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Summary

This chalkland site excavated by the Trust for Wessex Archaeology produced over 5000 fragments of animal bones from contexts dating from the Neolithic to the Post Medieval period. The prehistoric material included small samples from barrow ditches, including a substantially complete cattle skull. Most of the bones were of Late Iron Age and Roman date. These included animal bones associated with Durotrigian and later burials. Joints of pork and poultry were found in several of the Durotrigian graves. Such goods were less common in the later Romano-British cemetery. In contrast, cattle and sheep/goat bones predominated in the non-burial contexts, whereas pig and domestic fowl bones were relatively scarce.

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THE ANIMAL BONES FROM THE 1984/85 EXCAVATIONS AT ALINGTON AVENUE, DORCHESTER, DORSET

Introduction

The excavations were carried out by the Trust for Wessex Archaeology on the site which lies to the SE of Dorchester, about a kilometre outside the line of the town's Roman walls (SY 702899). This report deals with the animal bones recovered from the 1984 trial trenches (W89) as well as from the subsequent major archaeological excavations in 1985 (W98). An area of 1.4 hectares was stripped to the chalk bedrock by the removal of 0.2-0.5 metres of topsoil. The site revealed features and associated artifacts dating from the Neolithic to the Postmedieval Period (Davies et al. 1985). Details of the various deposits will be outlined in the following phase by phase discussion of the faunal data. Animal bones were recovered both during the excavations (mainly from trowelling) and from a series of soil samples that were subsequently wet-sieved through a 1mm mesh. These samples had been trowelled prior to sieving and the larger finds (including bones) removed. The data obtained from these different methods of retrieval are considered separately in this report In total, 4,454 fragments were recovered during the excavation and an additional 717 fragments were retrieved from the soil samples (Table 1).

The bone fragments were identified by the author with the aid of the modern comparative skeleton collections at the Faunal Remains Unit, Department of Archaeology, University of Southampton. Information from animal bones from all stratified contexts was computer-recorded using the Ancient Monuments Laboratory's coding system (Jones et al. n.d.). Measurements cited in this report were all taken in the manner recommended by von den Driesch (1976). Printed copies of the resultant archives were placed with the rest of the excavation archive at the Trust for Wessex Archaeology in Salisbury and in the Faunal Remains Unit. The animal bones themselves are stored in the Dorchester Museum.

Phase 21 - The Neolithic Long Barrow Ditches

13 contexts from the parallel segmented ditches that probably flanked a long mound or barrow produced animal bones during the excavations (Tables 2-4). 17 of the 44 fragments were from primary fills. The most spectacular find was that of a substantially complete cattle skull found inverted in the primary fill (2102) of the northern ditch. Most of the skull had survived but only one incomplete horn core and one of the maxillae were present. All of the permanent teeth were in full wear and the horn core was compact. Some of the later-fusing skull sutures were, however, either just fusing or unfused. The skull therefore belonged to an adult animal which had not reached an extreme age. The horn core basal circumference (von den Driesch 1976: 28) measured c.240mm. Its maximum and minimum basal diameters measured 84.6 and 75.0mm respectively. This falls within the size range both of domestic males from other English Neolithic sites and of wild (*Bos primigenius*) females from Holocene sites in Northern Europe (Grigson 1982: 28). Although the horn core was incomplete, enough of it survived to indicate that it was relatively short, broad and ovoid in cross-

section. These characteristics suggest that the skull belonged to a domestic male. The length of the cheek toothrow of this skull measured 142.8mm and the maximum breadth of the occipital condyles measured 109.7mm. An atlas and another cervical vertebra recovered from an adjacent context (2103) probably belonged to the same animal, as may the fragment of mandibular ramus recovered from the secondary fill (2104) in this section of the ditch. No butchery marks were found on these or on any other bones in this phase.

Other bones from the primary fills of the ditches included fragments of tibia and metacarpus of sheep/goat (1903) and four bones from the skeleton of a frog or toad (1980). A humerus of a fox (Vulpes vulpes) was found in the same context as the cattle vertebrae (2103). Secondary fills produced part of a pig's skull (1929) and an axis of a horse (1988). Horse bones have only rarely been encountered in well stratified Neolithic contexts (Grigson 1966: 69-70) and therefore an early date for this find must be open to question. Other cattle bones from the ditches are listed in Table 4. A fragment of red deer (Cervus elaphus) antler was found in a tertiary fill (1300).

The most common category of bones from the ditches consisted of unidentifiable large mammal fragments. These belonged to animals the size of cattle, horse or red deer but were not identifiable to species (Table 2). 30 fragments were eroded, most of which were found in the secondary fills. A cattle metatarsus also in a secondary fill bore gnawing marks. Sieving of soil samples produced nine fragments, of which only one - a cattle tooth - was identifiable to species (Table 3).

Grigson (1966) reviewed the existing evidence concerning animal bones recovered from long barrows. Several parallels for the disposal of cattle bones in such structures can be quoted. At Fussell's Lodge, for example, an almost complete vertebral column was recorded adjacent to the primary fill of a ditch and another context from the barrow produced the skull and feet of what was possibly a hide burial. Grigson suggested that there may have been special treatment of cattle carcases in contexts associated with the primary use of unchambered long barrows. Relatively little evidence has subsequently been forthcoming either to support or refute this theory. The evidence from Alington Avenue is also not unequivocal. However, it could be argued that the presence of the cattle skull and neck vertebrae in ditches otherwise largely devoid of faunal remains in the primary fills may represent evidence that its disposal was of some special significance to the builders of the monument.

Phase 22 - The Mortuary Enclosure

The ditches at the eastern end of the long mound were subsequently modified to form the boundaries of what was probably a round barrow. Only 27 animal bones from 13 contexts within the ditches were recovered by normal excavation methods and just two came from the sieved samples (Tables 2-3). Only eight fragments were associated with primary fills, including a fragment of red deer antler (1364), a cattle tibia damaged by carnivore scavenging (1361) and a cattle mandible (3924). The other bones were unidentified large mammal fragments.

The bones from the secondary fills of the ditches included

three largely complete cattle scapulae. Two of these were measured. They had minimum neck lengths (von den Driesch SLC) of 55.1 and 52.7mm and greatest lengths of the glenoid process (von den Driesch GLP) of 70.8 and 69.6mm respectively. A tibia in the same fills had maximum distal breadth and depth measurements (von den Driesch Bd and Dd) of 71.1 and 52.3mm respectively. These measurements all fell within the ranges obtained for domestic cattle represented on Neolithic sites in Wessex. Elements represented in the cattle sample are given in Table 4. Other species represented in these fills were sheep (calcaneus), pig (tibia damaged by carnivores), red deer (antler tine) and fox (articulating mandible and maxilla). 18 fragments from the ditches were eroded and no butchery marks were observed. Sieving produced two fragments of teeth, one of which belonged to cattle.

Phase 23 - The Round Barrow/Spectacle Enclosure

Seven contexts associated with these Bronze Age structures produced just 11 fragments. No bones were recovered from sieved samples. Six of the bones were eroded and only five were identified to species (Table 2). These included three cattle phalanges (Table 4), probably from the same animal, recovered from the secondary fill of the round barrow ditch (2369). The same context produce a cattle cervical vertebra. A fragment of sheep/goat mandible was found in a stake hole (1304) associated with the central round barrow.

Phases 30-35 - Arabilisation and Monument Decay

Most of the 14 contexts that produced animal bones were from a series of shallow ditches which formed field systems dated to the Late Bronze Age and Early Iron Age. Three contexts were from the upper fills of the ditches of the Phase 22 Mortuary Enclosure. 44 fragments were recovered during the excavations and 28 from the sieving of soil samples. Five domesticated species were represented in the unsieved sample. In addition, there was a fragment of red deer antler and a radius of an indeterminate species of bird. (Table 2). Half the bones came from one ditch fill (1949 - Phase 33) and included bones from the partial skeleton of an adult dog. Both mandibles, several bones of both forelimbs and a femur were recovered. Measurements obtained from the humerus indicated that the animal was not much larger than a fox and was relatively slender in build. The humerus had a greatest length from the caput (von den Driesch GLC) of 126.0mm and a minimum shaft breadth (von den Driesch SD) of 9.3mm.

The cattle elements (Table 4) included a mandible bearing a superficial chop mark on the ramus associated with its detachment from the skull. Five fragments bore gnawing marks and 28 fragments were eroded, reflecting the shallow nature of these deposits. The only identifiable fragments amongst the sieved samples consisted of a second phalanx and three loose teeth of sheep/goat (Table 3).

Phase 36 - Late Iron Age "D"-shaped Enclosure and Pit Burial

Most of the animal bones in this phase were obtained from the ditch fills of the enclosure and other contemporary linear features constructed during the late Iron Age. 22 contexts

produced 243 fragments from the excavation of these features. A further seven animal bone fragments were recovered in association with a pit burial. These included three bones from the right forelimb of a sheep (humerus, radius, ulna). Given the practice of placing joints of meat as gravegoods with Durotrigian and later burials on this site (Phases 45-46), the discovery of this group may be significant, particularly if an early date is confirmed by radiocarbon dating. However, it should also be noted that the radius and ulna had been damaged by gnawing, indicating that these bones had been accessible to a scavenger (probably a dog) prior to deposition. Consequently it is possible that these bones were simply incorporated into the pit fill subsequent to the inhumation and were not gravegoods.

The contents of the ditches were dominated by bones of cattle, horse and unidentifiable large mammal fragments (Table 2). These figures were biased by the recovery of several associated or articulated groups of bones. Context (536) included 13 ribs, 15 thoracic and five lumbar vertebrae from at least two cattle. A pair of cattle os coxae associated with a sacrum and a caudal vertebra were found in (545) in the same section of the ditch [521]. These probably belonged to one of the two sets of vertebrae in (536). 12 horse bones in (408) comprised the skull, mandibles, cervical vertebra and some teeth of a male. Measurements of cheektooth height (Levine 1982) suggested that the animal was probably aged between eight and ten years old. Although no cut marks were observed on any of these bones, it is likely that these groups represent units of carcases dumped after butchery.

Even discounting the associated groups of large mammal bones, sheep/goat and especially pig are poorly represented in these deposits. In several contemporary sites in Hampshire cattle and unidentifiable large mammal fragments have consistently been found in larger numbers in ditches of this sort than in pits. The results from Alington Avenue fit closely into the expected "ditch" pattern (Maltby n.d.1). The reasons for this probably lie in a combination of the effects of differential preservation and disposal practices. Animal bones in shallow features on chalkland sites do not survive as well as those buried in deeper fills. At Alington Avenue, 70 fragments from these ditch fills were eroded. Carnivore scavenging also accounted for a great deal of bone destruction. Amongst the surviving assemblage, 27 fragments bore gnawing marks and many more bones may have been destroyed completely. As a result, the sheep/goat sample in particular was biased towards dense elements such as loose teeth, mandible and the shafts of metapodia, tibia and radius. In some cases sections of the ditches may also have been located in areas away from the main occupation area where more carcases of large mammals may have been initially processed.

Elements represented in the cattle and sheep/goat assemblages are given in Table 4. The pig bones consisted of two skull fragments and a mandible. The four bones of dog consisted of a radius and ulna belonging to an immature animal of small and slender build (1594), a mandible and lumbar vertebra. Ageing, butchery, metrical and pathology evidence for this phase will be discussed in conjunction with data from the Romano-British phases. 66 fragments were recovered from sieved soil samples (Table 3). Identified species included sheep/goat, cattle, pig and two species of bird. Rook or crow (Corvus frugilegus/ corone corone) and domestic duck/mallard (Anas platyrhynchos) were each

represented by a single bone. The mole bone (Talpa europaea) is likely to have been a later intrusion. As in all sieved samples from this site, larger bones were removed from the soil during trowelling.

Phase 37- Stabilisation of Iron Age Soils

Contexts consisting mostly of late Iron Age ploughwash in the upper fills of Bronze Age ditches produced ten fragments from normal excavation. Most of these were heavily eroded. Cattle, sheep/goat, dog and horse were identified (Table 2). The fill of a grave inserted into the Bronze Age barrow produced just one bone - a scapula of a horse which had been gnawed by a dog. Most of the 178 fragments from sieved soil samples were obtained from the tertiary fills of the long and round barrow ditches. Sheep/goat, cattle and horse fragments were identified (Table 3).

Phase 41- Last Stages of "D"-shaped Enclosure

The upper fills of the Phase 36 enclosure ditches were associated with material of 1st-2nd Century A.D. date. 20 contexts produced 241 fragments from normal excavation (Table 5). Apart from two cattle cervical vertebrae, none of the bones were found in articulation. 159 fragments were eroded representing a significantly higher proportion of the assemblage than in the lower fills. Only 18 observations of gnawing marks were made but the heavier incidence of eroded bones would have hindered such observations. The poorer preservation of the sample is also reflected in the higher proportion of unidentifiable fragments. However, the pattern of species representation did have some similarities with Phase 36. Cattle, horse and unidentifiable large mammal fragments were well represented; sheep/goat, pig and unidentifiable sheep-sized mammal fragments were relatively poorly represented. Although sheep-sized mammals are better represented amongst the sieved samples (from which larger bones were removed prior to processing - Table 6), it does appear that the bones of cattle and horse continued to be deposited - or at least survived - in relatively greater numbers in these ditches. Only a single fragment of pig was identified from this phase. Ageing, metrical and other data from all the Roman phases will be discussed in a later section.

Phase 42 - Buildings Associated with Romano British Occupation

Animal bones were found in a variety of features associated mostly with the two buildings [459] and [1737]. At the threshold of the former building (dated to the 1st-early 2nd Centuries A.D.) were two shallow pits which contained semi-articulated sheep burials.

In the fill (893) of the first, 64 bones from two immature sheep were recovered. All the bones were from the head or the feet of animals which had been dumped after separation from the main meat-bearing parts of the carcase. These bones may have been removed with - and were possibly still attached to - the skins and subsequently buried. Similar deposits of sheep head and foot bones have been encountered on several Romano-British rural sites in southern England and probably represent the waste from initial processing of their carcases.

The sheep represented in this pit were of a similar age and development. Tooth eruption and epiphysial fusion evidence suggested that they were of a size and age suitable for culling for their meat (1-2 years old). Both sets of mandibles still possessed their deciduous cheek teeth and the second molars were in an early stage of wear (Grant 1982 - stage c). The distal epiphyses of the metapodials were unfused but all the proximal epiphyses of the first and second phalanges represented had fused. Both animals possessed horns.

The fill (894) of the second pit contained at least 112 fragments from a third sheep. This possessed a fully developed skeleton in which all epiphyses, including those of the vertebrae, were fused and the mandibular first molar was in heavy wear (Grant 1982 - stage j). The morphology of the horn core and the os coxae indicated that the skeleton belonged to an ewe. Most of the skeleton was represented apart from the upper half of the right hindlimb, the sacrum and the lumbar and caudal vertebrae. There was evidence of butchery on several thoracic vertebrae fragments. Most of them had been chopped through dorso-ventrally and axially. These chops were located near the lateral processes. Such butchery is usually associated with the removal of the rib cage and flanks from the vertebral column. However, it is possible that this process was abandoned since most of the ribs were recovered with the rest of the skeleton. Two of the thoracic vertebrae fragments had also been chopped transversely to segment the backbone. The left femur bore knife cuts on the distal part of the shaft and the tibia had been broken open, possibly to remove the marrow. The sheep therefore appears to have been deposited after it had been at least partially butchered.

Other contexts associated with the buildings produced relatively few bones and many of these may have been deposited after the buildings went out of use. The only context which produced a larger sample (73 fragments) was the upper fill (1356) of the well [1791]. This contained a range of small mammal and amphibian bones, including a mandible from a black rat (Rattus rattus). Although this species has been found in securely dated Roman deposits in York (O'Connor n.d.) and in Dorchester (Maltby in prep.), it is possible that some bones in this part of the well were post-Roman intrusions. Consequently we cannot be certain that this species had colonised this site during the Roman period. The small mammals and amphibians (Table 5) are likely to have been pitfall victims. The well also produced a burnt fragment of domestic fowl tarsometatarsus and the anterior half of a dog's skull.

Bones from the sheep skeletons and the well were generally well preserved. Elsewhere, 33 fragments were eroded, 15 bore gnawing marks and six bore some evidence of burning. Most of the bones associated with the ash spreads in building [1737] were stained darker brown in colour than the other assemblages. The samples were too small to reveal significant trends in species representation. It should perhaps be noted that sheep/goat bones were relatively more common in these contexts compared to horse and cattle but pig was still poorly represented. The elements represented of the major domestic species are shown in Table 7.

Only nine fragments were recovered from sieved samples and the only identifiable specimen was a sheep/goat tooth.

Phase 42/52 - Romano-British Buildings and Post-Roman Demolition

The 119 fragments in this group were recovered mainly from deposits associated with the collapse or demolition of the later Romano-British semi-cellared building [1737]. Dating of these bones is imprecise and it is probable that the sample includes specimens of post-Roman date. The species identified are given in Table 5. No bones were obtained from sieving. The horse bones were all from the lower hindlimb of one adult animal in context (2183). Four of them had been gnawed, probably by a dog. Otherwise, the relative representation of the domestic species was similar to Phase 42. Most of the bones were relatively well preserved and many were stained the same dark brown colour as those from the ashy spreads in this building. 18 fragments in addition to those of the horse bones had been gnawed.

Phase 43 - Romano-British Sub-Enclosures

These subsidiary enclosures are not closely dated but are most likely to be of early Romano-British origin. They produced only 16 fragments in all, two of them from a sieved sample (Table 1). Most bones were eroded and cattle, sheep/goat, pig and a red deer antler fragment were identified (Tables 5-7).

Phase 44 - Romano-British Pits and Other Features

This group consisted of bones associated with several features possibly dating to the 2nd-3rd Centuries A.D. A total of 458 bones were recovered from normal excavation and just two from sieved samples. 368 of the bones were found in various fills of pit [2606]. These included several sets of associated bones. Context (2603) produced the skull, mandibles and hyoids of an adult female goat and a pair of metacarpi and associated phalanges of an immature but almost fully grown sheep. Context (2604) contained the skull, mandibles and hyoids of an older male sheep. These may have belonged to the same animal as the 36 bones from the four limb extremities of an adult sheep found in the same context. 12 of the bones had pathological conditions, consisting mainly of exostoses and related distortion of the shafts of the metapodia and phalanges. Context (2604) also contained a metacarpus and four associated phalanges of a goat. These may have been from the same skeleton as the goat bones in context (2603). These groups reflect the same processing patterns evidenced in pit (893) in Phase 42, in which the heads and limb extremities of sheep and, in this case, goat were detached at an early stage of processing and deposited separately from the bones of the dressed carcases.

The lower fills of pit [2606] produced further groups of articulated bones. 167 bones of a dog were found in (2625). The skeleton was largely complete. Missing elements were small bones which may have been overlooked during excavation (Table 7). The absence of a baculum suggests that the skeleton belonged to a bitch. Apart from the vertebrae, most of the epiphyses had fused or were just fusing, which would suggest that the animal may have been a little under two years old at death (Silver 1969). Metrical analysis was possible on this and other associated

groups from this pit and the results will be discussed in a later section.

47 bones from a foetal or newborn pig were found in context (2626) and a tibia from context (2625) may have belonged to the same skeleton (Table 7). None of its deciduous cheek teeth had erupted and the animal is unlikely to have been more than a few days old. Context (2626) also produced three tarsometatarsi and 15 phalanges of two domestic fowl and a skull, mandible, scapula and tibiotarsus probably from one of the same birds. The pit also produced most of the small mammal and amphibian bones represented in this phase (Table 5).

The rest of the sample was derived from contexts associated with two ovens, a kiln, a corndrier and two other pits. None of these features produced much material. Only 12 eroded and nine gnawed fragments were recorded in this phase.

Phase 44/50 - Romano-British Features with possible Post-Roman Contamination

421 fragments from eight contexts are included here. 405 of them were associated with the abandonment and collapse of a tile kiln. Because of possible Post-Roman contamination, this assemblage is not worth discussing in detail. Summaries of the species and elements represented are included in Tables 5 and 7. No associated groups of bones were recorded apart from the skull and a pair of mandibles of a dog (1830). Cattle fragments were the most commonly identified but pig continued to be poorly represented. The assemblage included 49 gnawed, 23 eroded and two charred fragments. No bones were obtained from sieved samples.

Phase 45 - Durotrigian Inhumations

Four of the ten crouched Durotrigian inhumations of 1st Century B.C.-1st Century A.D. date produced a total of 68 animal bones. Some of these were incorporated into the fills of the graves and are probably of little significance but several groups appear to have formed gravegoods.

Grave 3238 (636)

This contained the left leg (femur to tarsometatarsus) of a domestic fowl. The presence of a spur on the shaft of the tarsometatarsus indicated that the bones belonged to a male. In the same fill was part of a skull and mandible of a juvenile pig (1st molar not in wear) and part of the skull of an older pig (1st molar in wear - 2nd molar erupted but not in wear). It is possible, however, that these may have been deposited during the infilling of the grave, in which several eroded large mammal bones and teeth were also deposited.

Grave 3214 (3213)

This included another group of four domestic fowl bones (femur to tarsometatarsus) from the right leg. The absence of a spur on the tarsometatarsus indicated that the bones belonged to a hen but the lack of medullary bone in the shaft of the femur suggested that it was not in lay (Driver 1982). Six other

fragments in this context are not thought to have been gravegoods, although they did include a fragment of cattle skull.

Grave 3227 (3228)

The fill contained two articulated groups of animal bones. The first consisted of five bones from the left hindlimb of a pig (femur to astragalus). Only the distal end of the femur was present because the limb had been cut through at that point. All the epiphyses represented were unfused. Therefore the pig is likely to have been under two years of age, although doubts remain about the timing of epiphysial fusion in this species (Bull & Payne 1982: 66-70). The second group consisted of the left leg (femur-tarsometatarsus) of a hen in lay. Ploughsoil (403) from the top of the fill of this inhumation contained eight eroded fragments unassociated with the burial rite.

Grave 3408 (3422)

Two articulated groups were recorded. The first consisted of seven bones from the right forelimb of a pig (humerus to carpals). Only the distal part of the humerus was present as the limb had again been broken to produce this joint. The distal epiphysis of the humerus and the proximal epiphysis of the radius were fused but the distal epiphysis of the radius and both epiphyses of the ulna were unfused. Once again age estimation is difficult from such data but the pig was immature and probably between one and three years old at death. The second group consisted of the left hindlimb of an immature domestic fowl, including four of the phalanges.

Discussion

The four graves therefore produced evidence that joints of pork and poultry were buried as gravegoods with these Durotrigian inhumations. The choice of joint is interesting since both species were uncommon in contemporary deposits at Alington Avenue. The domestic fowl bones are the earliest to be encountered on this site. The species appears to have been introduced into central-southern England during the Late Iron Age but is usually found only in very small numbers on sites of that date. It was, however, represented in Late Iron Age deposits at Gussage All Saints (Harcourt 1979: 155) and has also been found amongst the earliest Roman features represented in the Greyhound Yard excavations in Dorchester (Maltby in prep.). Pig bones were poorly represented in late Iron Age and early Romano-British phases on this site. Consequently the deposition of these joints may have been considered of special value because these species rarely contributed to the diet at that time. The impression was gained that the joints represented token offerings rather than the best cuts. The proximal ends of the pig humerus and and femur, which have a greater amount of meat associated with them, were not included as gravegoods. The legs of small domestic fowl do not constitute a large amount of meat.

Comparisons with other Durotrigian cemeteries are interesting. Whimster (1981: 50) states that the joints of meat in such graves usually consisted of sheep or pig but horse, cattle and domestic fowl bones were also sometimes recorded. In addition to the data available to him, one can add the evidence from the Durotrigian burials at Poundbury (Buckland-Wright in prep.), where four inhumations produced animal bones. In each

case joints of sheep (or goat) were recovered and in only one case was pig represented (by a sagitally sectioned skull). Most of the Durotrigian burials with animal bones at Maiden Castle had joints of lamb or mutton as gravegoods (Wheeler 1943) and sheep bones were also more common at Whitcombe. One exception from that cemetery was the burial of a woman associated with two Durotrigian and two Samian vessels and the bones of domestic fowl and pig (Aitken 1966). The food remains from that burial represent the closest parallel to those at Alington Avenue. In his survey, Whimster (1981: 57) noted that pig bones had been associated only with female burials in the three cases where sexing data were available. At Alington Avenue, all Durotrigian graves with animal bones as gravegoods were associated with adult female inhumations apart from Grave 3238, which contained an elderly male. Therefore the two legs of pork were indeed associated with female burials but it is also possible that the male inhumation was associated with one or both of the pig skulls in that grave fill.

Consequently the species most commonly donated as gravegoods at Alington Avenue differ from those at other Durotrigian cemeteries. There were no offerings of lamb or mutton. Indeed, no sheep/goat bones were identified in any of the gravefills (Table 5), yet sheep were probably the most numerous species available to the inhabitants. No cattle bones were represented either, although it should be remembered that any offerings of beef may have been filletted from the bone and thus the evidence would not survive. If domestic fowl and pigs were not kept in any numbers, such joints or perhaps originally the whole animals would have had to be obtained from other sources to enable the offerings to be made.

Phase 46 - The Romano-British Cemetery

The cemetery was in use between the 2nd-late 4th Centuries A.D. and contained graves of at least 58 adult inhumations, four cremations and several infant and child burials. 743 animal bone fragments were recovered from the fills of the graves, plus 15 from sieved samples (Table 1). This total includes bones deposited as gravegoods and there were several articulated groups of animal bones that may have been associated with the inhumations.

Grave 767 (761)

The fill of this 2nd-3rd Century A.D. grave included 34 bones of an immature domestic fowl skeleton. There must remain some doubt whether these were deposited with the inhumation since they lay outside the coffin.

Grave 2135 (804)

The grave fill contained 17 bones of a skeletally mature domestic fowl. Bones of the head, wings and axial skeleton were present. These bones were found together with ten other fragmentary animal bones, which were incorporated into the fill. The designation of the domestic fowl bones as gravegoods is therefore dubious, particularly as they were not found in close proximity to the human burial. Indeed it is perhaps significant that this group lacks the leg bones which usually comprised the offerings of domestic fowl found in other graves.

Grave 782 (783)

Three bones of a hen in lay (radius, ulna, femur) were recovered in this early 4th Century A.D. grave fill. Again there was no clear association between these bones and the inhumation and they may have been accidentally incorporated into the fill.

Grave 2621 (2622)

Ten bones of the left leg (femur-phalanges) of a hen not in lay were found in this grave. In this case they were clearly associated with the skeleton of an adult female, lying within the coffin fill by the right knee of the human skeleton.

Grave 2629 (2630)

The complete left forelimb of an immature sheep was found by the right foot of a skeleton of a female aged between 15-25 years. The early fusing epiphyses of the sheep's skeleton had fused but the distal epiphysis of the metacarpus and proximal epiphyses of the phalanges had not fused. This would suggest that the sheep was about 10-16 months old at death (Silver 1969).

Grave 1142 (2699)

Four bones of the left leg of a domestic fowl were found in the coffin fill of an inhumation of an adult male. The sex of the fowl was indeterminate because the tarsometatarsus was not recovered. No medullary bone was present in the shaft of the femur and so the fowl was not in lay.

Grave 3661 (3663)

Buried above the lower part of the left leg of an adult male inhumation was the skeleton of a small, bow-legged, adult, probably female dog. 90 bones were recovered with the skull and a mandible lying a little apart from the rest of the skeleton. The suggestion that the body may have been decapitated (Davies et al. 1985: 107) was, however, not supported by the close examination of the bones for butchery marks. The more likely explanation is that the dog skeleton suffered from some post-depositional disturbance which damaged the anterior part of the skeleton by removing one of the mandibles, both scapulae and the whole of the right forelimb and possibly displaced the skull.

Grave 4380 (4381)

95 bones of an immature dog were found alongside the coffin of an adult female inhumation. The dog was about six months of age, judging from its dental and epiphysial fusion development.

Grave 2637 (234)

80 bones of a substantially complete male domestic fowl were recovered from this grave cut. However, no human bones were found in this fill and therefore the significance of these bones remains unknown.

Feature 3255 (297)

This contained the burial of an adult dog, of which 52 bones were

recovered. It appears to have been buried in isolation and therefore its contemporaneity with the human burials is open to question. This scepticism is intensified by the fact that the animal was large in comparison with other dogs represented in Romano-British contexts on the site.

Grave 3664 (3684)

This grave fill included six precaudal vertebrae of a species of sea bream (Sparidae). Only again these may have been simply incorporated into the fill subsequent to the burial of the adult female in this 4th-5th Century A.D. grave.

Other Contexts

None of the other animal bones recovered from the grave fills appear to have been gravegoods. Most of them were fragmentary, 78 were eroded and 28 bore canid gnawing marks. The species represented are given in Table 5 and the elements of the major domestic species are listed in Table 7.

Discussion

The practice of depositing joints of meat as gravegoods appears to have largely died out during the use of this cemetery. Whereas nearly half of the Durotrigian inhumations were clearly associated with joints of poultry or pork, in only two of these later graves - [1142] and [2621] - were similar joints of domestic fowl found clearly in association with the burials. No joints of pork were recovered and the only other probable offering of meat consisted of the forelimb of a sheep in grave [2629]. Two bodies appear to have been buried with dogs but all the other articulated groups of animal bone were not necessarily deposited with the human burials. However, the high incidence of domestic fowl bones in the grave fills on a site where were rarely encountered in other types of contemporary deposit may be significant. The Romano-British cemetery at Poundbury also produced some animal bones associated with human burials in nine of the graves. These offerings consisted mainly of sheep and domestic fowl (Buckland-Wright in prep.).

Phase 40 - Other Romano-British Contexts

This group contains 75 fragments from miscellaneous Romano-British contexts which could not be more closely dated. 19 fragments were found in various fills of pit [2601], of which 10 were identified as sheep/goat and one as dog. Most of the remaining contexts consisted of layers of Romano-British ploughwash in the upper fills of prehistoric features. 46 of the fragments were eroded, often severely. The remains of five domestic species were identified (Table 5) and the elelemts represented are given in Table 7. No sieved samples were examined. A sheep/goat tibia in context (1901) had been perforated near the distal end and represented one of the few worked bones recovered from the excavations.

Discussion of Late Iron Age and Romano-British Assemblages

The sample of animal bones from the Late Iron Age and Romano-British deposits at Alington Avenue was not large and many

assemblages were not closely dated or may have included some post-Roman material. Most of the best preserved groups were associated either with burials or primary butchery events and there was accordingly relatively little material derived from ordinary carcase processing waste. It is probable that most bones from such activities did not survive since they would not have been buried immediately but thrown away on the ground or on dumps where the effects of scavengers and weathering would have destroyed much of the material. Nevertheless, various strands of information have provided some insights into the exploitation of animals at the site during this period. These will also provide useful comparative data for faunal analyses in Dorchester.

Species Representation

In contexts other than those associated with the human burials, cattle and sheep bones were consistently the best represented species and appear to have been the main suppliers of meat. The relative importance of the two species is very difficult to assess since we probably do not have a representative sample of bones from any of the phases. Relative species abundance is affected by factors of preservation, retrieval and disposal strategies. The excavations at Alington Avenue did not produce sufficient information to investigate the degree to which these factors may have biased the assemblages.

Other species seem to have contributed comparatively little to the meat diet. Horse bones were found in most phases and were usually better represented in contexts where cattle fragments were abundant, especially in the "D'-shaped enclosure ditches. This indicates that the bones of the two species tended to be deposited in the same areas and/or had similar survival qualities. No butchery marks were observed on any of the horse bones, however, and therefore there is no positive evidence that they provided meat for human consumption.

The low numbers of pig bones cannot be totally explained by factors of poor preservation and retrieval or by disposal practices. If the pig skeleton from pit [2606] in Phase 44 was from a neonatal mortality, it suggests that pigs may have been kept and bred at Alington Avenue during at least part of the Romano-British period, albeit in small numbers. It is possible, however, that pigs were not kept at all particularly in the earlier part of this period, and that joints of pork, such as those associated with the Durotrigian burials, were introduced from elsewhere. The same could be true for domestic fowl, whose bones were only rarely encountered outside the grave fills. Pig and domestic fowl bones have been found in much greater numbers in Dorchester (Maltby in prep.) and it is even feasible that some of the birds and pigs may have been acquired from there on special occasions.

Goat bones were found only rarely but the evidence from pit [2606] indicates that goats were butchered in the same way as sheep and provided an occasional source of meat. Dog bones were ususally only found in large articulated groups, indicating that their carcases were rarely, if ever, butchered.

The sieving of the soil samples was largely unproductive, although the programme did obtain evidence for the presence of two species of bird (rook/crow; domestic duck/mallard) in Phase 36, which were not found in the unsieved samples. The only fish

bones (sea bream) were found during the careful excavation of one of the Phase 46 grave fills. Little is known about fish exploitation on Romano-British rural sites such as Alington Avenue, partly due to the fact that preservation conditions and retrieval strategies have not been conducive to their recovery. There is, however, no evidence that fish were exploited here prior to the 4th Century A.D. Fish bones have, however, been found in the early Roman deposits of the Greyhound Yard excavations in Dorchester (Maltby in prep.).

Ageing Data

Tooth eruption data were obtained from 24 sheep and goat mandibles, of which ten belonged to the articulated groups described in Phases 42 and 44. Most, if not all, of the remaining 14 mandibles probably belonged to sheep (Table 8). Only one mandible (from Phase 40) was from a neonatal mortality. Ten mandibles (including two pairs) had the second but not the third molar in wear and belonged to immature sheep at an age and size suitable for culling for meat (possibly between 12-24 months old). The remainder had all the cheek teeth in wear and in nine cases (including three pairs) the first molar was in heavy wear. These belonged to adult animals probably at least three years old and substantially older in most cases. The samples were too small to detect possible variations between periods or context types. The small number of lambs culled under a year old contrasts with earlier Iron Age samples in Hampshire (Maltby 1981; Grant 1984). Mandibles of such animals were also found in some numbers in all phases at Gussage All Saints (Harcourt 1979: 152). These variations may be partially due to the poorer survival of the mandibles of lambs in the Alington Avenue deposits. However, Romano-British sites have generally produced higher percentages of sheep culled in their second year onwards, possibly reflecting a greater interest in meat and, in some cases, wool production (Maltby 1981: 175).

Only five cattle mandibles produced ageing evidence (Table 8). Of these, one belonged to a calf and three had heavy wear on their molars and beolonged to quite old animals. The only pig mandibles with tooth eruption evidence belonged either to foetal or juvenile animals, younger than those which provided the joints of meat in the Durotrigian burials. Epiphysial fusion data were recorded but the samples were too small to provide much additional information about the ages of the domestic animals represented. What evidence there was merely confirmed that most of the cattle and horses represented were skeletally mature.

Metrical Analysis

A complete list of measurements is stored in archive. Generally the samples were too small to merit detailed analysis. The cattle measurements indicated that the animals at Alington Avenue were of a size typical of other late Iron Age and Romano-British cattle in southern England. Withers height estimates calculated from metapodia lengths (Fock 1966) ranged from 99.5 cm to 122.1 cm in a sample of seven specimens. However, four of these bones (including the largest) came from contexts where some Post-Roman contamination cannot be ruled out.

The recovery of the skeleton of an adult ewe in pit [894]

(Phase 42) provided a rare opportunity to compare the measurements from bones of the same sheep. Table 9 lists some of these. Estimates of withers height using Teichert's (1975) conversion factors ranged from 56.3 cm (humerus) to 60.8 cm (metatarsus), with most estimates ranging between 58-60 cm. The sheep was therefore relatively small with slender limbs. It was, however, a little larger than most of the sheep represented in the Iron Age samples from Gussage All Saints (Harcourt 1979: 151). Some of the metapodia from pit [2606] were also measurable. The sheep metacarpus in context (2603) provided an estimated withers height of 57.4 cm. The metapodia in context (2604) came from a significantly larger animal, producing withers height estimates of 67.3 cm and 68.4 cm for the metacarpus and metatarsus respectively. Evidence for the appearance of some larger sheep than the typically small Iron Age stock has been found on several Romano-British sites in Hampshire, although the relative frequency of such animals has been shown to vary chronologically and between settlements (Maltby n.d.2). Unfortunately the samples from this site were too small to investigate chronological trends.

Three dog skeletons were also sufficiently complete and developed for measurements from different bones to be compared (Table 10). Estimates of shoulder height from the lengths of the limb bones using Harcourt's (1974) conversion factors shows that the animal in grave [3661] (Phase 46) was the smallest with an estimated height of 36-39 cm. The isolated dog burial in the same phase [3255] was a large animal of between 63-66 cm. This lies near the top end of the Romano-British size range (Harcourt 1974: 166). The dog buried in pit [2606] had an estimated shoulder height of 48-50 cm. The large range in size of these dogs epitomises the variability encountered in the Romano-British period, although some doubt must remain as to whether the largest dog represented was of Romano-British date. Comparisons between limb bone length and breadth measurements showed that the smallest dog had limbs that were relatively stouter than the other two skeletons.

Table 11 lists the domestic fowl measurements from the grave fills (Phases 45-46). These show clearly that the male birds were larger and indicates that hens were more common than males in these deposits.

Butchery Data
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59 fragments from Phases 36-46 bore butchery marks. Those on bones identifiable to species are listed in Table 12. Butchery practices have been shown to vary significantly on different types of Romano-British settlements in Hampshire (Maltby n.d.3). Although the amount of butchery information from Alington Avenue was small, when combined with other samples from sites around Dorchester, it will form a useful body of data with which to compare butchery practices on rural settlements with those found in Roman Dorchester. A number of different tools were employed at Alington Avenue to process animal carcases. Most of the butchery on cattle bones consisted of superficial chop marks. Those on the skull were all associated with the removal of the horn and its core. The butchery marks on the cattle scapulae consisted of longitudinal chops or cuts made during filletting. The other chop marks on cattle bones were probably all made during the segmentation of the carcase. One femur bore blade marks on the shaft made during filletting. This method of

butchery involved the running of a heavy blade along the bone removing the flesh and small protuberances of bone as well. Such marks have been found frequently on urban sites but rarely on rural sites in Hampshire (Maltby n.d.3). The knife cuts on the cattle phalanges were probably marks made during skinning.

The butchery of the sheep skeleton in [894] has aleady been described (Phase 42). The only evidence of sawing was found on a pig's ulna. No butchery marks were observed on any of the horse, domestic fowl or dog bones.

Pathological or Abnormal Bones

The pathology of the sheep bones in pit [2603] has already been noted (Phase 44). Most of the other bones with pathological conditions were also from the limb extremities. These included a cattle metatarsus (1340 - Phase 36) whose proximal articulation had become fused to the adjacent tarsals. The condition appears similar to spavin, a condition quite commonly encountered in British archaeological samples. It can cause lameness but once the joint has fused the animal can still be used for slow work (Baker & Brothwell 1980: 117-20). Two other cattle metatarsi bore evidence of osteoarthritic conditions around their proximal articular surfaces. The presence of these and at least two metacarpi with pathologically splayed distal articulations may suggest that some of the older cattle were kept for ploughing and other work and developed stress-related conditions.

Two of the older sheep/goat mandibles had maloccluded teeth and a cattle mandible (Phase 36) did not possess a second premolar. This is probably a genetic condition and is fairly commonly encountered in archaeological specimens (Andrews & Noddle 1975). A dog mandible (Phase 44/50) bore evidence that an abscess had formed beneath its first molar.

Post-Roman Phases

The size of the samples of animal bones from Post-Roman deposits is given in Table 1. Unfortunately these samples are not closely dated. Those from Phases 50-54, for example, may date anytime between the 5th-14th Centuries A.D. Accordingly, although these were recorded in full for the archive, the results will be discussed in much less detail than material from the earlier phases.

Tables 13-14 list the number of fragments identified to each species in the unsieved and sieved samples respectively. Several species not recorded in earlier phases were represented. These included partial skeletons of a common buzzard (Buteo buteo) and a jackdaw (Corvus monedula), and a humerus of a stoat or weasel (Mustela erminea/nivalis). Most of the identifiable sieved material was found in pit [2144] in Phase 54. At least two species of fish were represented by vertebrae - a common eel (Anquilla anquilla) and a flatfish not identifiable to species. Amongst the bones of the major domestic species, pig bones continued to be poorly represented throughout the deposits. Cattle and sheep/goat fragments continued to be the most frequently identified. Their relative fluctuations in the different phases can be accounted for mainly by differential preservation and by the presence of some articulated or associated groups of bones (Table 13).

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Bibliography

Aitken, G.M. (1966) Interim report of excavations at Whitcombe. Proceedings of the Dorset Natural History and Archaeological Society 88: 113.

Andrews, A.H. & Noddle, B. (1975) Absence of premolar teeth from ruminant mandibles found at archaeological sites. Journal of Archaeological Science 2: 137-44.

Baker, J. & Brothwell, D. (1980) Animal Diseases in Archaeology. London: Academic Press.

Buckland-Wright, J.C. (n.d.) Animal bones from the Durotrigian and Romano-British cemetery, Poundbury. In Excavations at Poundbury Volume II: the Cemeteries - Forthcoming.

Bull, G. & Payne, S. (1982) Tooth eruption and epiphysial fusion in pigs and wild boar. In B. Wilson, C. Grigson & S. Payne (eds.),Ageing and Sexing Animal Bones from Archaeological Sites. Oxford: British Archaeological Reports (British Series) 109: 55-72.

Davies, S.M., Stacey, L.C. & Woodward, P.J. (1985) Excavations at Alington Avenue, Fordington, Dorchester, 1984/85: Interim Report. Proceedings of the Dorset Natural History and Archaeological Society 107: 95-110.

von den Driesch, A. (1976) A Guide to the Measurement of Animal Bones from Archaeological Sites. Harvard University: Peabody Museum Bulletin 1.

Driver, J.C. (1982) Medullary bone as an indicator of sex in bird remains from archaeological sites. In B.Wilson, C. Grigson & S. Payne (eds), Ageing and Sexing Animal Bones from Archaeological Sites. Oxford: British Archaeological Reports (British Series) 109: 251-4.

Fock, J. (1966) Metrische Untersuchungen an Metapodien einiger europaischer Rinderrassen. Gedruckt mit Genehmigung der Tierarzlichen Fakultat Universitat Munchen.

Grant, A. (1982) The use of tooth wear as a guide to the age of domestic ungulates. In B. Wilson, C. Grigson & S. Payne (eds), Ageing and Sexing Animal Bones from Archaeological Sites. Oxford: British Archaeological Reports (British Series) 109: 91-108.

Grant, A. (1984) Animal husbandry in Wessex and the Thames Valley. In B. Cunliffe & D. Miles (eds.), Aspects of the Iron Age in Central Southern Britain. University of Oxford: Committee for Archaeology: 102-119.

Grigson, C. (1966) The animal remains from Fussell's Lodge long barrow. In P. Ashbee, The Fussell's Lodge Long Barrow Excavations 1957. Archaeologia 100: 63-73.

Grigson, C. (1982) Sexing Neolithic domestic cattle skulls and horncores. In B. Wilson, C. Grigson & S. Payne (eds), Ageing and Sexing Animal Bones from Archaeological Sites. Oxford: British Archaeological Reports (British Series) 109: 7-24.

Harcourt, R.A. (1974) The dog in prehistoric and early historic Britain. Journal of Archaeological Science 1: 151-76.

Harcourt, R.A. (1979) The animal bones. In G.J. Wainwright, Gussage All Saints: an Iron Age Settlement in Dorset. London: Department of the Environment Archaeological Report 10: 150-60.

Jones, R.T., Wall, S.M., Locker, A.M., Coy, J. & Maltby, J.M.

(n.d.) Computer based osteometry data capture user manual (1). Unpublished Ancient Monuments Laboratory Report 3342.

Levine, M. (1982) The use of crown height measurements and eruption-wear sequences to age horse teeth. In B. Wilson, C. Grigson & S. Payne (eds), Ageing and Sexing Animal Bones from Archaeological Sites. Oxford: British Archaeological Reports (British Series) 109: 223-50.

Maltby, J.M. (1981) Iron Age, Romano-British and Anglo-Saxon animal husbandry: a review of the faunal evidence. In M. Jones & G. Dimbleby (eds), The Environment of Man: The Iron Age to the Anglo-Saxon Period. Oxford: British Archaeological Reports (British Series) 87: 155-204.

Maltby, J.M. (n.d.1) The Animal Bones from Brighton Hill South (Trenches B, C and K), Farleigh Wallop, Hampshire. Unpublished Ancient Monuments Laboratory Report 155/87.

Maltby, J.M. (n.d.2) The animal bones from the later Roman phases from Winchester Northern Suburbs: 1: the unsieved samples from Victoria Road Trenches X-XVI. Unpublished Ancient Monuments Laboratory Report 125/87.

Maltby, J.M. (n.d.3) Urban-rural variations in the butchering of cattle in Romano-British Hampshire. In D. Sarjeantson, A. Legge & A. Waldron (eds.), Diets and Crafts in Towns: the Evidence of Animal Remains. Forthcoming B.A.R. Volume.

Maltby, J.M. (in prep.) The animal bones from the Greyhound Yard Excavations, Dorchester (TWA site W67).

O'Connor, T.P. (n.d.) Bones from the General Accident Extension Site, 24-30 Tanner Row, York.

Silver, I.A. (1969) The ageing of domestic animals. In D. Brothwell & E.S. Higgs (eds.), Science in Archaeology. London: Thames & Hudson: 2nd Edition: 283-302.

Teichert, M. (1975) Osteometrische Untersuchungen zur Berechnung der Widerristhohe bei Schafen. In A.T. Clason (ed.), Archaeozoological Studies. Oxford: North Holland Publishing Company: 51-69.

Wheeler, R.E.M. (1943) Maiden Castle, Dorset London: Research Reports to the Society of Antiquaries: 12.

Whimster, R. (1981) Burial Practices in Iron Age Britain. Oxford: British Archaeological Reports (British Series) 90.

TABLE 1

Number of Animal Bone Fragments recovered from the Excavations

Phase	Normal Retrieval	Sieved Samples	Total
21	44	9	53
22	27	2	29
23	11	-	11
30-35	44	28	72
36	250	66	316
37	10	178	188
41	241	281	522
42	360	9	369
42/52	119	-	119
43	14	2	16
44	458	2	460
44/50	421	-	421
45	68	-	68
46	743	15	758
40	75	-	75
51	337	8	345
52	329	46	375
53	17	15	32
54	137	56	193
50	15	-	15
62	380	-	380
60	175	-	175
70	179	-	179
TOTAL	4454	717	5171

Key to Phases:-
21 - The Neolithic Long Barrow Ditches
22 - The Mortuary Enclosure
23 - Bronze Age Round Barrow/Spectacle Enclosure
30-35 - Late Bronze Age/Early Iron Age Arabilisation and Monument Decay
36 - Late Iron Age "D"-shaped Enclosure and Pit Burial
37 - Stabilisation of Iron Age soils
41 - Last Stages of "D"-shaped Enclosure
42 - Buildings associated with Romano-British Occupation
42/52 - Romano-British Buildings and Post-Roman Destruction
43 - Romano-British Sub-Enclosures
44 - Romano-British Pits and Other Features
44/50 - Romano-British Features with possible Post-Roman Contamination
45 - Durotrigian Inhumations
46 - The Romano-British Cemetery
40 - Other Romano-British Contexts
51 - Post-Roman Timber Structures and Boundaries
52 - Post-Roman Demolition and Reuse of Stone Buildings
53 - Post-Roman Timber Buildings and Post Holes
54 - Post-Roman Isolated Features (Pits, Wells etc.)
50 - Other Post-Roman Features
62 - Later Medieval Soil Layers etc.
60 - Later Medieval Arabilisation
70 - Postmedieval Agricultural Development

TABLE 2

Species represented in Phases 21-37 (from Normal Retrieval)

Species	Phase 21	22	23	30-35	36	37
Cattle	12	10	4	9	87*	2
Sheep/Goat	2	1	1	5	37	1
Pig	1	1		1	3	
Horse	1			2	22*	2
Dog				13*	4	1
Red Deer	1	2		1		
Fox	1	3				
Frog/Toad	4				1	
Unid. Large Mammal	17	10	3	3	65	3
Sheep-sized Mammal	2		1	9	18	
Unid. Mammal	3		2		13	1
Unid. Bird				1		
TOTAL	44	27	11	44	250	10
Sheep		1		1	5	

* Total includes 37 associated/articulated bones of cattle, 13 of horse and 12 of dog

TABLE 3

Species represented in Phases 21-37 (from Sieved Samples)

Species	Phase 21	22	30-35	36	37
Cattle	1	1		4	4
Sheep/Goat			4	7	15
Pig				1	
Horse					3
Mole				1	1
Dom. Duck/Mallard				1	
Rook/Crow				1	
Unid. Large Mammal	1		6	12	44
Sheep-sized Mammal	4		10	9	40
Unid. Mammal	3	1	8	29	71
Unid. Bird				1	
TOTAL	9	2	28	66	178

TABLE 4

Fragments of Cattle and Sheep/Goat Represented in Phases 21-37
(Normal Retrieval)

	Phase					
Cattle	21	22	23	30-35	36	37
Skull frags.	1				2	
Mandible	1	1		1	7	
Loose teeth	1	1		1	3	1
Scapula	1	3		1	2	
Radius				1	2	1
Ulna				1	1	
Os Coxae	1				8	
Femur	1				3	
Tibia		3		1	1	
Calcaneus					3	
Astragalus				1	1	
Centroquartal					1	
Other tarsals					1	
Metacarpal		1			7	
Metatarsal	2			1	4	
Metapodial	1					
1st Phalanx			2		2	
2nd Phalanx			1			
Ribs	1				15	
Cervical verts.	2		1			
Thoracic verts.				1	16	
Lumbar verts.		1			6	
Sacrum					1	
Caudal verts.					1	
TOTAL	12	10	4	9	87	2

	Phase					
Sheep/Goat	21	22	23	30-35	36	37
Mandible			1	1	4	1
Loose teeth				3	8	
Scapula					2	
Humerus					2	
Radius					4	
Ulna					1	
Femur					1	
Tibia	1				8	
Calcaneus		1				
Metacarpal	1				2	
Metatarsal				1	4	
1st Phalanx					1	
TOTAL	2	1	1	5	37	1

TABLE 5

Species represented in Romano-British Phases (Normal Retrieval)

Species	Phase 41	42	42/52	43	44	44/50	45	46	40	Total
Cattle	47	22	21	4	14	102	3	44	12	269
Sheep/Goat	28	211*	33	3	94*	52		105*	18	544
Pig	1	3	2	1	56*	1	15*	12	4	95
Horse	16	4	13*		5	13	8	11	2	72
Dog	7	1	1		172*	8		238*	3	430
Red Deer				1						1
Mole		1								1
Water Vole					1					1
Black Rat		1								1
Frog		14			11	1		15		41
Toad					4					4
Frog/Toad		9			2			1		12
Sea Bream								6		6
Domestic Fowl		1			23*		19*	148*		191
Unid. Large Mammal	101	32	20	5	22	141	16	58	20	415
Sheep-sized Mammal	17	46	25		36	69	2	52	9	256
Unid. Mammal	24	11	4		9	32	4	49	7	140
Unid. Bird					5	1	1	2		9
Unid. Rodent		1			4	1		2		8
Unid. Small Mammal		3								3
TOTAL	241	360	119	14	458	421	68	743	75	2499
Sheep	2	179*	8	1	63*	2		25*		280
Goat					10*	1		1		12

* The totals include the following associated/articulated bones
Phase 42 - 176 sheep
Phase 42/52 - 13 horse
Phase 44 - 55 sheep; 10 goat; 47 pig; 167 dog; 22 domestic fowl
Phase 45 - 15 pig; 19 domestic fowl
Phase 46 - 15 sheep; 237 dog; 148 domestic fowl

TABLE 6

Species represented in Romano-British Phases (Sieved Samples)

Species	Phase 41	42	43	44	46	Total
Cattle	7					7
Sheep/Goat	16	1				17
Horse	7					7
Mole	4					4
Unid. Large Mammal	51		1			52
Sheep-sized Mammal	50	2			2	54
Unid. Mammal	146	6	1	2	13	168
TOTAL	281	9	2	2	15	309
Sheep	1					1

TABLE 7

Fragments of Major Species Represented in Romano-British Phases (Normal Retrieval)

	Phase								
Cattle	41	42	42/52	43	44	44/50	45	46	40
Skull frags.	7	3	1	1	2	3	1	5	1
Mandible	4	3	1		2	4		2	
Loose teeth		1	2	2	1	12	1	8	1
Scapula	2		2	1		7		2	
Humerus	2	1	1		1	7	1	2	
Radius						3			2
Ulna	3					5			1
Os Coxae	1	2			1	9		1	3
Femur	3	1	1			8		1	
Tibia					1	4		1	
Carpals	1				1	5			
Calcaneus	2	2	1		1	3		2	
Astragalus	2	1				2		1	1
Centroquartal	1								
Metacarpal	4	2	1			2		4	
Metatarsal	2	2	2			4		3	1
Metapodial		1			1	1		1	
1st Phalanx	3	1	2			3		3	
2nd Phalanx	2	1	3			1		1	
3rd Phalanx	1		1			2		2	
Ribs		1	1		2				1
Cervical verts.	6		1			7		1	
Thoracic verts.	1					1		2	
Lumbar verts.						4			1
Sacrum			1		1	5			
Caudal verts.								2	
TOTAL	47	22	21	4	14	102	3	44	12

(TABLE 7 continued)

	Phase										
Sheep/Goat	41	Ass. (893) 42	Ass. (894) 42	Oth. 42	42/52	43	Ass. 44	Oth. 44	44/50	46	40
Skull frags.		2	1	4	4	1	2	2	4	4	
Mandible	3	4	2	2	2		4	1	8	5	2
Hyoid		3	1	1			4				
Loose teeth	12			7	2			1	9	35	4
Scapula			2		2			1	2	3	1
Humerus			2		2	1			3	5	
Radius	1		2	1	5		1	1	6	6	3
Ulna			2	1			1			2	
Os Coxae	1		1	1	1			2	5	1	1
Femur			1	1				2		2	
Patella			1								
Tibia	7		1	5	4	1		3	5	9	2
Carpals			8					3		4	
Calcaneus			1						1	2	
Astragalus			1							1	
Centroquartal		2	1								
Other tarsals		2	2				2				
Metacarpal	2	4	2	2	1		5	4	2	4	1
Metatarsal	1	4	2	2	4		2		7	8	2
1st Phalanx		16	8	1			14	2		5	
2nd Phalanx		13	8				12			2	1
3rd Phalanx		9	8				11			2	
Sesamoids		4	9				7				
Ribs			18	3	2			4		2	
Sternebrae			2								
Cervical verts.	1	1	6	1	1			1		2	
Thoracic verts.			20	1				1			
Lumbar verts.				2	2			1		1	
Caudal verts.					1						
TOTAL	28	64	112	35	33	3	65	29	52	105	18

Ass. - associated/articulated bones; Phase 46 also includes the following articulated bones in Grave [2629]:-
1 scapula; 1 humerus; 1 radius; 1 ulna; 4 carpals; 1 metacarpus; 2 1st phalnges; 2 2nd phalanges; 2 3rd phalanges.

(TABLE 7 continued)

	Phase									
Pig	41	42	42/52	43	Ass. 44	Oth. 44	44/50	Ass. 45	46	40
Skull frags.					1	1		2	2	1
Mandible			1		2	3		1		
Loose teeth						2	1		1	
Scapula					2				1	
Humerus				1	2			1	2	2
Radius					1			1		
Ulna		1			2			1		
Os Coxae										1
Femur			1		1			1	1	
Tibia						1		1	2	
Fibula								1	1	
Carpals								4		
Calcaneus	1							1		
Astragalus								1		
Metatarsal									1	
Lat. Metapodial		2								
Metapodial					1					
3rd Phalanx									1	
Ribs					22					
Cervical verts.					6					
Thoracic verts.					5	2				
Lumbar verts.					2					
TOTAL	1	3	2	1	47	9	1	15	12	4

Ass. - associated/articulated bones.

(TABLE 7 continued)

	Phase							
Horse	41	42	Ass. 42/52	44	44/50	45	46	40
Skull frags.				1		1		
Mandible	2			1	1	1	2	
Loose teeth	2	1		2	2	4	1	
Scapula	1						1	
Humerus	3	1			1			
Radius	1				2			
Ulna					1			
Os Coxae			1		1	2	1	
Femur					1		1	
Tibia	1		1					
Calcaneus			1				1	1
Astragalus			1					
Other tarsals			4					
Metacarpal					1			
Metatarsal			1					
Lat. Metapodial			1					
Metapodial							1	
1st Phalanx			1		1		2	1
2nd Phalanx			1					
3rd Phalanx	1							
Sesamoids			1					
Ribs		1			1			
Cervical verts.	2			1	1			
Thoracic verts.	2						1	
Lumbar verts.	1							
Sacrum		1						
TOTAL	16	4	13	5	13	8	11	2

Ass. - associated/articulated bones.

(TABLE 7 continued)

Dog	Phase 41	42	42/52	Ass. 44	Oth. 44	44/50	Ass. 46	40
Skull frags.	2	1		1	1	1	3	
Mandible	2			2	2	2	5	
Hyoid				2			1	
Loose teeth	3							
Scapula				2			3	
Humerus				2			5	1
Radius				2		1	5	
Ulna			1	2			5	2
Os Coxae				2	1	3	6	
Femur				2			6	
Patella				1				
Tibia				2			5	
Fibula				2			2	
Carpals				11			3	
Calcaneus				2			3	
Astragalus				2			3	
Other tarsals				11			7	
Metacarpal				10			12	
Metatarsal				4			18	
1st Phalanx				12			27	
2nd Phalanx				11			7	
3rd Phalanx				7			5	
Sesamoids				16				
Ribs				24	1		37	
Costal carts.							10	
Sternebrae				1			2	
Cervical verts.				7		1	13*	
Thoracic verts.				13			22	
Lumbar verts.				6			17	
Sacrum				1			3	
Caudal verts.				7			2	
Baculum							1	
TOTAL	7	1	1	167	5	8	238	3

Ass. - associated/articulated bones.
* - includes one bone not in associated/articulated group.

(TABLE 7 continued)

Domestic Fowl	42	Phase Ass. 44	Oth. 44	Ass. 45	Ass. 46
Skull		2	1		2
Mandible		1			1
Scapula		1			5
Coracoid					5
Humerus					5
Radius					6
Ulna					6
Radiale					2
Ulnare					2
Carpometacarpus					3
Wing phalanx					5
Os coxae					5
Femur				4	7
Tibiotarsus		1		4	6
Fibula				3	3
Tarsometatarsus	1	3		4	5
Foot phalanx		15		4	29
Ribs					15
Vertebrae					32
Furcula					1
Sternum					3
TOTAL	1	23	1	19	148

Ass. - associated/articulated bones.

TABLE 8

Sheep/Goat, Cattle and Pig Mandibular Tooth Eruption and Wear Stages - Iron Age and Romano-British Phases

Context	Phase	Species	P2	P3	P4	M1	M2	M3	Comments
488	36	S/G		w	f	j	g		
933	36	S/G			j	m			
1340	36	S/G	w	w	e	g	e		
428	37	S/G				g	b		
500	41	S/G				g	g		
510	41	S/G					g	e	
893	42	Sheep			(k)	g	c		Pair
893	42	Sheep		(w)	(j)	g	c		Pair
894	42	Sheep		w	g	j	g	g	Pair
2130	42	S/G			(j)	g	c		
1370	42/52	S/G	(w)	(w)	(h)	g	c		
1372	42/52	S/G		w	g	h	g	e	
2603	44	Goat		w	g	j	g	e	Pair
2604	44	Sheep			j	j	g	g	Pair
263	46	S/G						E	
263	46	S/G	(w)	(w)	(k)	g			
669	46	S/G	a	w	f	g	e		
800	40	S/G				f	c		
800	40	S/G	(V)	(E)	(E)				
594	36	Cow				k	g		
2566	36	Cow		w			k	k	
3401	41	Cow				m	l	k	
3401	41	Cow					l	l	
1356	42	Cow			(e)	E			
638	44	Pig			(j)	b	C		Pair
2626	44	Pig	(V)	(V)					Pair
636	45	Pig	(w)	(w)	(d)	U			

Method based on Grant (1982)
P = premolar
M = molar
( ) = deciduous tooth
C = perforation in crypt visible
V = tooth visible in crypt
E = tooth erupting through bone
U = tooth almost at full height but unworn
w = worn; for other wear stages see Grant (1982)
S/G = sheep/goat
Cow = cattle

TABLE 9

Measurements of Bones of Sheep Skeleton in Pit 894 (Phase 42)

	GL	Bp	Dp	BFp	SD	Bd	Dd	BG	BT	GLC	WH
Scapula								17.9			
Humerus	131.6	35.3			12.2	28.3			25.5	118.6	56.3
Radius	146.2	27.9	15.5	25.9	13.7	25.4	17.2				58.8
MC	122.2	21.2	15.4		11.4	22.5					59.8
Femur	164.7	37.9			14.4	33.2				160.0	58.1
Tibia		36.8	36.9		12.5	24.2	18.5				
Calcaneus	48.4										
MT	133.9	18.2	18.7		9.9	21.4					60.8

All measurements in millimetres; withers height estimates in centimetres. Measurements follow von den Driesch (1976).

GL = greatest length
Bp = maximum proximal breadth
Dp = maximum proximal depth
BFp = breadth of proximal articular surface
SD = smallest breadth of diaphysis
Bd = maximum distal breadth
Dd = maximum distal depth
BG = breadth of glenoid cavity (scapula)
BT = breadth of trochlea (humerus)
GLC = greatest length from caput (humerus and femur)
WH = withers height estimate (Teichert 1975)
MC = metacarpus
MT = metatarsus

TABLE 10

Measurements of Bones of Dog Skeletons

Context	Phase	Bone	GL	Bp	Bd	SD	LC	HS	BG	SH
2625	44	Mandible	125.0				20.1			
		Skull					17.3			
		Scapula						113.8	15.8	
		Humerus	146.9		30.1	11.6				47.7
		Radius	147.8	16.5	23.3	11.2				49.0
		Ulna	172.9							48.7
		Femur	162.5	33.5	28.1	12.2				49.7
		Tibia	163.6	31.5	20.6	10.3				48.7
		Calcaneus	38.8							
3255	46	Mandible					21.8			
		Skull					18.3			
		Humerus	196.3		36.8	13.4				64.7
		Radius		20.1						
		Femur	206.7	44.0	36.1	14.9				63.6
		Tibia	221.7	36.5	24.7	13.8				65.7
3663	46	Mandible	124.7				19.0			
		Skull					16.3			
		Humerus	113.8		28.7	10.2				36.3
		Radius		15.5						
		Femur	127.7	32.2	25.0	11.6				38.8
		Tibia	119.7	28.5	19.7	11.1				35.9
		Calcaneus	35.2							

All measurements in millimetres; shoulder height estimates in centimetres.
Measurements follow von den Driesch (1976)

LC = length carnassial
HS = height along spine of scapula
SH = shoulder height estimate (Harcourt 1974)
See Table 9 for definitions of other measurements

TABLE 11

Measurements of Domestic Fowl Bones

Context	Phase	Bone	GL	Bp	Bd	SC	Dip	Comments	
636	45	Femur	87.4	17.4	16.3	7.5		Not in lay	
		Tibiotarsus	125.0		12.6	6.8	22.5		
		Tarsometatarsus	84.3		14.8	7.6		Spur	M
3213	45	Femur	73.0	14.1	13.7	6.1		Not in lay	
		Tibiotarsus	101.1		9.8	5.6			
		Tarsometatarsus	67.8	11.1		5.4		No spur	F
234	46	Coracoid	56.4						
		Humerus	78.0	20.9	16.4	7.6			
		Radius	68.6		7.4				
		Ulna	75.6	9.7	10.5	4.9			
		Carpometacarpus	40.7						
		Femur	86.1	16.4	16.3	7.4		Not in lay	
		Tibiotarsus	124.8		12.1	6.8	22.7		
		Tarsometatarsus	88.7	13.9	15.5	7.5		Spur	M
783	46	Radius	58.9						
		Femur		14.4				In lay	F
804	46	Humerus	66.8	17.7	13.9	6.4			F?
		Ulna	64.9	8.2					
2622	46	Femur	67.5	13.2	12.9	5.7		Not in lay	
		Tibiotarsus			9.7				
		Tarsometatarsus	64.0	11.0	11.2	5.1		No spur	F
2699	46	Femur			12.9	5.9		Not in lay	F?

All measurements in millimetres.
Measurements follow von den Driesch (1976).

GL = greatest length
Bp = maximum proximal breadth
Bd = maximal distal breadth
SC = smallest breadth of corpus
Dip = greatest diagonal proximal end (tibiotarsus)
F = female
M = male

TABLE 12

Butchered Bones (Phases 36-46)

	Cattle	Sheep/G	Pig	Phase & Type of Mark
Skull frags.	3	1	1	36C 44/50C 46C: 42C: 36C
Scapula	4			36C 41C 42/52C 44/50K
Radius		1		46C
Ulna			1	42S
Os Coxae	2	2		44/50C 40C: 42K 46K
Femur	2	2		41B 46K: 42K 44K
Tibia			1	46C
Calcaneus	2			36C 42K
Astragalus	1	1		42C: 46K
Metatarsal	3			42/52C 44/50C 46C
1st Phalanx	3			42K 44/50K(2)
Ribs	1			36C
Cervical verts.		1		46K
Thoracic verts.		12	1	42C(12): 44K
Lumbar verts.		2		42/52C 44C
TOTAL	21	22	4	

C = chop mark(s); K = knife cut(s) S = saw mark(s); B = blade marks.

TABLE 13

Species represented in Post-Roman Phases (from Normal Retrieval)

	Phase							
Species	51	52	53	54	50	62	60	70
Cattle	110*	63	2	33*	4	50	21	39
Sheep/Goat	27	83	5	15*	1	90	19	32
Pig	3	19		1	1	5	1	1
Horse	34*	15	3	12	4	30	23	1
Dog	4	1		4		18*		1
Red Deer							2	
Stoat/Weasel		1						
Water Vole								1
Mole						21*		
Frog						1		
Frog/Toad		1						
Domestic Fowl				9*		1		14*
Rook/Crow		1						
Jackdaw				55*				
Corvid								1
Common Buzzard		17*						
Unid. Large Mammal	141	66	4	4	5	96	93	57
Sheep-sized Mammal	11	47	2	2		49	9	17
Unid. Mammal	7	13	1	2		19	7	14
Unid. Bird		1						
Unid. Fish		1						
TOTAL	337	329	17	137	15	380	175	179
Sheep	3	12		8*		11	1	

* The totals include the following associated/articulated bones
Phase 51 - 17 cattle; 7 horse
Phase 52 - 17 common buzzard
Phase 54 - 9 cattle; 5 sheep; 9 domestic fowl; 55 jackdaw
Phase 62 - 18 dog; 20 mole
Phase 70 - 14 domestic fowl

TABLE 14

Species represented in Post-Roman Phases (Sieved Fragments)

Species	Phase 51	52	54
Cattle		3	
Sheep/Goat		4	2
Dog		1	
Mole		1	
Frog			7
Toad			1
Frog/Toad			8
Common Eel			1
Flatfish			1
Domestic Fowl			1
Unid. Large Mammal	3	9	1
Sheep-sized Mammal	2	8	12
Unid. Mammal	3	19	13
Unid. Rodent		1	
Unid. Bird			8
Unid. Fish			1
TOTAL	8	46	56