	2	5	2	17	11	6
Pelvis and Proximal Hindlimb	-	2	-	8	7	4	2	18	8	5
Distal Hindlimb	-	-	-	4	1	2	2	5	3	1
Metapodials, Carpals and Tarsals	-	1	-	26	23	18	12	64	42	16
Phalanges	-	-	-	6	18	18	4	38	39	16
Loose Teeth	-	-	-	16	8	13	10	22	31	28

Table 4.36 Sheep/goat skeletal zones by Phase

Skeletal zone	Oi	Oii	1i	1ii	2	3	4	5	6	7
Head	-	1	-	14	6	8	8	20	7	5
Vertebrae and Ribs	8	9	6	152	40	12	9	17	7	6
Shoulder and Proximal Forelimb	-	2	-	23	8	14	3	30	25	11
Distal Forelimb	-	2	1	10	4	6	2	26	18	7
Pelvis and Proximal Hindlimb	2	-	-	18	5	8	2	15	7	1
Distal Hindlimb	-	1	-	14	2	4	4	26	12	6
Metapodials, Carpals and Tarsals	-	2	3	20	7	16	12	36	30	13
Phalanges	-	1	1	3	13	13	5	37	21	10
Loose Teeth	-	-	-	10	3	13	3	36	28	45

Table 4.37 Epiphyseal fusion counts for the three principal domestic taxa by Phase

Taxon	Fusion stage		Oi	Oii	1i	1ii	2	3	4	5	6	7
Cattle (Bos f. domestic)	Early	Fused	-	3	-	21	12	43	17	115	61	41
		Unfused	-	-	2	4	1	4	-	4	5	2
	Middle	Fused	1	1	-	19	3	19	3	31	18	11
		Unfused	-	-	1	3	1	-	1	9	4	4
	Late	Fused	2	2	1	27	7	14	5	21	6	6
		Unfused	-	-	1	26	2	7	4	20	3	4
Pig (Sus f. domestic)	Early	Fused	-	1	-	27	21	21	9	77	46	31
		Unfused	-	-	-	5	9	12	3	17	15	1
	Middle	Fused	-	1	-	4	3	3	1	8	4	2
		Unfused	-	-	-	13	12	6	4	23	15	4
	Late	Fused	-	1	-	6	4	6	1	10	3	3
		Unfused	-	-	-	10	4	6	3	12	10	2
Sheep/goat (Ovis/Capra f. domestic)	Early	Fused	-	2	1	32	13	18	6	48	21	16
		Unfused	-	1	-	3	4	3	4	14	8	3
	Middle	Fused	-	1	-	10	1	3	1	19	3	7
		Unfused	-	-	1	7	5	4	4	19	7	1
	Late	Fused	2	-	-	6	1	2	2	8	9	0
		Unfused	-	-	-	20	10	9	4	15	12	6

Table 4.38 Mandibular eruption and wear stages for the three principal domestic taxa by Phase

Taxon	Age	Oi	Oii	1i	1ii	2	3	4	5	6	7
Cattle (<i>Bos f. domestic</i>)	0 to 1 mths	-	-	-	-	-	-	-	-	-	-
	1 to 8 mths	-	-	-	-	-	-	-	-	-	-
	8-18 mths	-	-	-	-	-	-	-	-	-	-
	18-30 mths	-	-	-	-	-	-	-	-	-	-
	30-36mths	-	-	-	-	-	3	-	1	-	-
	Young adult	-	-	-	2	1	2	-	1	2	-
	Adult	-	-	-	-	-	2	-	2	-	-
	Old adult	-	1	-	-	-	-	-	-	-	-
	Senile	-	-	-	-	1	-	-	1	-	-
Pig (<i>Sus f. domestic</i>)	0 to 2 mths	-	-	-	-	-	-	-	1	-	-
	2 to 7 mths	-	-	-	-	-	-	-	-	-	-
	7 to 14 mths	-	-	-	-	-	-	-	-	-	-
	14 to 21 mths	-	-	-	2	1	-	-	2	1	1
	21 to 27 mths	-	-	-	2	-	1	-	-	-	1
	27 to 36 mths	-	-	-	-	-	-	-	-	-	-
	Adult	-	-	-	-	-	-	-	-	-	-
	Old Adult	-	-	-	-	-	-	-	-	-	-
	Senile	-	-	-	-	-	-	-	-	-	-
Sheep/goat (<i>Ovis/Capra f. domestic</i>)	0 to 2 mths	-	-	-	1	-	1	2	3	-	-
	2 to 6 mths	-	-	-	1	-	-	-	2	-	1
	6 to 12 mths	-	-	-	-	-	-	-	-	1	-
	1 to 2 yrs	-	-	-	1	-	1	-	-	-	1
	2 to 3 yrs	-	-	-	-	-	-	-	-	-	-
	3 to 4 yrs	-	-	-	-	-	-	-	1	-	-
	4 to 6 yrs	-	-	-	-	-	2	-	1	-	-
	6 to 8 yrs	-	-	-	-	-	1	-	-	-	-
	8 to 10 yrs	-	-	-	-	-	-	-	-	-	-

Table 4.39 Cattle horncore age stages by Phase

Age class	Oi	Oii	1i	1ii	2	3	4	5	6	7
Juvenile	-	-	-	-	-	-	-	1	1	-
Subadult	-	-	-	-	-	-	-	1	-	-
Young adult	-	-	-	-	-	-	-	1	-	2
Adult	-	-	-	2	1	-	1	-	2	1
Old adult	-	-	-	-	-	2	-	-	1	-

military sites like Alchester (Thomas 2008, 39-41) and Loughor (Sadler 1997, 400), and which may reflect the retention of livestock as draught or milk cattle prior to slaughter. Sheep/goats and pigs, meanwhile, were mostly culled as subadults, a pattern observed at other Caerleon sites and indicative of a husbandry strategy geared towards meat production. Elemental coverage for these three taxa is broad, if uneven, and when combined with butchery evidence highlights distinctive carcass processing and consumption practices. In the case of cattle, bones of the shoulder and upper forelimb, as well as metapodials, are overrepresented; chop marks indicate the use of heavy cleaver blows to

disarticulate the humerus from the scapula, while finer cutmarks along the scapular spine reflect deliberate defleshing. Both forms of processing are familiar from the Fortress Baths site, where they were interpreted as evidence for the preparation of stewing beef steak (O'Connor 1986, 231). An alternative possibility is that they reflect the smoking of shoulder meat, a practice attested at Carlisle (Stallibrass 1991, 34) and Nijmegen (Lauwerier 2009, 161), although none of the Priory Field scapulae bear the suspension holes characteristic of this form of processing. Ribs and vertebrae are particularly common among the sheep/goat and pig

bones, and many exhibit butchery marks consistent with the processing of lamb and pork chops.

Four dog bones were also found in Phase 1 contexts. Withers height estimates derived from two complete adult long bones (a tibia from (C3033), withers height 0.21 m, and a humerus from (C2097) withers height 0.38 m), demonstrate the presence of small- and medium-sized breeds, comparable in size to modern Yorkshire Terriers and Cocker Spaniels (Sutter *et al.* 2008, 716). These results tally with observations from the Fortress Baths (O'Connor 1986, 239) and the Southern Canabae (Powell 2012, 76) sites, where dogs were of small- to medium-size, and were possibly used for pest control.

Bird bones are fairly common in this Phase, and, as previously, consist mostly of limb bones. Chickens are by far the most common bird species and the ratio of spurred to spurless tarsometatarsi (3:5) suggests a mixed source flock kept for meat and egg production. Other birds recorded from this phase include mallards, pheasants, falcons, grouse, snipe, and godwit, which may evidence opportunistic hunting and trapping.

Phase 2: Occupation and alteration of the store

Phase 2 contexts produced 948 animal bones (6% of the total assemblage), most of which derive from bedding and levelling deposits: these include (G2103), a group of pottery-rich deposits beneath the new floor in Room 3, and (G605), a group of shallow bedding layers beneath the re-laid flagstone surface in the entranceway (Room 4). The assemblage is still dominated by pigs, sheep/goat and cattle, and there are the same differences in the mortality profiles of these species: most cattle were slaughtered in adulthood, while most sheep/goat and pigs were slaughtered as subadults or young adults. An unusual skew towards foot bones hints at the presence of butchery waste, although many 'waste' bones seem only to have been discarded after having been exhausted of economic potential. Pig phalanges found in the entranceway's levelling deposits (C2091) and (C2092), for example, bore piercings in the interphalangeal area, indicating the extraction of bone marrow for dietary purposes. Similarly, cattle metacarpi ($n=6$) and metatarsi ($n=1$) are unevenly represented, possibly reflecting selective removal of bones for industrial use. Compared to the short and broad metacarpus, the long and slender metatarsus is well-suited to the production of tool handles and examples of objects made in this manner, including a ribbed sword-grip from the Museum site (Zienkiewicz 1993a, 118, No. 3), have been previously discovered at Caerleon. Evidence for other mammalian taxa in this phase was sparse, consisting of two dog teeth and a horse tooth found in Rooms 1, 4, and the external yard. Bird bones, however, were fairly

common and, as in the preceding phase, consisted mainly of chicken wings and legs, although a range of different hedgerow and wetland species were also recorded. A group of vole bones from Soil Block 1, that contained the decayed remnants of a horse's headpiece and iron plate armour, indicate that rodents were living in Room 2 before the building's collapse.

Phase 3: Dereliction and demolition of the store building

Phase 3 contexts produced 1482 animal bones (10% of the total assemblage), roughly 75% of which derived from two demolition deposits: a sequence of silty clay layers in the entranceway (G2000), and a rubble deposit in Room 7 (G3084). Cattle, pigs and sheep/goat dominate the assemblage, and mortality profiles continue to reveal distinctions between adult-dominated cattle stocks and younger sheep/goat and pig stocks. However, there are some exceptions to this trend: three of the five ageable sheep/goat mandibles from this phase belonged to animals aged four years or older, perhaps kept for wool and/or milk production. As previously, all skeletal elements are represented for these three taxa, but a consistent skew towards loose teeth and bones of the lower leg and foot suggests that much of the material derives from butchery waste. Many bones bear cutmarks consistent with the disarticulation of joints and one cattle phalanx from (C2002) was pierced medially along the shaft for marrow extraction. Evidence for other mammalian taxa derived exclusively from (C2001), a deposit sealing the flagged stone surface in the entranceway, and consisted of fragmentary long bones and teeth from horses, a dog, a roe deer, and a mouse. Bird bones were not uncommon in this Phase, and as before consisted mainly of chicken, supplemented by a range of hedgerow and wetland birds.

Phase 4: Post-Roman masonry buildings

Phase 4 contexts produced 939 animal bones (6% of the total assemblage), of which just under 50% was found in Area A from the occupation deposit (C210), much of which is likely to be residual from the previous phases. Cattle, pigs and sheep/goat dominate the assemblage, and the sparse ageing data reiterates the distinction between a mainly adult cattle stock and mainly subadult sheep/goat and pig stock. Element representation is skewed towards the lower limbs and feet, consistent with an assemblage dominated by butchery waste. Horses and dogs, represented by a handful of bones apiece, are the only other speciated mammalian taxa known from this phase, and the bird bones are mostly chickens, although waterfowl and wading birds are also present.

Phase 5: Wall robbing

Phase 5 contexts produced 4741 animal bones (32% of the total assemblage), a significant concentration of which were found scattered among robbing debris (rubble) overlying the external yard (G3004). This material closely resembles that found in Phases 3–4, and presumably also contains a significant quantity of residual waste originating from disturbed Roman deposits. The incorporation of medieval and later material, however, is implied by the presence of taxa that are otherwise absent from Roman phases; these include cats, red deer, fallow deer, and rats, the last three of which also are encountered in Phase 6 deposits (see below). Among the more interesting specimens encountered in this Phase are two cat phalanges from robbing deposits (G709) and (G2056) and the mandible of a large mustelid, probably a marten, from (G315). These may be waste material from skinning, an industry attested at Caerleon in the post-medieval period.

Phase 6: Medieval and early modern occupation

Phase 6 contexts produced 3004 animal bones (20% of the total assemblage), including significant concentrations associated with possible surfaces (G202) and (G815), rubble deposit (G501), and linear feature (G2034). A proportion of this material is likely to consist of residual or redeposited animal bone from earlier phases. The assemblage consists mainly of cattle, pigs, and sheep/goat, and ageing data points towards different husbandry regimes. As in the Roman Phases, pigs were typically slaughtered as subadults for meat production, whereas cattle were usually slaughtered after reaching maturity, presumably having been exploited for their secondary products. The situation for sheep/goat, however, is more complex: while epiphyseal fusion and mandibular data suggests that most were culled for meat before reaching 2.5 years, a significant minority were clearly kept into adulthood. This almost certainly reflects a shift in husbandry strategies towards wool production, a core industry of southeast Wales until the mid-sixteenth century (Kennerley 1983, 5). All anatomical zones are represented for these three species, although waste elements from the head and feet are particularly common. Evidence for carcass processing is given by heavy chop marks on carpals, tarsals, and the proximal ends of metapodials, as well as round punctures in the interphalangeal zone (indicative of marrow extraction), on all three species. Interestingly, one cattle metatarsus from (C704) exhibits fine proximal cut marks that could have resulted from hide preparation, an industry attested at Caerleon in medieval documents and pursued in the town into the nineteenth century (Kennerley 1993, 5; *Monmouthshire Merlin*, 4 February 1832, 2).

Other mammalian taxa represented in Phase 6 include red deer, fallow deer, and a rat. The presence of red and fallow deer, the latter rarely encountered in south Wales before the twelfth century (Maltby and Hambleton 2014, 195–7), may relate to the deer park established in Caerleon by 1382, which probably lay 2.6 km northwest of the site at Ponthir (Kennerley 1983, 33–4). Avian taxa are dominated by chickens, augmented by smaller numbers of mallards, teal, pheasants, geese, cranes, corvidae, grouse, woodcock, snipe, and godwit.

Phase 7: Modern activity

Phase 7 contexts produced a total of 1851 animal bones (12% of the total assemblage), most of which derive from topsoil and subsoil contexts in Area A, such as (C005) and (C200). Stratigraphic evidence suggests that the animal bone from this phase may include a high proportion of residual or redeposited material. Most bones derive from adult cattle and subadult sheep/goat and pigs, and head bones and loose teeth are particularly common. Small numbers of additional species are present, including horses, a dog, chickens, mallards, pheasant, woodcock, lapwing, and a probable cormorant.

Thematic Discussion*Whose food? Diet and refuse in the Priory Field Store Building*

Previous studies of excavated animal bones from Roman Britain have identified significant differences in the pattern of meat consumption at military and civilian settlements. While assemblages from military sites are normally dominated by cattle and, to a lesser extent, pigs, those from civilian sites tend to have higher proportions of sheep/goat, a pattern familiar from the late Iron Age (King 1984; Hambleton 1999). This distinction may reflect the development of a ‘military diet’ in the Roman army by the time of the Claudian invasion, whose origins perhaps lay in the beef- and pork-heavy diets of the Gallic and Germanic legionary homelands (King 1984, 197–201; King 2001, 216–8). Evidence from the Fortress Baths and Museum sites suggests that intramural meat consumption at *Isca* broadly conformed to this military pattern, with both sites yielding animal bone assemblages dominated first by cattle and secondly by pigs (O’Connor 1986; Hamilton-Dyer 1993). In this context, the Priory Field assemblage appears unusually porcine (Figure 4.76): 35% of all speciated animal bones from Roman Phases derive from pigs, while only 28% derive from cattle and 25% from sheep/goat. This discrepancy is particularly marked in Phases 0–2, where 40% of speciated animal bones derive from pigs, compared to 27% from sheep/goat and 23% from cattle. It is not until Phase 3 that

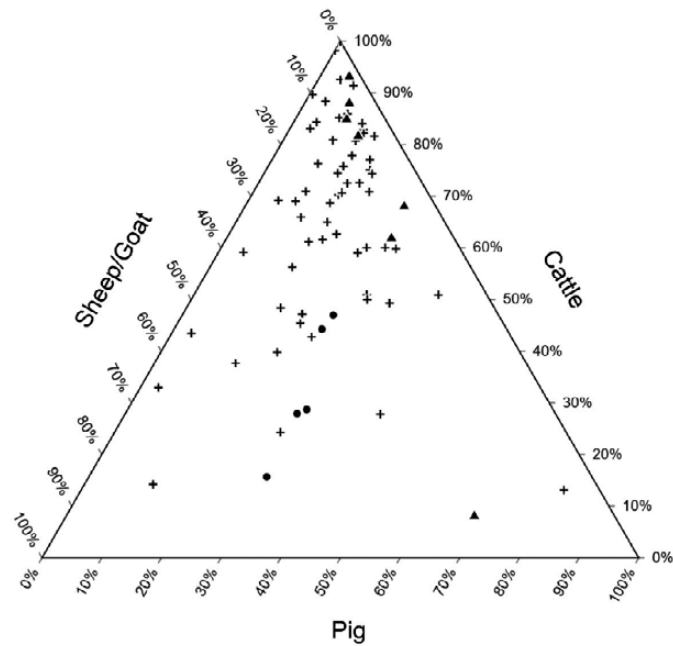


Figure 4.76. Ternary plot showing relative percentages of cattle, sheep/goat, and pig bones from Priory Field (circles), other Caerleon sites (triangles), and other Romano-British military sites (crosses). Comparative data from King 1984; 1999.

the pattern of the assemblage more closely resembles traditional military sites, with a higher proportion of cattle compared to pigs and sheep/goat.

The pig-dominated Priory Field assemblage is unusual in a military context and invites comparison with urban sites like Caerwent, Exeter, and Wroxeter (Maltby 2010, 264-5). Its closest local parallel, however, is the extramural Southern Canabae, where pig remains accounted for 61% of fragments assigned to the three main domestic taxa (Powell 2012, 77). The similarity with urban material is perhaps significant, since the

canabae legionis may have performed quasi-urban functions in the north-western provinces (Guest et al 2012; Franzen 2009, 1275). The similar compositions of the Priory Field and Southern Canabae assemblages gain added interest when considered against the former's contextual and taphonomic attributes. As previously noted, animal bones from Phases 0-2 at Priory Field derive primarily from make-up and levelling deposits, and have unusually high concentrations of heavily-weathered and root-etched material (Tables 4.40-4.41). These phases also yield reasonable quantities of rodent and carnivore-gnawed bones (16 out of

Table 4.40 Weathering of animal bones by Phase

Weathering	0i	0ii	1i	1ii	2	3	4	5	6	7	u/s
Very slight	-	-	-	3	-	3	-	4	6	6	-
Slight	7	17	22	466	122	483	75	1233	410	257	15
Moderate	29	75	26	1141	576	918	734	3286	2362	1407	13
Heavy	4	23	5	185	232	54	130	218	226	180	5
Extremely heavy	4	6	1	35	18	24	-	-	-	-	-

Table 4.41 Root etching of animal bones by Phase

Root etching	0i	0ii	1i	1ii	2	3	4	5	6	7	u/s
None	16	43	29	647	301	1109	559	3357	2354	1594	27
Slight	24	55	20	738	347	329	334	1357	638	248	6
Moderate	4	21	5	427	292	43	46	27	12	8	-
Heavy	-	2	-	18	8	1	-	-	-	-	-

56 gnawed bones from the site), as well as bones of scavenging birds, rodents, and small- to medium-sized dogs possibly used for pest control. This evidence suggest that the Phase 0-2 material from Priory Field consists mainly of redeposited waste sourced from open-air rubbish dumps or middens, similar to those observed in the *vicus* of the Pen-y-gaer auxiliary fort in southern Powys (Jones and Hankinson 2012, 13). If so, it seems probable that this material was originally consumed in a different part of the fortress, possibly including the Southern Canabae itself; a direct contrast to the Fortress Bath assemblage, where the animal bone assemblage derived mainly from on-site consumption of snack meat. This interpretation could suggest that the animal bones from Phases 0-2 are only indirectly linked to legionary diet within the fortress walls and may instead reflect a background pattern of high-status Roman-style consumption in the area of the *canabae legionis*. The material from Phase 3, however, has a markedly different composition, and is much more likely to indicate legionary consumption within the fortress itself, albeit perhaps up to 200 years later.

Livestock Sourcing and Supply Networks

Though perhaps not uniformly representative of legionary diet, the animal bones from Priory Field offer glimpses of the networks of livestock supply necessary for the provisioning of the permanent military installation and *canabae* at *Isca*. It is often assumed that the Roman military relied heavily on local agrarian produce to meet its food demands (Groot 2008, 23; Thomas and Stallibrass 2008, 9), and evidence from Priory Field and other Caerleon sites offers some support for this theory. The anatomical

coverage of pig, cattle, sheep/goat remains in Phases 0-3 is reasonably broad, indicating that animals were usually driven on-the-hoof to *Isca* prior to slaughter; Thomas (2008, 32) has identified this as a characteristic feature of local stock supply and biometrical data provides corroboratory evidence in this direction. In the case of cattle, measurements were taken from 47 complete long bones from Priory Field (40 metapodials, six radii, and one tibia), and a further 45 long bones from Caerleon in the collections of the National Roman Legion Museum: Museum Garden (16), British Telecom (10), Myrtle Cottage (8), Prysg Field (3), Golledge's Field, (2), Jenkins' Field (1), and unprovenanced locations (5). These were converted into withers height estimates, yielding a mean height of 1.07 m and a median of 1.06 m (Figure 4.77). Comparison with material from other Iron Age and Romano-British sites (Table 4.42) suggests that the cattle supplying Caerleon were similar in size to cattle found on sites in south Wales and the southern Marches, but were generally smaller than those found elsewhere in England and Wales. In the case of sheep/goat, measurements were taken from 17 complete long bones from Priory Field (14 metapodials, two radii and one humerus), and a further twelve long bones from Caerleon in the collections of the National Roman Legion Museum: Museum Garden (5), British Telecom (2), the Amphitheatre (1), Fortress Baths (1), Jenkins' Field (1), Prysg Field (1), and unprovenanced locations (1). Converting these into withers height estimates yields a mean and median height of 0.56 m (Figure 4.78), which is comparable to sheep/goat found at other sites in Wales and the Marches but smaller than those found in northern and southern England (Table 4.43). With the caveat of small sample sizes, the biometric similarities between cattle and sheep/goat remains

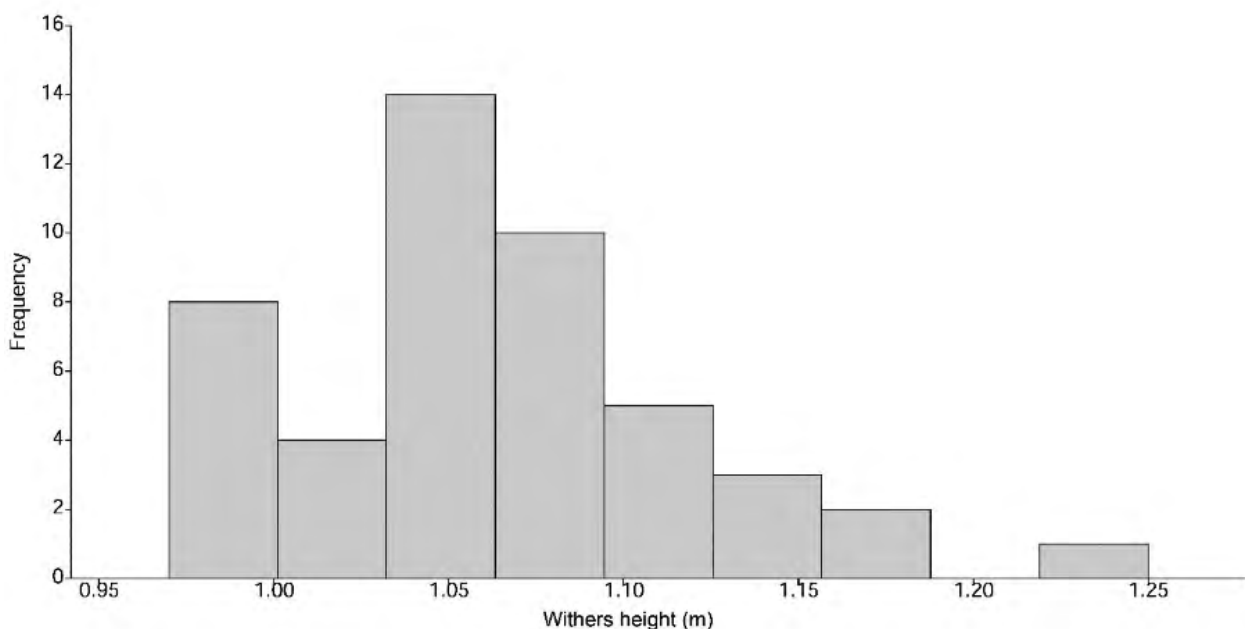


Figure 4.77. Histogram of estimated withers heights (m) of 47 Roman cattle from Caerleon sites.

Table 4.42 Withers height estimates for cattle from Caerleon and selected Iron Age and Romano-British sites

Site name	Date	Mean withers height (m)	Range (m)	Reference
Chester Delamere Street	RB	1.05	0.33	Baxter 2012, 134
Croft Ambrey	IA	1.05	0.12	Whitehouse and Whitehouse 1974, 238
Loughor	RB	1.05	0.12	Sadler 1997, 400
Caerleon	RB	1.07	0.28	-
Bagendon	IA	1.07	0.05	Jackson 1961, 269
Whitton	IA-RB	1.07	0.03	Kinnes 1981, 237
Birdlip	IA-RB	1.07	0.03	ABMAP
Coygan Camp	RB	1.07	0.13	Westley 1967, 193
Prestatyn	RB	10.7	0.22	Jones 1989, 215
Carlisle	RB	1.08	0.28	Stallibrass 1991, 7-19
Caerwent	RB	1.09	0.13	Noddle 1983, 64
Exeter	RB	1.09	0.24	Maltby 1979, 165-7
Wroxeter	RB	1.09	0.25	Noddle and O'Connor 2002, 257
York	RB	1.11	-	O'Connor 1988, 97
Beckford	RB	1.13	0.10	ABMAP
Segontium	RB	1.13	0.30	Noddle 1993, 105-7
Kingscote	RB	1.13	0.36	Maltby 1998, 421-8
Frocester	IA-RB	1.13	0.30	Noddle 2000, 221
Chichester	RB	1.15	0.27	Levitan 1989, 245

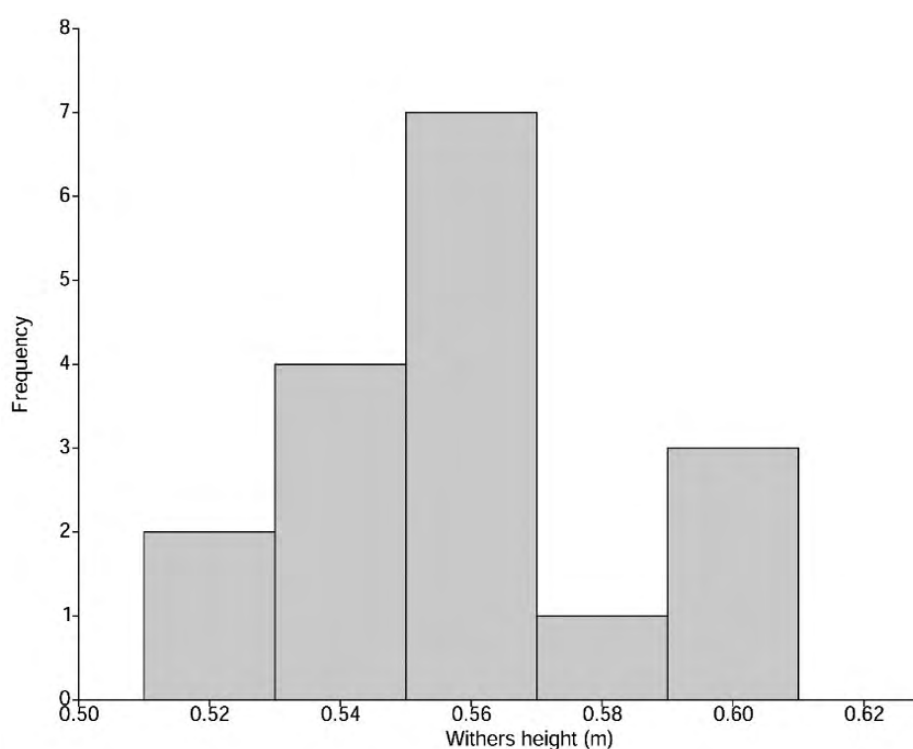


Figure 4.78. Histogram of estimated withers heights (m) of 17 Roman sheep/goats from Caerleon sites

Table 4.43 Withers height estimates for sheep/goat from Caerleon and selected Iron Age and Romano-British sites

Site name	Date	Mean withers height (m)	Range (m)	Reference
Beckford	RB	0.50	0.13	ABMAP
Whitton	IA-RB	0.55	0.17	Kinnes 1981, 237
Wroxeter	RB	0.55	0.13	Noddle & O'Connor 2002, 259
Caerleon	RB	0.56	0.10	-
Chester Delamere Street	RB	0.57	0.11	Baxter 2012, 135
Frocester	IA-RB	0.57	0.20	Noddle 2000, 227
Balksbury	IA-RB	0.57	0.14	ABMAP
Segontium	RB	0.57	0.14	Noddle 1993, 112-4
Croft Ambrey	IA-RB	0.58	0.10	Whitehouse & Whitehouse 1974, 240-1
Exeter	RB	0.58	0.12	Maltby 1979, 183-5
Cowbridge	RB	0.59	0.05	Jones a&nd Sadler 1996, 231
Prestatyn	RB	0.59	0.13	Jones 1989, 217
York	RB	0.59	0.08	O'Connor 1988, 98
Carlisle	RB	0.59	0.13	Stallibrass 1991, 25-9
Kingscote	RB	0.60	0.06	Maltby 1998, 421-8
Chichester	RB	0.60	0.20	Levitan 1989. 251

found at Caerleon and other sites in Wales and the Welsh Marches are broadly consistent with a system of local or regional livestock provisioning, suggesting that animals consumed at the site were most likely reared in its immediate hinterland.

Strontium ($^{87}\text{Sr}/^{86}\text{Sr}$) isotope analysis offers an alternative, and to some extent complementary, perspective on livestock sourcing at Roman *Isca*. In a recent study by Madgwick *et al.* (2019), dental samples were taken from 37 cattle, pigs, and sheep/goats found in Phase 0-4 contexts at Priory Field, whose $^{87}\text{Sr}/^{86}\text{Sr}$ isotope ratios were analysed using mass spectrometry. Comparison with bioavailable strontium indicates that the majority of sampled remains derived from livestock raised within 5 km of Priory Field, although two groups of non-local animals were also identified. One group is likely to have originated in southern or central England, while the other may have originated in the Malvern Hills, northern Britain, or Brittany. While these findings do not contradict a model of primarily local or regional livestock sourcing, they do provide evidence for long-distance supply networks augmenting local production, perhaps linked to systems of long-distance overland droving (Stallibrass 2009). The annual Caerleon May Fair might provide a later parallel, attracting cattle, horse, sheep and pig dealers 'from South Wales, Bristol, and the Midlands' at the turn of the twentieth century (*Monmouthshire Advertiser* 6 May 1905, 5). Exactly how livestock was acquired from local or distant sources is nonetheless unclear; potential mechanisms might include compulsory purchase (Manning 1975, 115), payments in kind (Adams 1999, 122), and forced

requisition or plunder (Roth 1999, 144-6) as well as direct military stock-raising (Elton 1996, 67-9).

Legionary Provisioning and its Landscape Impact

Given the apparently local origins of most livestock consumed at Priory Field, it seems likely that animals were routinely pastured within the legionary *territorium* or *pratum* for at least a short period of time. The extent of this hinterland is unclear, though Manning (1975, 114) speculates that as much as 260 km² (a five-mile radius of the fortress) may have been given over to arable cultivation and stock rearing for the army, while Mason (1988, 181-4) argues for a more extensive region of c. 375 km², traversing several distinct *pays* from Cardiff to Machen and from Usk to the Gwent Levels. While the animal bones from Priory Field cannot clarify the extent of the legionary hinterland, they do provide modest evidence for its agrarian character. The presence of traction cattle in Roman phases at Priory Field echoes other indicators for local cereal production near military sites in Wales (Caseldine 2010, 154), as does the presence of partridge in Phase 2 and 3 contexts, a species normally associated with the edges of cultivated fields (Venables 2008, 101). Plovers, a species present in Roman deposits at the Fortress Baths (O'Connor 1986, 240) and recorded in Phase 4 at Priory Field, may derive from cultivated fields or riverside habitats, although the latter is more likely given evidence for other wetland and wetland-peripheral species at Priory Field, including mallards, teals, geese, cranes, snipes and godwits. Taken as a whole, this material points to a landscape of mixed arable and

meadowland, the latter of which is likely to have been used for pastoral grazing. Given the large number of pig bones found at Priory Field, it is interesting to note

the absence of any conclusively woodland bird species in Roman phases at the site, which may reflect the preferential use of sties over wood pasture or pannage.