Suburban life in Roman *Durnovaria*

Additional specialist report

Environmental
Animal bone

By Jessica M. Grimm

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Methodology

Animal bones from contexts related to the use of the site were selected for full analysis. The material from these contexts was complemented by those contexts with a high potential as recognised during the assessment and are hereafter called Roman. Site chronology divided the material into three phases: early, middle and late Romano-British. Thus forming together four categories of material (Table AB1). No distinction was made between hand recovered and sieved materials as the identified numbers of the latter are relatively small.

The contexts of the early Romano-British period consist of groups 514, 575 (oven), 607 (sunken building), 631 (backfills of sunken building), 646 (pit group), 647 (ditch) and 739+744 (ditch). Group 509 (pit group), 628 (layer/deposit), 728 (pit) and contexts 1027 (external dump surface) and 2199 (anthropogenic layer) make up the middle Romano-British period. The late Romano-British period consists of groups 604 (pit), 605 (ditch), 615 (lower fill of drain outside building), 707 (pit), 711 (ditch) and 734 (hearth).

For each animal bone fragment, the following characteristics were recorded where applicable: species, bone element and side, fusion, mandible wear stages (following Grant 1982) and sex (following Von den Driesch 1976). For the distinction between sheep and goat, the data published by Prummel and Frisch (1986) were used. Domesticate foetal bones were identified using the atlas published by Prummel (1987). The positions of butchery marks and burnt areas were described. Measurements were taken as described by Von den Driesch (1976). Withers heights were calculated using Von den Driesch and Boessneck (1974, cattle), May *et al.* (1996, pigs), Teichert (1975, sheep), Harcourt (1974, dogs), Vitt (1952, horses) and May (1985, horses) and ages estimated using Habermehl (1975). Evidence for gnawing, condition (on a scale of 1 to 5) and completeness (out of 100%) was also recorded.

Conjoining fragments were counted as one bone in order to minimise distortion. Fragments that could not be identified to species or family were recorded as small, medium or large mammal, bird or amphibian. Fish bones from selected contexts were examined by Sheila Dyer-Hamilton and are detailed in a separate report.

Results

Taphonomy

The overall condition of the bones was poor with many fresh breaks. Whenever possible, bones were pieced together with masking tape in order to be able to take the necessary measurements. The majority of the early Romano-British bones were in poor (83%) to very poor (6%) condition, with a small proportion in fair or good condition (10%). The material from the middle Romano-British period seems to be better preserved: poor to very poor (53%) and fair to good (47%). With 15% in fair and 85% in poor to very poor condition, the late Romano-British material is similar to that of the early Romano-British period. The difference in preservation between the early/late and middle Romano-British material is misleading as only 32% from the latter could be identified to species.

Only 2% of the early Romano-British, 1% of the middle Romano-British and 3% of the Romano-British material had root etched surfaces. Probably due to the general closer range to the surface, roots affected 16% of the late Romano-British material. Gnawing by canids had marked only 4% of early Romano-British bones. The bones affected derived mainly from sheep/goat and there was an overall strong preference for the joints. Canid gnawing mainly on the joints affected only 2% of the middle Romano-British material. The canid gnawing on the late Romano-British material (3%) affected the cattle bones most. The unspecified Roman material resembles the early Romano-British material with 3% gnawing by mainly canids on sheep/goat bones.

The proportion of loose teeth was relatively low (respectively 2%/4%/7%/7%). The percentage of identified bones was fair (respectively 66%/32%/55%/64%). The assemblage relatively unfragmented at respectively 10%/10%/17%/16% over 80%-complete. Many of the over 80%-complete bones derive from birds which, because of their small size, tend not to get broken during food preparation. As bird bones are highly fragile, this indicates that the assemblages have not been extensively re-worked.

Only a low proportion of all the bones show signs of contact with fire (respectively 3.7%/0.3%/0.8/4.3%). As the burnt fragments are all very small, most bones were assigned to the large or medium sized mammal categories. Furthermore, burnt fragments of bird, cattle, sheep/goat, pig and a small mammal were found. Of particular interest is Roman context 2215 (sample 3059) which contained the calcined remains of an adult sheep/goat and a subadult pig. Most bones were calcined which indicates temperatures of 650-700°C (Wahl 1981). Bone does not discolour when meat is cooked or roasted. This means that the discoloured fragments are the result of throwing bones deliberately in the fire.

Faunal lists

The identifiable remains were of mammals and birds (Table AB2). Most of the remains belong to domesticates: cattle, horse, sheep/goat, pig, dog, cat and domestic fowl. Where possible, a distinction between sheep and goat was made, indicating only sheep. A very low proportion of goat bones were found on the County Hall/Colliton Park site (Hamilton-Dyer 1993, 78) and the Greyhound Yard site (Maltby 1993, 321). The absence of definite goat bones from the Hospital site might be attributed to the smaller assemblage compared to the other sites.

The wild mammals consist of black rat, hare, house mouse and red deer. The black rat and the house mouse are the only species only represented in the sieved material. Carrion crow, long-eared owl, lapwing, magpie, mallard/duck, pigeon/dove, raven, songbird (not identified to species), wigeon and woodcock represent the (probable) wild birds. The remains of an amphibian from the middle Romano-British context 3065 did not posses any characteristic features.

Amongst the assemblage identified to species, sheep/goat bones were the most common in the early and middle Romano-British period, followed by cattle. Cattle bones were more common in the late Romano-British and unspecified Roman assemblages, (closely) followed by sheep/goat. The proportions of large and medium mammal bones replicate this pattern (Table AB2). It seems that cattle gained more importance during the Romano-British period, with sheep/goat losing and pig staying constant in all assemblages. Maltby (1993, 335) notes the same increase over times in the cattle material from the Greyhound assemblage. Although, the bones from the sunken building contain a very high proportion of domestic fowl, the number

of bird bones also declines with time. The number of wild birds is higher in the late Romano-British and the unspecified Roman assemblage.

The bone assemblage from County Hall/Colliton Park analysed by Hamilton-Dyer (1993, table 29) show that remains from sheep/goat largely dominated the material, followed by cattle and small proportions of pig, horse, dog and birds. Although the assemblage contained much material from samples, the low proportion of bird bones compared to the Dorchester Hospital or Greyhound Yard (Maltby 1993, 331) assemblages is striking. The high proportion of sheep/goat compared to Dorchester Hospital and Greyhound Yard (Maltby 1993) seems to be the result of the more rural character of the site, following pre-Roman traditions (Hamilton-Dyer 1993, 81).

The number of pigs is roughly twice as high as in the County Hall/Colliton Park assemblage, but comparable to the Greyhound material. As extensive pig keeping did not have a tradition in the area, Maltby (1993, 325) believes that the inhabitants of Dorchester relied on pig breeding inside the town or imported their pigs from more favourable areas for pig keeping further a field. The number of horse bones is low for all three Dorchester sites indicating that horsemeat was not consumed on a regular basis.

The larger animals are probably over-represented since MNI counts show sheep/goat to be more numerous or equal to cattle in all assemblages (Table AB3).

Based on the results of Table AB3, it seems that sheep/goat was the most numerous animal during Romano-British period in Dorchester, followed by cattle and pig. Domestic fowl played an important role in the diet of the inhabitants. This is consistent with other Dorchester assemblages, such as Greyhound Yard and County Hall/Colliton Park, and other urban sites in Wessex where its remains provide over half the bird bones found by the 1st and 2nd centuries AD (Coy 1989, 29).

Husbandry

<u>The sheep/goat assemblage</u>

Representation of different anatomical elements
The analysis of the representation of different anatomical elements shows similar patterns for all four assemblages. Almost all skeletal elements are present, indicating that at least some on-site slaughtering took place (Fig. AB1). The high number of skulls is misleading, as this bone, due to its fragility, tends to break into many pieces. The greater number in the animal's body can explain the large number of ribs. This leaves an overrepresentation of the elements of the lower legs. As they do not bear a lot of meat, an explanation could be that the inhabitants were of low social class and had to settle for less quality meat. Another, taphonomic explanation could be that the elements of the lower leg are more resilient than those of the upper leg. The absence of horn cores does not seem to have been caused by a hornless breed, as evidence for horn cores was found on some skull fragments. It is more likely that the horns were removed for working into artefacts.

Age analysis
Counting the MNI for the sheep/goat remains revealed that the early Romano-British assemblage contains at least five adult, two juvenile and one foetal individual. The foetal remains derive from a foetus of 136 days after conception (birth 145 days). Four adult, two juvenile and one foetal individual were identified for the middle Romano-British period. The

late Romano-British period yielded the remains of at least two adults and a juvenile. Three adults, two juveniles and two foetuses (one 136-145 days after conception) were found in the unspecified Roman material.

According to Reichstein (1994, 448) the presence of foetal bones is an indicator for animal keeping on the spot as meat of foetuses is not eaten, but discarded. Foetal remains could also get into the assemblage when animals with young are slaughtered although this is uneconomical and would only take place in case of an emergency such as famine. As both were nearly full term it is likely that they were discarded stillborns.

Classifying of the sheep/goat mandibles was done according to the data provided by Habermehl (1975; see Table AB4).

The results of the jaw classification are presented in Figure AB2. This shows a preference for the consumption of the meat of mature animals, although this might be biased, as the bones of juvenile animals are less resilient. Presence of foetal bones however shows that this bias is only slight. Hamilton-Dyer states that the remains from County Hall/Colliton Park were more evenly spread over the different eruption stages (1993, 80).

A wear stage analysis showed that the first molars had wear stages between E and M with most being F or G. The second molar ranged from B to J with a preference for E, F and G. The third molar was mostly worn down to stage G with a range from C to H indicating adult but not aged animals. Soil and fodder type determine the wear rate, with sandy soils and silicate-rich short grass being the most abrasive (Silver 1970, 290). The uniformity of the found wear stages, with fewer observations on the lower and upper end of the scale, shows that the animals were probably kept under the same conditions and, in case of the wear stage pattern deriving from the third molars, slaughtered around the same time.

Figure AB3 is based on the epiphyseal fusion data of sheep found in Appendix Table 9. The data in the last row of these tables is an interval: the relative number of animals who died between this and the preceding age group (see Uerpmann 1972, 16).

The results presented in Figure AB3 are consistent with the age analysis based on the jaws. The mortuary graphs however are able to supply data for sheep/goat older than two years. Unfortunately, the lack of data for the early, middle and late Romano-British assemblages make the graphs less reliable. As the graphs in Figure AB3 are very similar, it was decided to combine the epiphyseal data graphs (Fig. AB4).

The combined data shows that the remains derive mainly from three age groups: animals killed in their first year, third year and after their fifth year. This means that most of the animals could have been used for breeding and that secondary products like milk and wool were important as well. The inhabitants ate mainly meat of older animals used for their diary, wool or breeding characteristics before. However, the high percentage of animals dying in their first year shows that they had a taste for lamb as well. The results differ from those from Greyhound Yard were most of the sheep were slaughtered between one and two years old, although their number declined with time (Maltby 1993, 324).

Breed

Three skulls bear traces of horn cores and no hornless skulls were found. These skulls were found in the early, late and Romano-British period. The major breed around Dorchester was

also horned. Maltby (1993, 324) found however some evidence for hornless sheep which might have been imported.

A metatarsus from the early Romano-British context 1436 provided a height at the withers of 0.605 m. Another metatarsus from the late Romano-British context 2075 provided a slightly greater value of 0.617 m. These results are comparable with those from Greyhound Yard (Maltby 1993, 324) and County Hall/Colliton Park were Hamilton-Dyer (1993, 78) found a value of 0.597-606 m for a mature animal found in a pit at the assemblage.

Pathologies and anomalies
Only a few bones show pathological changes. In a right mandible from context 1440, bone resorption around M1 and the subsequent loss of the P3 indicates an inflammation. In context 1442, a right mandible lacks its P2. From the late Romano-British context 4231, another right mandible lacking its P2 is found. A right mandible with bone resorption around M1 as the result of an inflammation was found in unspecified Roman context 1100. All cases show post-mortem tooth loss because of paradonthosis. These inflammations with tooth loss occur when the gum is damaged by something sharp in the fodder. When the animal is in a lesser condition, the gum does not heal resulting in inflammations with alveolar recession. Comparative pathology was seen in the County Hall/Colliton Park (Hamilton-Dyer 1993, 80) and the Greyhound Yard assemblages (Maltby 1993, 324).

Butchery marks
The butchery marks left on sheep/goat bones were mostly caused by a cleaver, which derive from portioning the carcass. These marks were noted on the skull, which would have been split lengthwise following the sutures, elements of the spinal column (split vertically) and the ribs. Knife marks were rarer and result mostly from filleting and skinning activities; these were recorded on the ribs and pelvis. Maltby (1993, 323) recorded the same butchery methods for the Greyhound Yard assemblage, suggesting standard butchery practices were being used.

<u>Cattle</u>

Representation of different anatomical elements
The analysis of the representation of different anatomical elements, as for sheep/goat, shows a similar pattern for all four assemblages (Fig. AB5). Significant irregularities in the distribution of the skeletal elements over the species are not found. This means that the inhabitants did not consume or trade specific body parts. In fact, the evenly distributed skeletal elements suggest that animals were slaughtered and their products processed on the spot. As some skull fragments bear traces of the removal of the horn cores, their limited representation in the assemblage is caused by their high value as raw material.

Age analysis
According to the MNI method, there are at least an adult, a subadult and a foetus in the early Romano-British assemblage. The middle Romano-British assemblage yielded at least the remains of two adults, a subadult and a foetus. The remains of two adults and a subadult were found in the late Romano-British material and the Roman material consisted of at least three adults, a subadult and a foetus. To become a more detailed picture of the age at death of the Dorchester cattle, the jaws were classified using the data provided by Habermehl (1975; see Table AB5).

Classification of the jaws shows that there was the same preference for older animals as seen for the sheep/goat material (Fig. AB6). The wear stage analysis showed that the wear stages

on the third molar run from A to G with a preference for E, F and G, suggesting adult but not aged animals, a conclusion previously drawn by Hamilton-Dyer (1993, 80) for the County Hall/Colliton Park material and Maltby (1993, 320) for the Greyhound Yard assemblage. The wear stages pattern suggests, as for the sheep/goat, uniform living conditions.

Figure AB7 is based on the epiphyseal fusion data of cattle, which can be found in Appendix Tables AB14-AB17). The results obtained from the epiphyseal fusion data underline and enhance the tooth eruption stage data. It becomes apparent that cattle were primarily slaughtered in their second, third or after their third year. The inhabitants of Dorchester ate meat from older cattle, which might have served as dairy, breeding and draught cattle first. The tasty veal steak was not eaten very often.

The presence of foetuses in the bone assemblage show that problems during the gestation period occurred. Size of the remains made it clear that those problems mainly occurred at the end of the gestation period. As calves are usually born in spring, this means that miscarriages occurred at the end of winter when fodder was sparse. Until recently, at the end of winter when fodder became sparse and the farmer was mixing it with lesser nutritious bark, miscarriages were the result (R. Uphoff, Emden archive, Germany).

Breed

Two skulls bear (traces of) horn cores and no evidence for a hornless breed was found. A skull fragment from late Romano-British context 2034 (ditch, group 605) had its horn core removed. This was probably done with a cleaver to obtain the horn for processing.

For the estimation of the height at the withers for cattle, the methods of Von den Driesch and Boessneck (1974) were used. As it was impossible to sex the metapodials, the means of the factors as proposed by Von den Driesch and Boessneck were used: 6.15 for metacarpals and 5.45 for metatarsals. A metatarsus from the late Romano-British context 2030 provided a height at the withers of 1.04.-1.10 m. Another two metatarsi from the Romano-British context 4030 provided values of 1.04-1.10 m and 1.07-1.13 m. The bone material from Greyhound Yard produced equally small cattle (Maltby 1993, 320). This suggests the keeping of a small breed in the Dorchester surroundings with no evidence for the larger Roman cattle as seen in the Rhineland.

Pathology and anomalies

The left and right mandibles found in Roman context 4030 have the P2 missing. As there is no sign of an alveolus, it is possible that the individual lost the elements long before death and the alveolus subsequently closed completely. However, as both P2s are missing it is more likely that they were never present. The same condition was encountered in 19% of the cattle mandibles of the Greyhound Yard assemblage (Maltby 1993, 321).

Butchery marks

The butchery marks on the cattle bones were mostly caused by a cleaver and involved portioning the carcass and marrow extraction. The portioning marks are particularly found on the elements of the spinal column, ribs, pelvis, humerus distal, radius proximal, tibia proximal and the carpals and tarsals. Signs of shaft splitting for marrow extraction are seen on humerus, tibia and metapodials. This intense butchery style has also been described from other urban Roman sites including County Hall/Colliton Park and Greyhound Yard in Dorchester (Hamilton-Dyer 1993, 78 and Maltby 1993, 319).

Traces of skinning using a knife are more seldom and found on the ribs and an astragalus. From two skull fragments from contexts 1037 (middle Romano-British pit group 539) and 2034 (late Romano-British ditch 605) the horn core was separated from the skull using a cleaver to provide raw material for horn working.

Pig

Representation of different anatomical elements
The analysis of the representation of different anatomical elements, as for sheep/goat and cattle, shows a similar pattern for all four assemblages (Fig. AB8). The overall small assemblages do explain minor irregularities in the distribution of the skeletal elements over the species. This means that the inhabitants did not consume or trade specific body parts and that pig were slaughtered and processed on the spot.

Age analysis
Application of the MNI method showed that the early Romano-British material contained at least one adult, two subadult and one foetal pig. The middle Romano-British assemblage consisted of at least two adults and a juvenile. The remains of two juvenile pigs were found among the late Romano-British assemblage and the unspecified Roman assemblage yielded the remains of an adult, two juveniles and a foetus. Classifying of the pig mandibles and maxillae was done according to the data provided by Habermehl (1975; see Table AB6) and presented in Figure AB9.

The graphs in Figure AB9 show that the majority of pigs died at an age of more than two years. This is a common and ideal age for butchering. Varro (cited by Benecke *et al*. 2003, 72) says that the Romans used sows for breeding from 20 months up to 7 years. According to Columella (book 7, chapter 9 Ahrens 1972, 238) a boar can serve at the age of 6-12 months until it is four years of age. Sows can be served twice a year from the age of one year until the age of seven. Müller (1973, 436) states that it was customary in the 19th century to use sows aged two to eight years and boars until four years old for breeding. This means that most of the pigs in Dorchester were probably used once or twice for breeding.

The wear stage analysis showed that most pig teeth were in the earlier wear stages indicating young animals. One mandible with a third molar in wear stage J however, shows that animals could reach a greater age. This particular individual might have been an excellent breeding animal.

Figure AB10 is based on the epiphyseal fusion data of pig in Appendix Tables AB18-AB21. It becomes apparent that between half and two thirds of the pigs were slaughtered in their second year, and between a half and one third slaughtered in their third year. No evidence for animals older than three years was found. The same conclusion was reached based on the tooth eruption data.

The age analysis of the pig jaws from Greyhound Yard showed a higher proportion of young individuals. The presence of neonatal and juvenile bones led Maltby (1993, 326) to the conclusion that pigs were kept on the spot and/or that there was a high preference for suckling pig.

Analysis of sex
In some species, the bones show enough sexual dimorphism to separate the males from the females. This can be based on the visual form of a particular skeletal element or the analysis

of some particular measurements of a skeletal element. The sex of the pigs was estimated using the canines of the maxillae and mandibles. The form of these teeth differs in boars and sows. Additionally the teeth of boars are larger and have roots that remain open whereas they close with advanced age in sows.

Table AB7 shows the results of the canine analysis per assemblage. It becomes evident that the sows form the majority in the adult pig population. Maltby (1993, 326) found more evidence for boars in the Greyhound Yard material. The results underline those from the age analysis and point to breeding activities.

Breed
One metacarpal bone from the late Romano-British period provided an estimated height at the withers of 0.895 m. A metacarpal and a metatarsal from the Romano-British period provided values of 0.852 m and 0.85 m respectively.

Butchery marks
The butchery marks identified were all caused by a cleaver and involved portioning the carcass. The portioning marks were found on scapula, pelvis, ribs and the elements of the spinal column (split vertically). This pattern is consistent with the butchery marks encountered in the Greyhound Yard material (Maltby 1993, 325).

Horse

Representation of different anatomical elements
The analysis of the representation of different anatomical elements shows that horse remains are only found sporadically and not found among the middle Romano-British material (Fig. AB11). The late Romano-British pit (context number 4231 (group 707)) contained the right hind leg of an adult horse (patella, tibia, navicular curboid, astragalus, os tarsi centrale, metatarsus and first phalanx). No evidence for gnawing or butchering was found on these bones. As the elements recovered would provide hardly any meat and horse marrow is unpalatable, the hind limb was probably discarded in the pit after the animal was butchered.

Age analysis
Only a few horse bones suitable for an age estimation to be made, were recovered. Table AB8 summarises this data.

The absence of the remains of juvenile and subadult horses indicates that they were not bred for meat. Moreover, older horses no longer performing well in their primary tasks as a riding or draught animal were slaughtered.

Breed
The hind leg bones found in the late Romano-British pit (4231, group 707) point to a horse with a height at the withers of only 1.28 m. According to the tables published by Vitt (1952) the animal falls in the small to very small group. Maltby (1993, 330) found evidence for the same small Iron Age horses as well as material from much larger horses indicating some Roman imports.

Pathologies and anomalies
A metatarsus from the late Romano-British pit (4231, group 707), unrelated to the nearly complete hind limb noted above, shows bone exostosis around the proximal epiphysis. This particular pathology occurs when animals are used as draught animals.

Butchery marks
Only one chop mark, indicating carcass portioning, on the proximal part of a radius from a late Romano-British context was found.

Dog

The early Romano-British material yielded an epistropheus and a metapodial from (an) adult dog(s). Late Romano-British pit (context 4322/group 707) contained the partial skeleton of an adult dog (skull, one thoracic vertebra, three lumbar vertebra, three caudal vertebra, four left and four right ribs, right humerus, left and right radius and ulna, right pelvis and right femur). The estimated height at the withers lies around 0.579-0.599 m. Maltby (1993, 327-328) states that most dogs in the Greyhound Yard material had estimated height at the withers of 0.30-0.32 m and 0.47-0.5 m, with the largest being around 0.58 m.

Additionally two left femurs were found in the late Romano-British assemblage. The Roman material yielded a humerus, an ulna and a tibia from (an) adult dog(s). No remains of puppies were found. As it is likely that the mortality rate was high, their remains might have been disposed of somewhere else or their fragile bones did not survive. Maltby (1993, 327) describes the finds of foetal and neonatal dog bone material from wells and cesspits.

Cat
The single cat bone, a humerus found in a Romano-British context (1100), belonged to an adult of more than 8.5 months old. A deciduous tooth from a cat was found in the County Hall/Colliton Park assemblage (Hamilton-Dyer 1993, 80) and cat bones were represented in the Greyhound Yard assemblage (Maltby 1993, 330).

Domestic fowl

Representation of different anatomical elements
The analysis of the representation of different anatomical elements shows similar patterns for all four assemblages (Fig. AB12). It seems that the inhabitants of Roman Dorchester preferred chicken wings and drumsticks as bones from the wings and the legs are over-represented. Head, spinal column and breast are under-represented probably because of their fragility and small size. Eggshell probably of chicken and goose were also recovered from the site (see Sidell).

Age analysis
The early Romano-British material represents at least six adult and one juvenile fowl. Three adults and one juvenile came from the middle Romano-British assemblage. The late Romano-British material contained at least two adults and a juvenile. Four adults and two juveniles were found in the unspecified Roman material. The presence of juvenile birds suggests that domestic fowl were being kept and bred in this area of the town during the Romano-British period. As the material from Greyhound Yard also contained a fair amount of juvenile birds it is likely that domestic fowl were commonly kept in the town (Maltby 1993, 332).

Analysis of sex
Sex of individuals was established using the presence of the spur on the tarsometatarsus (Peters 1997, 54-55). This resulted in the identification of three early, one middle and one late

Romano-British roosters. Maltby (1993, 332) also describes a majority of male birds indicating that the inhabitants of the *insula* preferred larger birds.

Butchery marks
Due to the small size of the carcass, butchery marks were only seen on one ulna and three tibiotarsi. The marks were caused by a small cleaver or a knife and involved portioning. The distal positioning of the marks suggests that wingtips and feet were removed before cooking. This conclusion was also reached by Maltby (1993, 331) for the Greyhound Yard material.

Wild species

As for the County Hall/Colliton Park assemblage, wild species were poorly represented (Hamilton-Dyer 1993, 80) and consists of the left mandible of a black rat (ctx 4194), hare bones from contexts 2189 (right radius), 2313/2314 (pelvis and femur) and 2165 (left radius and incisor). The pelvis had horizontal knife marks on the ilium shaft and the ischium, whereas the femur had horizontal knife marks on the proximal part. An adult house mouse mandible came from context 4179. Red deer bones came from context 2052 (left part of skull). The animal was in its prime *(c* 28 months) when it was killed. A piece of antler (beam and tine), came from Romano-British context 4030 and might suggest the working of antler. Bones of black rat, house mouse and red deer were also found in the Greyhound Yard assemblage (Maltby 1993, 331).

A small quantity of bird bone was also recovered from a variety of contexts across the site. These are from native species and mostly represent natural deaths of birds on site although a few of the species may have been eaten. Birds represented include carrion crow, raven, long-eared owl, lapwing, magpie, mallard/duck, pigeon/dove, songbird, wigeon and woodcock. The lapwing, mallard/duck, pigeon/dove, songbird, wigeon and woodcock may have been eaten. The antanid bones (mallard/duck) are likely to derive from wild rather than domesticated birds. These bones together with the woodcock may suggest that wild fowling was occurring. All of these species can be paralleled in Romano-British contexts at Greyhound Yard (Maltby 1993) and County Hall/Colliton Park (Hamilton-Dyer 1993).

Bone distribution

This section outlines the distribution of animal bone from selected feature types in order to examine discard practices.

Ditches
The assemblages from early and late Romano-British ditches were examined (contexts 2024, 2030-2034, 2036, 2038, 2040, 2280-2281, 2295, 2375, 4013, 4089, 4110-4111, 4123, 4222 and 4264).

As can be seen from Figure AB13, cattle remains were most numerous in the ditches followed by sheep/goat and pig. Remains of horse, mouse, domestic fowl, wigeon and woodcock were also found. Compared to the bones found in the chronological assemblages, the ditches contain less bird bones and the sheep/goat bones are strongly outnumbered by the cattle bones. The proportion of pig bones is roughly the same.

Figure AB14 shows that the assemblage consists mostly of elements of the head, spinal column, ribs and lower limbs. Apart from the ribs, these elements do not bear a great deal of

meat and therefore could be regarded as butchery waste. The bones could have been used to make a broth or have the nutritious marrow and brain removed. Butchery marks and the fact that no complete skulls were found, underline this. This means that the ditches were used to dispose of primary butchery waste and bones intensively processed for food.

Drain
The lower fill of a drain outside a building (context 2052, group 615) contained bones of cattle (eight), sheep/goat (three), red deer (one), and domestic fowl (one). Among the bones was a part of a skull of a young red deer.

Hearth
The late Romano-British hearth (context 4124, sample 3081) contained small quantities of cattle (two), juvenile sheep/goat (three) and bird bones (one).

Layers
All the layers analysed date to the middle Romano-British periods (contexts 1027, 2199, 2200, 2203, 2204, 2313, 2314 and 2320).

Figure AB15 shows that most bones found in the layers derive from sheep/goat and cattle, followed by birds and pig. The balanced ratio for sheep/goat:cattle can also be found for the middle Romano-British and Romano-British assemblage. The number of pig bones is similar to those found in the chronological assemblages. A high proportion of bird (domestic fowl, mallard, pigeon/dove and woodcock) bones was also found in the early and middle Romano-British assemblages.

In contrast to the representation of different anatomical elements found in the ditches, the assemblage from selected layers contains a combination of the meat bearing upper limbs, shoulder and pelvis as well as butchery waste (elements such as the head, spinal column and lower limbs) (Fig. AB16). These contexts seem to be an unspecific mix of many of the species represented on the site.

Oven
A small assemblage of bone came from the early Romano-British oven (contexts 1398, 1469 and 1494), consisting of cattle (one), sheep/goat (two) and woodcock (one).

Pits
Pits belonging to the early, middle and late Romano-British periods were analysed (contexts are pits: 1018, 1021, 1026, 1037, 2075, 2234, 2308, 2333-2335, 2374, 2379, 4150-4152, 4155, 4202, 4231-4232, 4237, 4247, 4275, 4277, 4322, 4333, 4341 and 4342).

The assemblage from the pits shows a balance between cattle and sheep/goat previously observed for the material from selected layers and for the Romano-British contexts (Fig. AB17). The proportion of birds and pigs is similar to the chronological and layers assemblages. Horse and dog become more numerous (dog and a horse limb were discarded in the late Romano-British pit 4322/4231, group 707).

The pit assemblage contains a higher proportion of kitchen refuse as more elements from the upper limbs were present (Fig. AB18). The presence of the elements of the head, spinal column and lower limbs, however, shows that butchery refuse was also discarded in pits.

Sunken building
Analysed contexts from the sunken building all date to the early Romano-British period (contexts 2189, 2190, 2230, 2309, 2315, 2322, 2325 and 2361). The bone assemblage is characterised by a high proportion of bird bones, mainly domestic fowl with a few bones of songbird and wigeon, and a high proportion of sheep/goat. Cattle make up only a small proportion, whereas the proportion of pig is similar to that of the other assemblages (Fig. AB19).

The different anatomical elements represented shows that ribs and limb bones were mostly found indicating kitchen refuse comprising mainly chicken wings, drumsticks and ribs was being deposited in this feature (Fig. AB20).

Discussion

Taphonomic analysis showed that the assemblage has not been extensively re-worked. The bulk of the bones derive from the usual domesticates (i.e. cattle, sheep/goat, pig and domestic fowl) and wild species were not an important part of the inhabitants' diet. Gerlach (1986, 19-21) states that meat was an important element of Roman diner, the *cena*. The Romans preferred the tender meat of young animals and diary products. Dairy products were also important particularly sheep's milk cheese was popular. Game was not especially important in the diet of the inhabitants of the Northern Provinces.

Compared with the County Hall/Colliton Park assemblage the Greyhound Yard and Hospital assemblages have a lower proportion of sheep/goat and higher proportions of pig and birds. This difference might derive from the fact that the County Hall/Colliton Park has a more rural character and its inhabitants were less influenced by the Roman eating habits (Hamilton-Dyer 1993, 81). This leads Maltby (1993, 325) to the conclusion that pig breeding did not have a tradition in this area and that the inhabitants of *Durvovaria* relied on in-town pig breeding for their pork meat. The presence of foetal remains from sheep/goat and cattle, however, show other animals were also kept inside the town as well. The presence of goose and chicken eggs suggests that fowl were also kept within the town (see Sidell, eggshell).

The low proportion of horse indicates that horsemeat was not consumed on a regular basis. The MNI-method levels out the differences in carcass size, as indicated by the number of bones, and shows that more sheep and/or goats were kept in and/or around *Durvovaria* compared to cattle.

Chronological analysis showed that cattle gained more importance in the later Romano-British periods. A conclusion previously reached by Maltby for the Greyhound Yard material (1993, 335). The number of bird bones seems to decline over time as well, although the proportion of wild birds increased with time.

The representation of the different anatomical elements for sheep/goat, cattle and pig showed no differences between the chronological assemblages. The presence of almost all elements shows that at least a proportion of the animals was slaughtered *in situ*. A professional butcher probably did this, as there is a high standardization of butchery marks between the three archaeozoologically investigated sites. Above this, horn cores are underrepresented in the material and evidence of their removal from the skull was found indicating that they were used in horn working. Both observations are characteristic for a town assemblage where the redistribution of the animal carcass was professionally organised (Albarella 2005, 138).

As stated above, the Romans had a taste for the tender meat of young animals. The age analysis of the material from this site however, suggests that only a small proportion of the sheep/goats were killed in their first year and most animals lived for more than three years or even more than five years, indicating wool and/or milk production. This is in sharp contrast to the material from Greyhound Yard, were most sheep/goats were killed between one and two years old (Maltby 1993, 324), or County Hall/Colliton Park were all ages were present and no preference was seen (Hamilton-Dyer 1993, 80). The data for cattle from all three assemblages shows that most animals were adult but not aged, indicating the use of secondary products like milk and traction. However, a higher proportion of veal steak was eaten by the inhabitants of Greyhound Yard (Maltby 1993, 320; Hamilton-Dyer 1993, 80). Most pigs were slaughtered in their second year and no pig was older than three years. Again, the Greyhound Yard assemblage contained a higher proportion of younger (neonatal and juvenile) pigs than the other two assemblages did (Maltby 1993, 326).

Analysis of the sex of the pig remains showed that the Hospital assemblage, located at the edge of the town, contained more sows. Maltby (1993, 326) found more remains from boars in the Greyhound Yard material, coming from a central *insula* probably close to the forum. Maltby also found many neonatal and juvenile pigs in the material, which led him to the conclusion that pig breeding took place inside the town. It is tempting to conclude that the pigs were bred on the outskirts of the Roman town and were mainly eaten by the high status people living near the forum. As shown above, the animals consumed by the people of the more central *insula* were considerably younger indicating better food and a higher status.

The archaeozoological evidence shows that the sheep breed around the Roman town was horned. The few hornless sheep in the Greyhound Yard material led Maltby to the conclusion that some animals were imported (1993, 324). The horned cattle were equally small as those from Greyhound Yard (Maltby 1993, 320) and no evidence for imported larger Roman cattle as present in the Rhineland was found. Although Maltby (1993, 330) found also evidence for larger Roman horses, the material from the Hospital site produced only small Iron Age horses.

Apart from the products provided by their large domestic mammals, the inhabitants also had access to eggs and meat from domestic fowl. The proportion of juvenile animals in the material suggests that they were kept on the spot. A high proportion of wing and leg bones indicate that the people from the south-west corner of the town preferred these parts of the bird.

The presence of the black rat and the house mouse make the cat a very useful companion. Its remains were found, although sometimes in low quantities, on all three sites. The large assemblage from Greyhound Yard showed that at least two types of dogs were present in the Roman town: small pet-like dogs and larger dogs suitable as guard dogs (Maltby 1993, 327-328). A probable guard dog was found at the Hospital site and had a height at the withers of 0.58 m.

Small quantities of hare and red deer suggest that the diet was complemented by venison at some occasions. Above this, the presence of antler makes it probable that it was worked inside town. The presence of edible wild birds like lapwing, mallard, pigeon, songbird, wigeon and woodcock suggests that fowling was undertaken by the inhabitants of the Roman town or that they had access to these birds through a market. The rise of the proportion of wild birds in the later assemblages might indicate a rise in status. As in modern day cities, the presence of rubbish attracts scavengers like crows and ravens.

To get better insight in the discard policy of the inhabitants of the south-west corner of the Roman town, the contexts were grouped by type. The species proportions and the representation of different anatomical elements showed that the pits were used as bins as they contain primary kitchen refuse and picked bones from the meals. On the contrary, the ditches were used to dispose of mainly butchery waste. The peculiar assemblage from the sunken building seems to contain the remains of just one meal or a few meals consisting mainly of chicken. It seems that infilling of the sunken part of the building happened at once when the building was no longer used. The layers form an unspecific assemblage and contain butchery waste and kitchen refuse.

In a conclusion, it can be said that the three assemblages from Roman Dorchester (Hospital, Greyhound Yard and County Hall), represent three social groups. The highest social group lived in a central *insula* probably near the forum (Greyhound Yard). They ate quality meat from young animals with a high proportion of wild birds and pigs in taken over Roman customs. The intermediate group lived in the south-west corner of the town and ate similar proportions of meat as the elite indicating Roman customs as well, but the animals were the meat came from were considerably older (Hospital site). The lowest social group clung to their Iron Age customs and ate primarily mutton (County Hall).

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Table AB1: Number of identified and indeterminable bones per phase

Material	Early		Middle		Late		Roman	
	n	%	n	%	n	%	n	%
Identified	302	65.9	207	32.4	282	55.1	582	64.3
Indeterminable	156	34.1	432	67.6	230	44.9	323	35.7
Total	458	100.0	639	100.0	512	100.0	905	100.0

*Table AB2: Species list and number of identified specimens. *partial dog skeleton, **burnt fragments of medium sized mammals*

Species	**Early**		**Middle**		**Late**		**Roman**	
	n	**%**	**N**	**%**	**n**	**%**	**n**	**%**
Cattle (*Bos Taurus*)	65	14.2	66	10.3	115	22.5	225	24.9
Horse (*Equus caballus*)	2	0.4			13	2.5	6	0.7
Sheep (*Ovis aries*)	3	0.7	4	0.6	1	0.2	2	0.2
Sheep/Goat (*Ovis*/*Capra*)	109	23.8	73	11.4	63	12.3	219	24.2
Pig (*Sus domesticus*)	42	9.2	25	3.9	31	6.1	64	7.1
Cat (*Felis catus*)							1	0.1
Dog (*Canis familiaris*)	2	0.4			19*	3.7	3	0.3
Black rat (*Rattus rattus*)							1	0.1
Hare (*Lepus europeus*)	1	0.2	2	0.3			2	0.2
House mouse (*Mus domesticus*)							4	0.4
Mouse			1	0.2	5	1.0		
Red deer (*Cervus elaphus*)					1	0.2	1	0.1
Birds								
Carrion crow (*Corvus corrone*)					1	0.2		
Domestic fowl (*Gallus gallus* dom.)	70	15.3	32	5.0	22	4.3	42	4.6
Long-eared owl (*Asio otus*)					1	0.2		
Lapwing (*Vanellus vanellus*)							1	0.1
Magpie (*Pica pica*)					3	0.6		
Mallard/Duck (*Anas plathyrhynchos* (dom.))			1	0.2	1	0.2		
Pigeon/Dove (*Columba* sp.)			1	0.2				
Raven (*Corvus corax*)					4	0.8	3	0.3
Songbird	1	0.2						
Wigeon (*Anas Penelope*)	5	1.1					5	0.6
Woodcock (*Scolopax rusticola*)	2	0.4	1	0.2	2	0.4	3	0.3
Classes								
Amphibian			1	0.2				
Bird	18	3.9	11	1.7	13	2.5	9	1.0
Large mammal	45	9.8	60	9.4	93	18.2	139	15.4
Medium mammal	87	19.0	352**	55.1	116	22.7	163	18.0
Small mammal	6	1.3	9	1.4	8	1.6	12	1.3
Total	**458**	**99.9**	**639**	**100.1**	**512**	**100.2**	**905**	**99.9**

Table AB3: Species list using the MNI

Species	**Early**		**Middle**		**Late**		**Roman**	
	MNI	**%**	**MNI**	**%**	**MNI**	**%**	**MNI**	**%**
Cattle (*Bos Taurus*)	3	10.7	4	17.4	3	13.0	5	15.2
Horse (*Equus caballus*)	1	3.6			2	8.7	1	3.0
Sheep (*Ovis aries*) / Sheep/Goat (*Ovis*/*Capra*)	8	28.6	7	30.4	3	13.0	7	21.2
Pig (*Sus domesticus*)	4	14.3	3	13.0	2	8.7	4	12.1
Cat (*Felis catus*)							1	3.0
Dog (*Canis familiaris*)	1	3.6			2	8.7	1	3.0
Black rat (*Rattus rattus*)							1	3.0
Hare (*Lepus europeus*)	1	3.6	1	4.3			1	3.0
House mouse (*Mus domesticus*)							1	3.0

Mouse			1	4.3	1	4.3		
Red deer (*Cervus elaphus*)					1	4.3	1	3.0
Birds								
Carrion crow (*Corvus corrone*)					1	4.3		
Domestic fowl (*Gallus gallus* dom.)	7	25.0	4	17.4	3	13.0	6	18.2
Long-eared owl (*Asio otus*)					1	4.3		
Lapwing (*Vanellus vanellus*)							1	3.0
Magpie (*Pica pica*)					1	4.3		
Mallard/Duck (*Anas plathyrhynchos* (dom.))			1	4.3	1	4.3		
Pigeon/Dove (*Columba* sp.)			1	4.3				
Raven (*Corvus corax*)					1	4.3	1	3.0
Songbird	1	3.6						
Wigeon (*Anas Penelope*)	1	3.6					1	3.0
Woodcock (*Scolopax rusticola*)	1	3.6	1	4.3	1	4.3	1	3.0
Total	**28**	**100.2**	**23**	**99.7**	**23**	**99.5**	**33**	**99.7**

Table AB4: Stages of tooth eruption in sheep (after Habermehl, 1975)

Sheep		
Group	**Tooth eruption stadium**	**Age**
0	Milk premolars in eruption	0-4 weeks
1	Milk premolars have erupted	1-2 months
2	M1 in eruption	3 months
3	M1 has erupted	4-8 months
4	M2 in eruption	9 months
5	M2 has erupted	10-17 months
6	M3 in eruption, P2-P4 changing	18-24 months
7	M3 and P2-P4 have erupted	24 months
7+	M3 medium worn	older than 24 months
7++	M3 significant worn	older than 24 months
7+++	M3 heavily worn	much older than 24 months

Table AB 5: Tooth eruption stadium of cattle (after Habermehl, 1975)

Cattle		
Group	**Tooth eruption stadium**	**Age**
1	Milk premolars in eruption	0-3 weeks
2	Milk premolars have erupted	until three months
3	M1 in eruption	5-6 months
4	M1 as erupted	7-14 months
5	M2 in eruption	15-18 months
6	M2 has erupted	19-24 months
7	M3 in eruption, P3 changing	24-28 months
8	P2 and P4 changing	29-34 months
9	M3 and P2-P4 have erupted, hardly worn	older as 36 months
9+	M3 medium worn	older as 36 months
9++	M3 significant worn	older as 36 months
9+++	M3 heavily worn	much older as 36 months

Table AB6: Stages of tooth eruption in pig (after Habermehl, 1975)

Pig		
Group	**Tooth eruption stadium**	**Alter**
0	Milk premolars in eruption	0-7 weeks
1	Pd4 has erupted	Older than 7 weeks
2	M1 in eruption	4-6 months
3	M1 has erupted, I3 and C changing	6-10 months
4	M2 in eruption, I3, C and I1 changing	10-12 months
5	M2 has erupted, P2-P4, I1 and I2 changing	12-16 months
6	M3 in eruption, I2 changing	16-24 months
7	M3 has erupted	older than 24 months
7+	M3 medium worn	older than 24 months
7++	M3 significant worn	older than 24 months
7+++	M3 heavily worn	much older than 24 months

Table AB7: Sex ratio of pig by assemblage

Pig			
Assemblage	♀	♂	**Sex ratio**
Early Roman	-	-	-
Middle Roman	1	1	1:1
Late Roman	1	-	-
Roman	2	1	2:1
Overall	4	2	2:1

Table AB8: Epiphyseal data of horse by assemblage

	Horse	
Assemblage	**Skeletal element**	**Age (months)**
Early Roman	Tibia	>24
Late Roman	Metatarsus	>12-15
Late Roman	1st Phalanx	>12-15
Late Roman	Radius	>15-18
Late Roman	Tibia	>24
Late Roman	Femur	>42
Roman	Tibia	>42
Roman	Mandible	>48
Roman	Epistropheus	<48-60

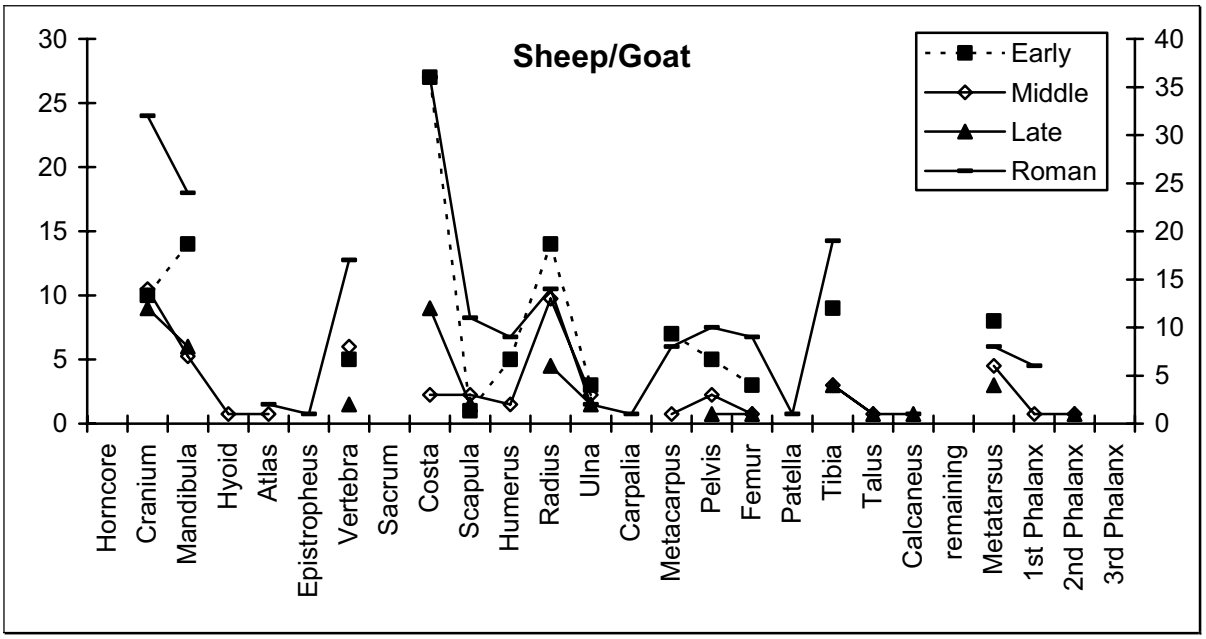

Figure AB1: Representation of different anatomical elements

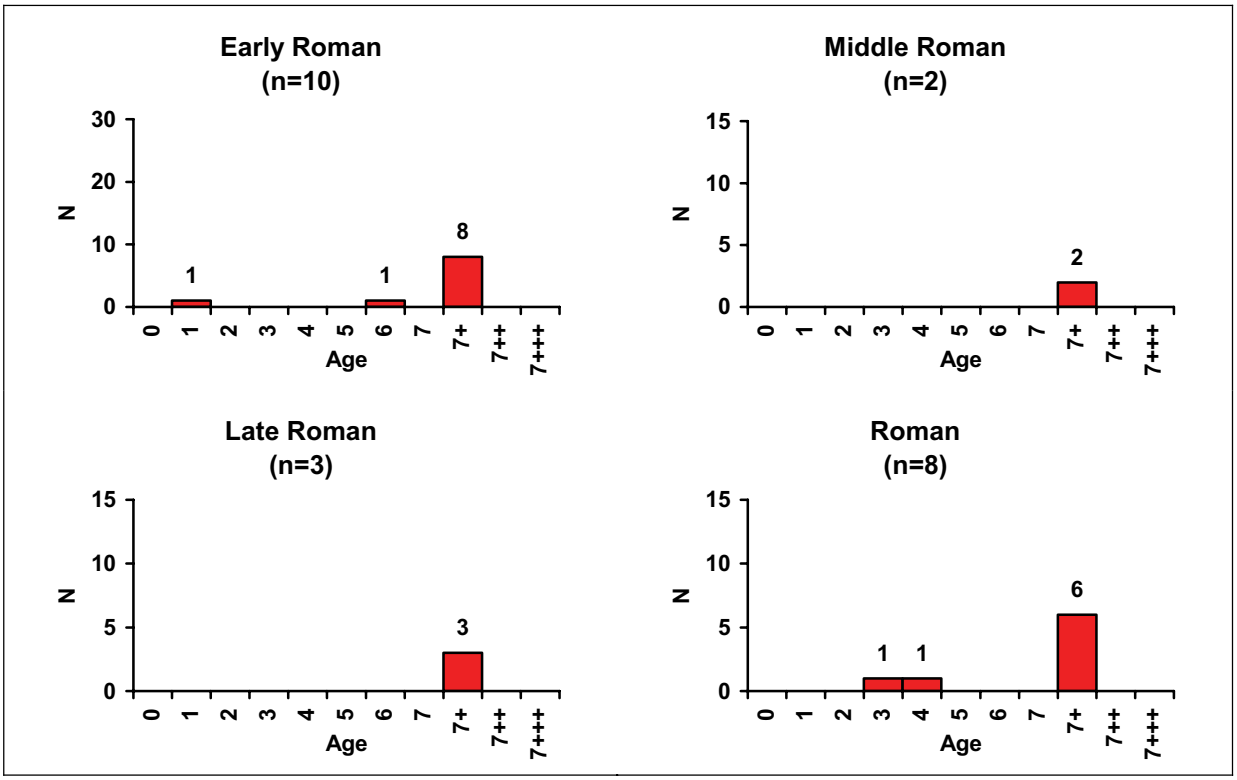

Figure AB2: Classification of the sheep maxillae and mandibles per assemblage

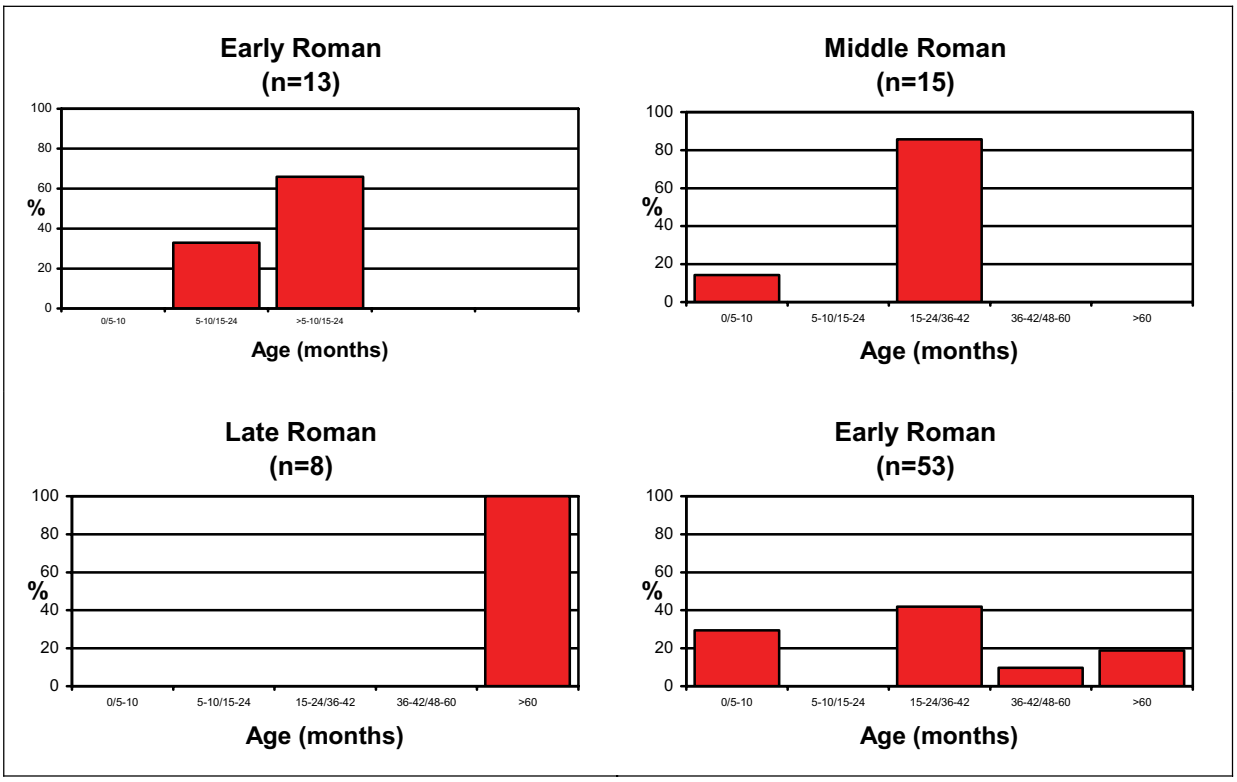

Figure AB3: Mortuary graphs based on the epiphyseal fusion data of sheep per occupation layer

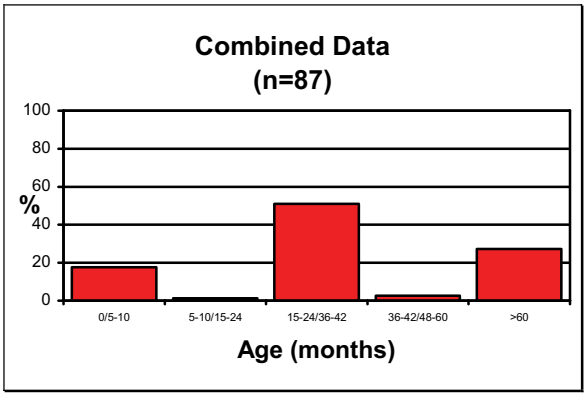

Figure AB4: Mortuary graph with combined data

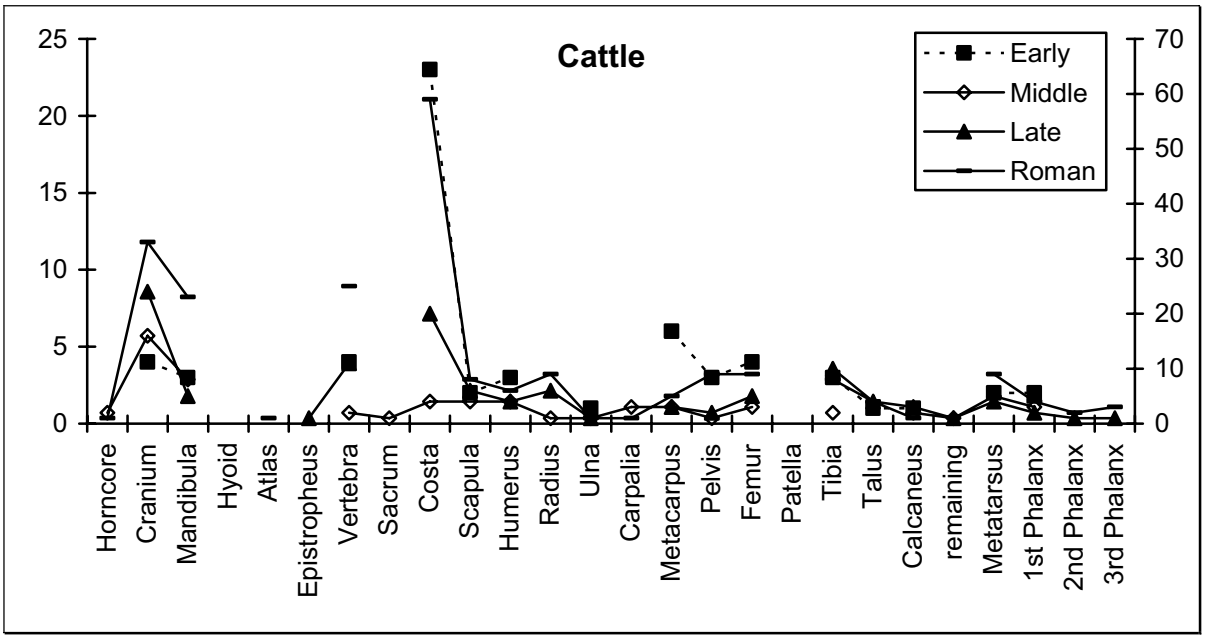

Figure AB5: Representation of different anatomical elements

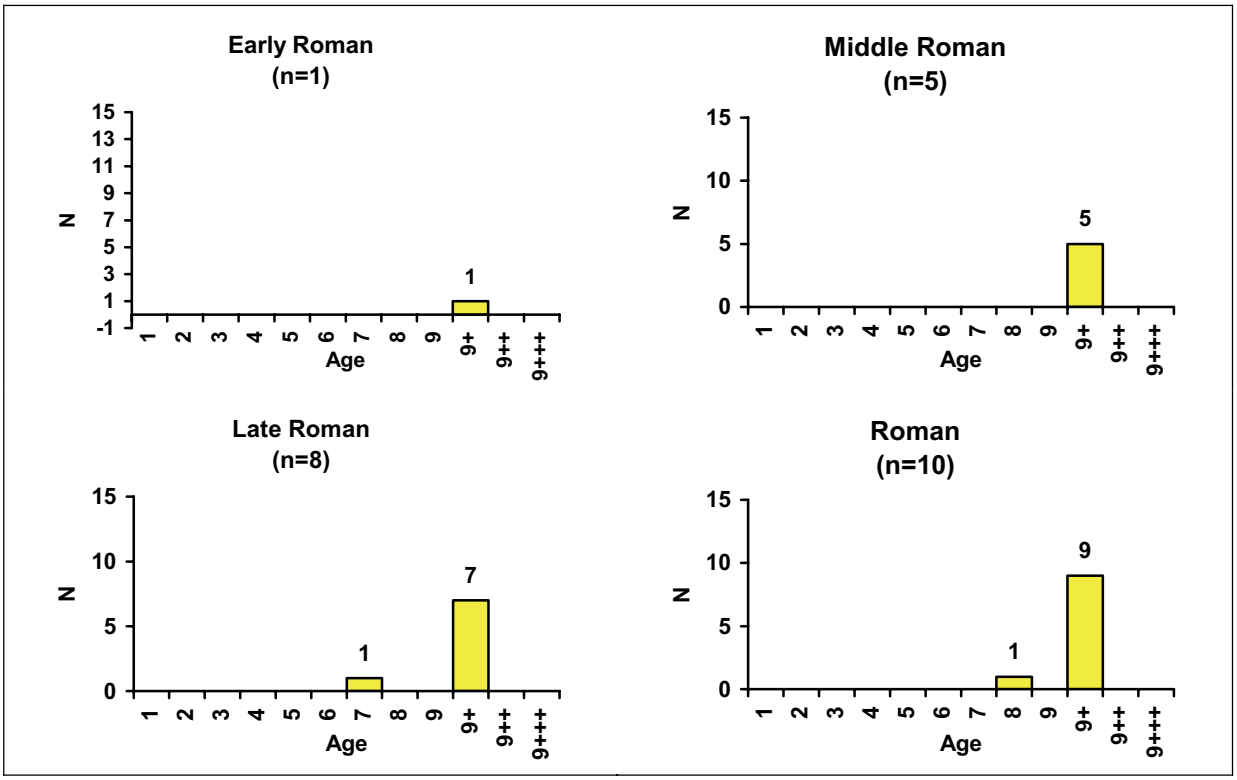

Figure AB6: Classification of the cattle maxillae and mandibles per occupation layer

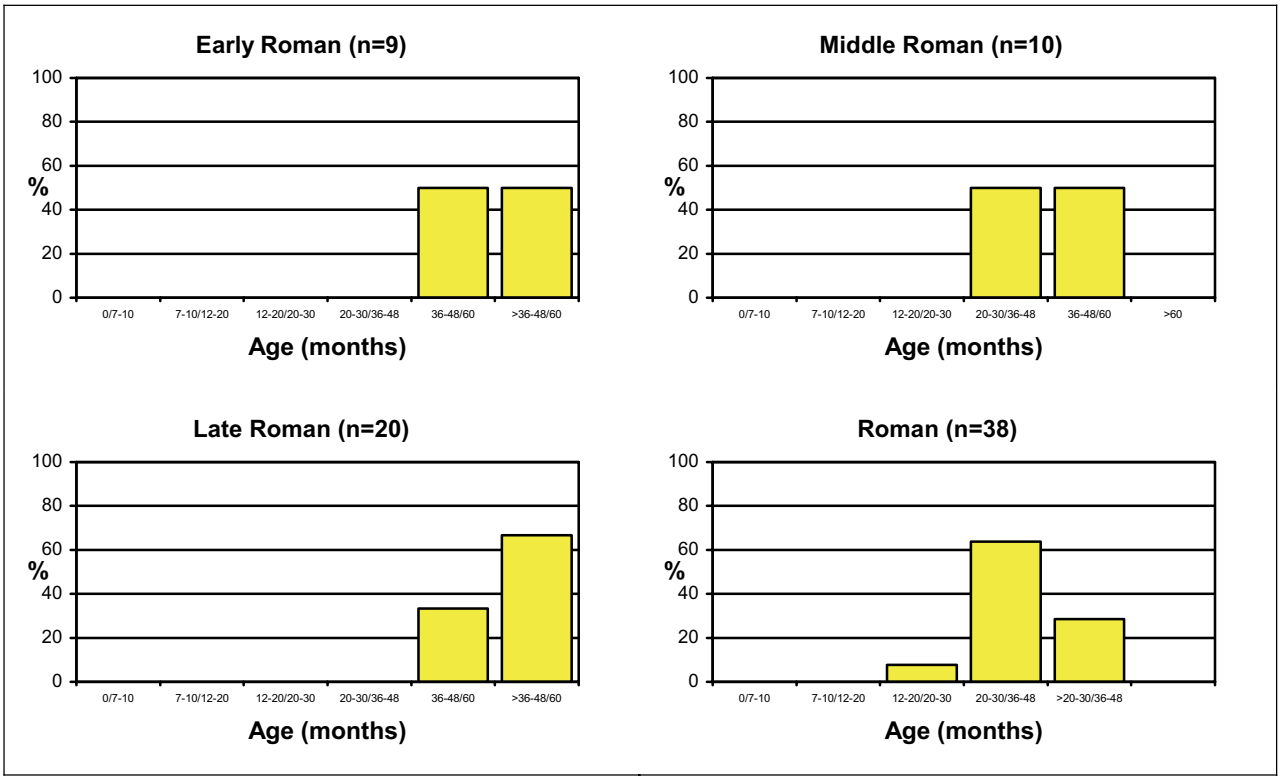

Figure AB7: Mortuary graphs based on the epiphyseal fusion data of cattle per occupation layer

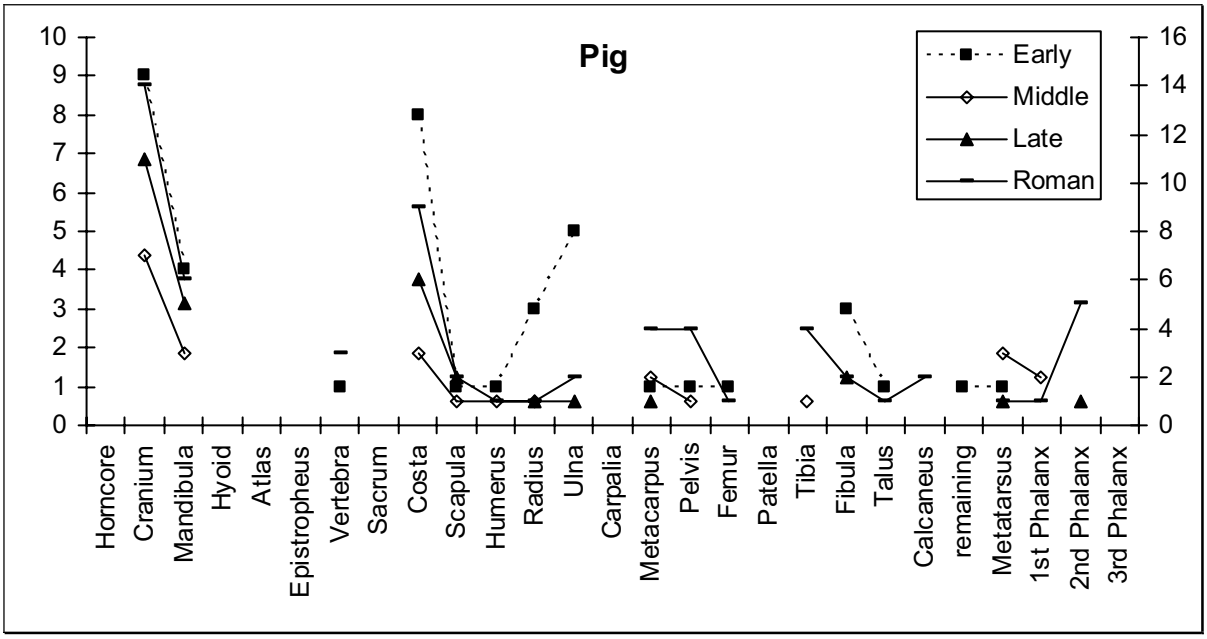

Figure AB8: Representation of different anatomical elements

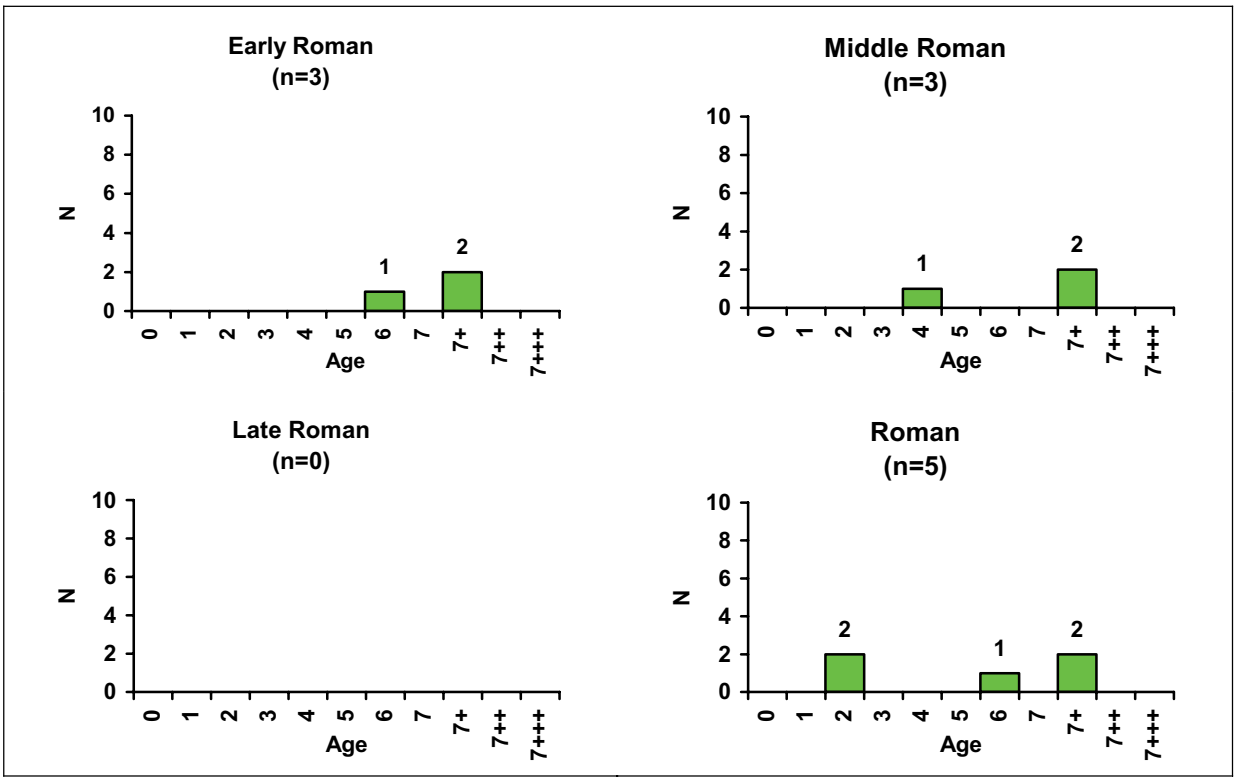

Figure AB9: Classification of the pig maxillae and mandibles per occupation layer

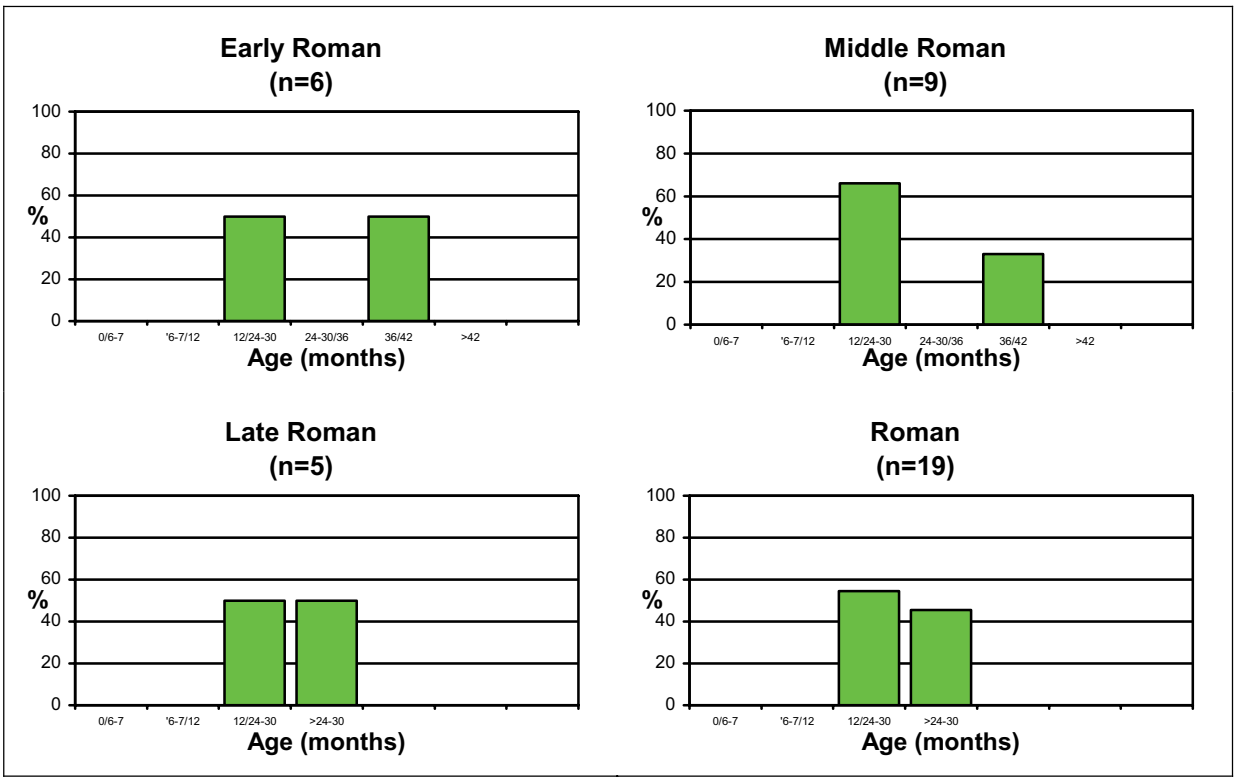

Figure AB10: Mortuary graphs based on the epiphyseal fusion data of pig per occupation layer

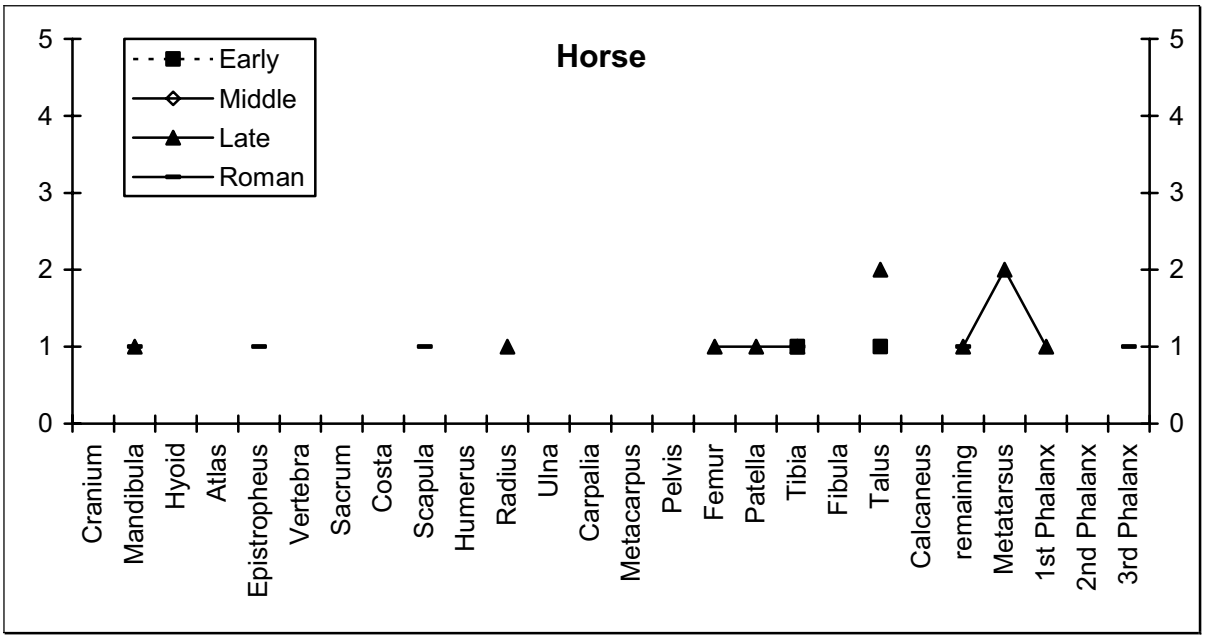

Figure AB11: Representation of different anatomical elements

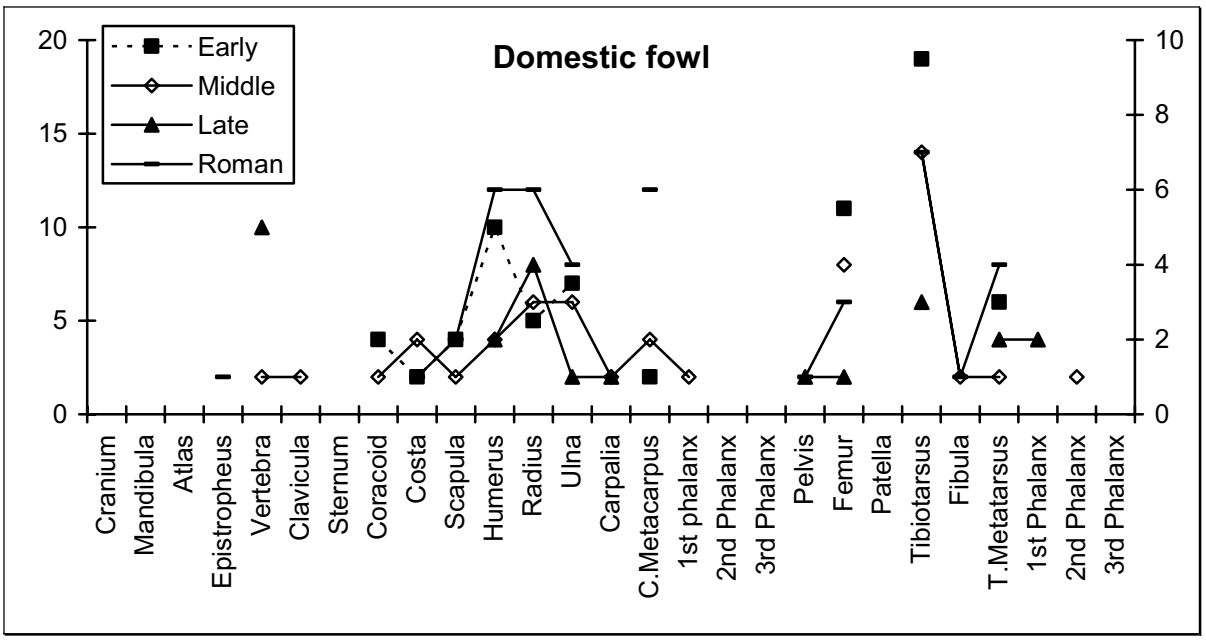

Figure AB12: Representation of different anatomical elements

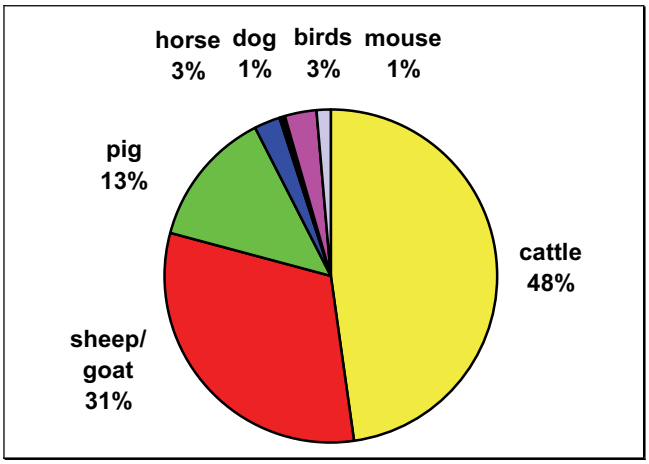

Figure AB13: Species pie chart for the ditch contexts (n=159)

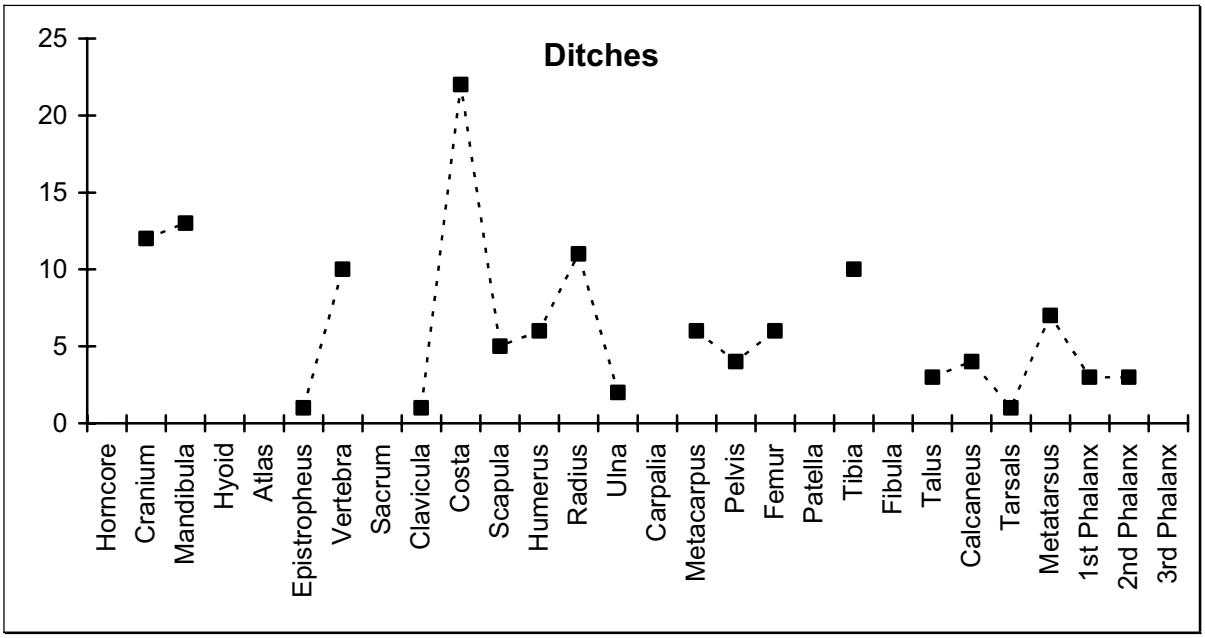

Figure AB14: Representation of different anatomical elements

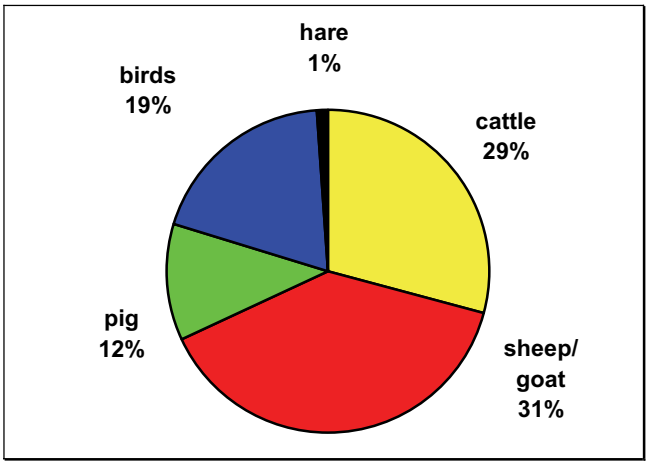

Figure AB15: Species pie chart for the layer contexts (n=172)

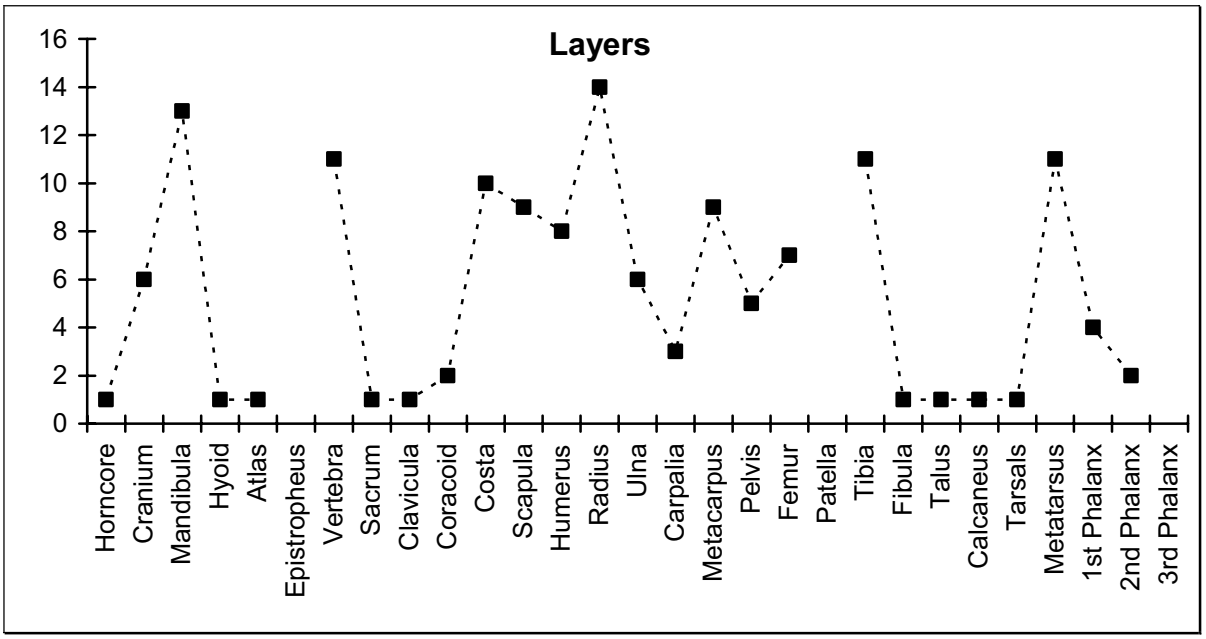

Figure AB16: Representation of different anatomical elements

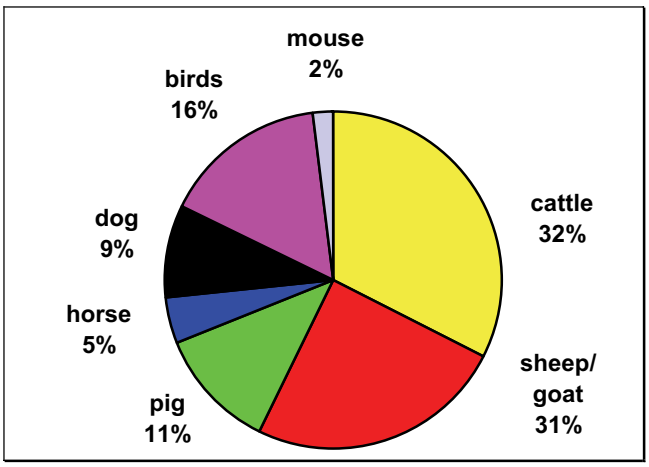

Figure AB17: Species pie chart for the pit contexts (n=218)

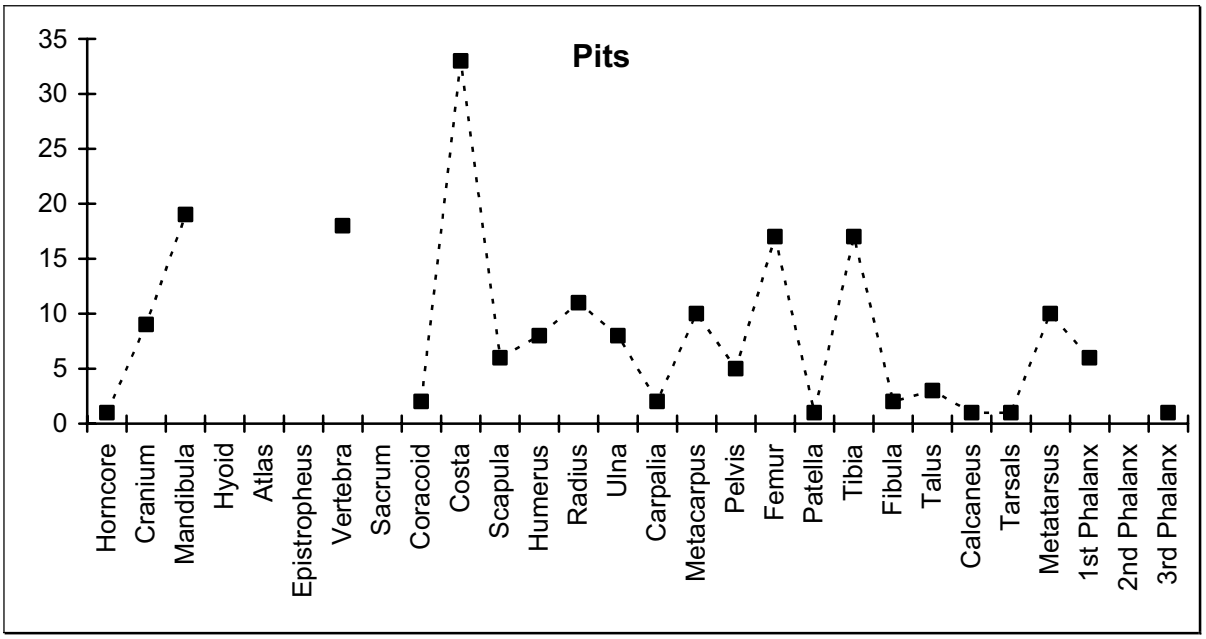

Figure AB18: Representation of different anatomical elements

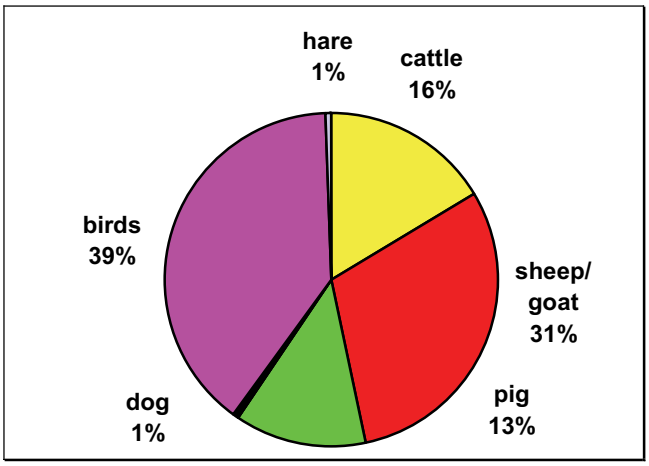

Figure AB19: Species pie chart for the sunken building contexts (n=178)

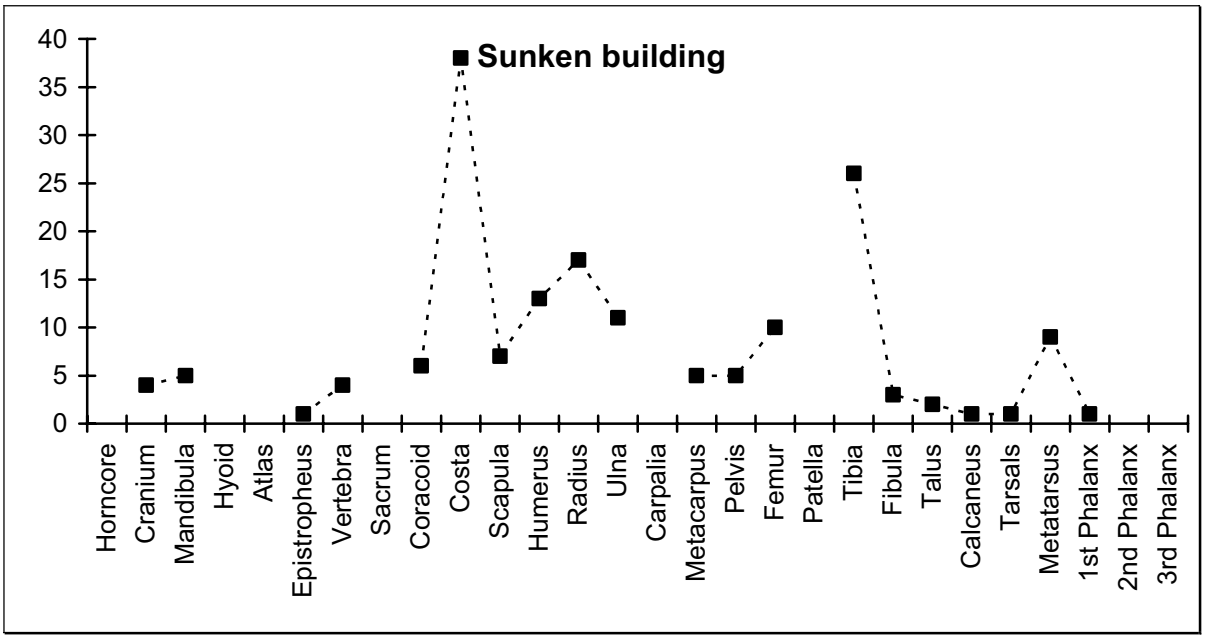

Figure AB20: Representation of different anatomical elements

Appendix – Selected animal bone data

Table AB9

Early Roman: Sheep/Goat							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
3-4	Humerus d.	2					
	Radius p.	2					
c. 5	Scapula	1					
	Pelvis	2					
Total		7	100.0	0	0.0	7	-
15-20	Tibia d.	1					
20-24	Metapodia d.	1		1			
Total		2	66.6	1	33.3	3	33.3
48-60	Vertebra	2		1			
Total		2	66.6	1	33.3	3	-
Total		**11**	**84.6**	**2**	**15.4**	**13**	

Table AB10

Middle Roman: Sheep/Goat							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
3-4	Humerus d.	1					
	Radius p.	1					
	Pelvis	2		1			
5-7	2nd Phalanx	1					
7-10	1st Phalanx	1					
Total		6	85.7	1	14.3	7	14.3
15-20	Tibia d.	2					
Total		2	100.0	0	0.0	2	-
42	Radius d.			2			
Total		0	0.0	2	100.0	2	85.7
48-60	Vertebra			2			
Total		0	0.0	2	100.0	2	-
Total		**8**	**61.5**	**5**	**38.5**	**13**	

Table AB11

Late Roman: Sheep/Goat							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
c. 5	Scapula	1					
	Pelvis	1					
5-7	2nd Phalanx	1					
Total		3	100.0	0	0.0	3	-
15-20	Tibia d.	2					
20-24	Metapodia d.	1					
Total		3	100.0	0	0.0	3	-
36	Calcaneus	1					
Total		1	100.0	0	0.0	1	-
48-60	Vertebra	1					
Total		1	100.0	0	0.0	1	-
Total		**8**	**100.0**	**0**	**0.0**	**8**	

Table AB12

Roman: Sheep/Goat							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
3-4	Humerus d.	2		1			
	Radius p.	1					
c. 5	Scapula	2		2			

	Pelvis	2		2			
7-10	1st Phalanx	5					
Total		12	70.6	5	29.4	17	29.4
15-20	Tibia d.	8		1			
20-24	Metapodia d.	2		2			
Total		10	76.9	3	23.1	13	-
36	Calcaneus	1					
36-42	Femur p.			1			
	Ulna p.			1			
42	Humerus p.			2			
	Radius d.	1					
	Femur d.			1			
Total		2	28.6	5	71.4	7	42.0
48-60	Vertebra	3		13			
Total		3	18.8	13	81.2	16	9.8
Total		**27**	**50.9**	**26**	**49.1**	**53**	

Table AB13

All data: Sheep/Goat							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number Non-fused**	**%**	**Total**	**Interval %**
3-4	Humerus d.	5		1			
	Radius p.	4					
c. 5	Scapula	4		2			
	Pelvis	7		3			
5-7	2nd Phalanx	2					
7-10	1st Phalanx	6					
Total		28	82.4	6	17.6	34	17.6
15-20	Tibia d.	13		1			
20-24	Metapodia d.	4		3			
Total		17	81.0	4	19.0	21	1.4
36	Calcaneus	2					
36-42	Femur p.			1			
	Ulna p.			1			
42	Humerus p.			2			
	Radius d.	1		2			
	Femur d.			1			
Total		3	30.0	7	70.0	10	51.0
48-60	Vertebra	6		16			
Total		6	27.3	16	72.7	22	2.7
Total		**54**	**62.1**	**33**	**37.9**	**87**	

Table AB14

Early Roman: Cattle							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
15-20	Humerus d.	2					
Total		2	100.0	0	0.0	2	-
20-24	Phalanx I p.	1					
24-30	Tibia d.	1					
	Metapodia d.	1					
Total		3	100.0	0	0.0	3	-
c. 36	Calcaneus p.	1					
42-48	Femur d.			1			
Total		1	50.0	1	50.0	2	50.0
60	Vertebra	1		1			
Total		1	50.0	1	50.0	2	-
Total		**7**	**77.8**	**2**	**22.2**	**9**	

Table AB15

Middle Roman: Cattle							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
15-20	Humerus d.	1					

Total		1	100.0	0	0.0	1	-
20-24	Phalanx I p.	3					
24-30	Tibia d.	1					
	Metapodia d.	2					
Total		6	100.0	0	0.0	6	-
c. 36	Calcaneus p.	1					
42	Femur p.			1			
Total		1	50.0	1	50.0	2	50.0
60	Vertebra			1			
Total		0	0.0	1	100.0	1	50.0
Total		**8**	**80.0**	**2**	**20.0**	**10**	

Table AB16

Late Roman: Cattle							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
7-10	Pelvis	1					
Total		1	100.0	0	0.0	1	-
12-15	Radius p.	3					
15-18	Phalanx II p.	1					
Total		4	100.0	0	0.0	4	-
20-24	Phalanx I p.	2					
24-30	Tibia d.	2					
	Metapodia d.	3					
Total		7	100.0	0	0.0	7	-
42	Femur p.	1		1			
42-48	Radius d.	1					
	Ulna p/d						
Total		2	66.6	1	33.3	3	33.3
60	Vertebra	4					
Total		4	100.0	0	0.0	4	-
Total		**18**	**90.0**	**2**	**10.0**	**20**	

Table AB17

Roman: Cattle							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
7-10	Scapula	2					
Total		2	100.0	0	0.0	2	-
12-15	Radius p.	4					
15-18	Phalanx II p.	2					
Total		6	100.0	0	0.0	6	-
20-24	Phalanx I p.	4					
24-30	Tibia d.	4					
	Metapodia d.	4		1			
Total		12	92.3	1	7.7	13	7.7
c. 36	Calcaneus p.			1			
42	Femur p.			2			
42-48	Tibia p.	1		1			
	Radius d.	1		1			
Total		2	28.6	5	71.4	7	63.7
60	Vertebra	6		4			
Total		6	60.0	4	40.0	10	-
Total		**28**	**73.7**	**10**	**26.3**	**38**	

Table AB18

Early Roman: Pigs							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
12	Radius p.	1					
Total		1	100.0	0	0.0	1	-
24	Metapodia d.	2		2			
Total		2	50.0	2	50.0	4	50.0
42	Radius d.			1			

Total		0	0.0	1	100.0	1	50.0
Total		**3**	**50.0**	**3**	**50.0**	**6**	

Table AB19

Middle Roman: Pigs							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
12	Pelvis			1			
Total		0	0.0	1	100.0	1	-
24	Metapodia d.			4			
	1st Phalanx	2					
Total		2	33.3	4	66.6	6	66.6
42	Tibia p.			1			
	Radius d.			1			
Total		0	0.0	2	100.0	2	33.3
Total		**2**	**22.2**	**7**	**77.8**	**9**	

Table AB20

Late Roman: Pigs							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
12	Scapula	1					
	Radius p.	1					
	2nd Phalanx	1					
Total		3	100.0	0	0.0	3	-
24	Metapodia d.	1		1			
Total		1	50.0	1	50.0	2	50.0
Total		**4**	**80.0**	**1**	**20.0**	**5**	

Table AB21

Roman: Pigs							
Age (Months)	**Epiphysis**	**Number fused**	**%**	**Number non-fused**	**%**	**Total**	**Interval %**
12	Pelvis	3					
	2nd Phalanx	5					
Total		8	100.0	0	0.0	8	-
24	Tibia d.	2		2			
	Metapodia d.	3		2			
	1st Phalanx	1					
24-30	Calcaneus			1			
Total		6	54.5	5	45.5	11	45.5
Total		**14**	**73.7**	**5**	**26.3**	**19**	

Measurements

Table AB22

Cranium									
Context	**Period**	**Species**	**4**	**7**	**11**	**16**	**18**	**18a**	**20L**
4322	Late	Dog	49.2	88.6	90.0	21.0	18.4	10.2	13.1
Context	**Period**	**Species**	**20B**	**21**	**21L**	**21B**	**22**	**23**	**24**
1027	Middle	Cattle		74.5					
2033	Late	Cattle		75.1					
4322	Late	Dog	15.9		8.3	11.7	27.4	68.4	60.9
2052	Late	Red deer					48.0		
4030	Roman	Sheep/Goat						25.1	
Context	**Period**	**Species**	**25**	**26**	**27**	**28**	**29**	**30**	**31**
4322	Late	Dog	37.8	51.1	21.3	14.4	60.8	107.3	39.4
1100	Roman	Pig				63.5		29.0	16.0
1440	Early	Pig						26.5	16.7
Context	**Period**	**Species**	**32**	**33**	**38**	**39**	**40**	**42**	
4322	Late	Dog	54.6	39.2	52.8	49.0	42.5	119.0	

Table AB23

Mandibula									
Context	**Period**	**Species**	**3**	**7**	**8**	**9**	**9a**	**9L**	**9B**
2165	Roman	Cattle				46.6			
4030	Roman	Cattle			80.4				
4030	Roman	Cattle			85.3				
4165	Roman	Cattle							
4202	Middle	Cattle	113.1						
4202	Middle	Cattle		126.4	81.4	45.2			
1007	Roman	Horse						33.0	17.1
1027	Middle	Pig							
1196	Roman	Pig ♀					34.7		
4333	Middle	Pig							
1027	Middle	Sheep/Goat				23.8			
1100	Roman	Sheep/Goat				28.7			
1441	Early	Sheep/Goat		67.8	45.7	20.5			
1442	Early	Sheep/Goat				40.4			
1548	Early	Sheep/Goat		70.5	47.0	23.3			
2189	Early	Sheep/Goat		67.1	46.2	21.1			
2308	Early	Sheep/Goat	41.8		41.0				
4030	Roman	Sheep/Goat				22.4			
4150	Late	Sheep/Goat			41.8				
4165	Roman	Sheep/Goat		62.8	43.7	19.5			
4179	Roman	Sheep/Goat		65.1	42.3	21.8			
Context	**Period**	**Species**	**10L**	**10B**	**12**	**13**	**14**	**14L**	**14B**
1027	Middle	Cattle	34.0	11.9					
2052	Late	Cattle	31.4	11.3					
2075	Late	Cattle	33.0	13.3					
2165	Roman	Cattle							
2189	Early	Cattle	32.2	11.2					
4030	Roman	Cattle	33.8	12.4					
4030	Roman	Cattle							
4030	Roman	Cattle							
4030	Roman	Cattle	36.3	14.6					
4030	Roman	Cattle	31.3	10.8					
4030	Roman	Cattle	31.5	11.3					
4030	Roman	Cattle	32.4	11.9					
4030	Roman	Cattle	31.0	12.1					
4165	Roman	Cattle	34.6	13.3					
4202	Middle	Cattle	36.9	36.9	159.0	147.2	204.0		
4202	Middle	Cattle	36.4	15.6					
1007	Roman	Horse						30.2	13.0
1027	Middle	Pig	30.5	13.7					
4333	Middle	Pig	32.4	16.0					
1100	Roman	Sheep/Goat	20.0	8.0					
4030	Roman	Cattle	20.4	7.9					
1441	Early	Sheep/Goat	19.8	7.4					
1442	Early	Sheep/Goat	16.5	6.9	63.8	57.7	84.4		
1548	Early	Sheep/Goat	15.6	7.5					
2189	Early	Sheep/Goat	19.2	7.6					
2308	Early	Sheep/Goat	15.1	6.4					
4150	Late	Sheep/Goat	15.8	6.4					
4155	Late	Sheep/Goat	20.6	7.6					
4165	Roman	Sheep/Goat	21.7	7.7					
4179	Roman	Sheep/Goat	16.4	6.9					
4222	Early	Sheep/Goat	20.1	7.3					
Context	**Period**	**Species**	**15a**	**15b**	**15c**	**16b**	**16c**		
1196	Roman	Pig ♀				35.8	38.8		
2165	Roman	Cattle		46.4	34.8				
2189	Early	Cattle			38.1				
4030	Roman	Cattle		43.9	35.7				
4030	Roman	Cattle	66.8	51.5	45.1				
4030	Roman	Cattle		48.4	36.5				
4202	Middle	Cattle	71.4		31.3				
4202	Middle	Cattle	63.7	41.1					
1027	Middle	Sheep/Goat			14.8				
1100	Roman	Sheep/Goat			14.7				
1441	Early	Sheep/Goat	33.7	20.6	14.9				
1442	Early	Sheep/Goat	34.2	20.1	15.8				
1548	Early	Sheep/Goat		22.0					
2165	Roman	Sheep/Goat	36.6						

2189	Early	Sheep/Goat		22.0	18.1				
4030	Roman	Sheep/Goat		18.9	12.5				
4150	Late	Sheep/Goat	37.7						
4165	Roman	Sheep/Goat	31.6	17.9	12.9				
4165	Roman	Sheep/Goat			14.0				
4179	Roman	Sheep/Goat		16.8	13.4				
4179	Roman	Sheep/Goat	37.0						

Table AB24

Epistropheus			
Context	**Period**	**Species**	**BFcr**
2189	Early	Dog	30.3

Table AB25

Coracoid					
Context	**Period**	**Species**	**BF**	**GL**	**Lm**
2322	Early	Domestic fowl	12.4	56.5	54.2
2189	Early	Songbird	2.5	18.3	
2189	Early	Wigeon	17.3		41.7
2199	Middle	Woodcock	8.3	31.4	29.0

Table AB26

Scapula							
Context	**Period**	**Species**	**BG**	**DiC**	**GLP**	**LG**	**SLC**
2189	Early	Cattle					48.9
4030	Roman	Cattle					40.7
4030	Roman	Cattle	42.2		56.5	42.0	
4030	Roman	Cattle	41.2		59.4		44.0
4030	Roman	Cattle					42.2
2322	Early	Domestic fowl		12.0			
2322	Early	Domestic fowl		12.3			
2313	Middle	Domestic fowl		13.5			
2315	Middle	Domestic fowl		12.4			
4165	Roman	Domestic fowl		13.0			
4030	Roman	Horse					63.1
4231	Late	Pig	24.8		35.4	29.8	23.9
1100	Roman	Sheep/Goat	19.3		27.5	21.9	17.7
1553	Early	Sheep/Goat	18.6		28.8	22.0	17.4
4179	Roman	Sheep/Goat	16.2		26.4	21.9	15.5
2165	Roman	Wigeon		12.4			
2189	Early	Wigeon		11.9			

Table AB27

Humerus								
Context	**Period**	**Species**	**Bd**	**Bp**	**BT**	**GL**	**SC**	**SD**
1100	Roman	Cat	23.4					
1027	Middle	Cattle			67.2			
4165	Roman	Cattle			67.4			
4030	Roman	Dog	26.2		20.3			
4322	Late	Dog	32.5					12.6
1027	Middle	Domestic fowl	15.6	19.0		74.9	7.8	
1027	Middle	Domestic fowl					7.2	
1100	Roman	Domestic fowl	14.3	18.6		67.8	7.0	
1100	Roman	Domestic fowl	17.6				7.6	
1100	Roman	Domestic fowl	15.7	19.6		74.6	7.3	
2099	Roman	Domestic fowl	16.4	19.8		74.5	8.4	
2099	Roman	Domestic fowl					7.5	
2189	Early	Domestic fowl	15.3	18.8		71.5	7.6	
2189	Early	Domestic fowl					7.6	
2322	Early	Domestic fowl	16.3	20.7		76.5	8.1	
2322	Early	Domestic fowl	15.9	20.3		77.1	7.9	
2322	Early	Domestic fowl	19.1				8.1	
2322	Early	Domestic fowl		14.8			8.3	
2322	Early	Domestic fowl	16.8					
2322	Early	Domestic fowl	14.9					
2315	Early	Domestic fowl	15.2	19.4		69.8	7.5	

4030	Roman	Domestic fowl	14.9					
4237	Late	Magpie	11.1				4.4	
2322	Early	Pig						19.4
1007	Roman	Raven					8.7	
1100	Roman	Sheep/Goat	26.6		25.5			
2333	Early	Sheep/Goat			26.2			
2334	Early	Sheep/Goat	31.4		29.8			
1100	Roman	Wigeon	12.6				5.6	
2335	Early	Wigeon	12.4	17.3		80.6	6.0	
1187	Roman	Woodcock	10.3	13.8		55.1	4.5	
1469	Early	Woodcock	10.0	13.3		54.0	4.4	

Table AB28

Radius										
Context	**Period**	**Species**	**Bd**	**BFd**	**BFp**	**Bp**	**CD**	**GL**	**SC**	**SD**
2038	Late	Cattle	62.1	49.9						
2075	Late	Cattle			61.5	67.8				
4322	Late	Dog	24.6			18.2		176.0		13.3
2322	Early	Domestic fowl	7.0							
2322	Early	Domestic fowl	7.3							
4151	Late	Domestic fowl	7.7					69.7	3.4	
4231	Late	Domestic fowl							3.9	
2165	Roman	Hare					17.0			6.0
2189	Early	Hare				9.1				
4322	Late	Raven	8.2					97.0	3.0	
1027	Middle	Sheep/Goat			23.3	24.6				
1100	Roman	Sheep/Goat	25.6	21.1						
2280	Early	Sheep/Goat			29.3					
2315	Early	Sheep/Goat					43.0			16.0
2189	Early	Wigeon							2.5	
4030	Roman	Wigeon	5.7					62.8	2.8	
1100	Roman	Woodcock	4.6						1.9	
2030	Early	Woodcock							2.1	

Table AB29

Ulna										
Context	**Period**	**Species**	**Bp**	**BPC**	**Did**	**Dip**	**DPA**	**GL**	**SC**	**SDO**
4030	Roman	Dog		13.0						17.2
4322	Late	Dog		16.1			26.3			22.9
1027	Middle	Domestic fowl	9.2		10.2	13.2		74.3	4.7	
1100	Roman	Domestic fowl			9.5					
1100	Roman	Domestic fowl			8.9					
2199	Middle	Domestic fowl	8.7			13.7				
2322	Early	Domestic fowl	8.9			12.3				
2322	Early	Domestic fowl	8.7			12.8				
2322	Early	Domestic fowl	9.5			9.3				
2322	Early	Domestic fowl	8.9			13.5				
2322	Early	Domestic fowl	9.2			13.7				
2322	Early	Domestic fowl							4.8	
2313	Middle	Domestic fowl	9.5		10.3	13.5		75.0	5.0	
2315	Early	Domestic fowl	9.5			13.1		71.3	4.9	
4030	Roman	Domestic fowl	9.3		10.5	12.2		74.3	5.2	
4237	Late	Domestic fowl			11.0				4.8	
1100	Roman	Pig		18.7						
1007	Roman	Raven	13.9							
4322	Late	Raven	12.7		12.3	14.8		106.9	5.9	
1027	Middle	Sheep/Goat		13.3						
1398	Early	Sheep/Goat		15.5						
1187	Roman	Wigeon	8.2		9.2	9.4		68.1	4.4	
4030	Roman	Wigeon			9.9				4.8	
4275	Late	Woodcock			6.7				3.0	

Table AB30

(Carpo)metacarpus												
Context	**Period**	**Species**	**B**	**Bd**	**Bp**	**CD**	**Dd**	**Did**	**GL**	**L**	**Lep**	**SD**
1027	Middle	Cattle			50.7							
1027	Middle	Cattle		58.5								
1442	Early	Cattle		58.8								

4030	Roman	Cattle				94.0	21.5					34.1
4030	Roman	Cattle			50.4							
4030	Roman	Cattle			43.9							
4202	Middle	Cattle		48.3								
4222	Early	Cattle			52.3							
1027	Middle	Domestic fowl			12.4			8.2	41.2	38.2		
2099	Roman	Domestic fowl			13.0			8.6	42.1			
2099	Roman	Domestic fowl			11.8			7.8	40.4			
2099	Roman	Domestic fowl			12.3							
2099	Roman	Domestic fowl			12.3							
2099	Roman	Domestic fowl			12.3							
2165	Roman	Domestic fowl						8.9	40.0			
2309	Early	Domestic fowl						7.6				
2313	Middle	Domestic fowl						8.6	42.6			
2315	Early	Domestic fowl						7.6				
1027	Middle	Mallard/Duck			11.2							
4231	Late	Mallard/Duck			14.3			7.7	62.7			
1100	Roman	Pig (III)	13.4	17.7	21.2				75.1			
4030	Roman	Pig (II)		12.0								
4231	Late	Pig (IV)	13.2	16.2	17.4				82.6		78.7	
1027	Middle	Pigeon/Dove			9.9			5.9	33.0	32.8		
4179	Roman	Sheep/Goat		22.6	19.0	32.5	8.1		110.7			10.6
4222	Early	Sheep/Goat			21.5							
4030	Roman	Woodcock			8.5			4.7	38.9			

Table AB31

Pelvis								
Context	**Period**	**Species**	**LA**	**LAR**	**LFo**	**SB**	**SC**	**SH**
4322	Late	Dog		23.1	27.4	8.8	54.0	20.8
2314	Middle	Hare		12.1		6.2		11.3
1100	Roman	Pig		33.2		13.4	70.0	24.7
1100	Roman	Pig		30.6		12.3	57.0	21.2
4030	Roman	Pig		35.4				
1027	Middle	Sheep/Goat	25.6	20.1				

Table AB32

Femur												
Context	**Period**	**Species**	**Bd**	**Bp**	**CD**	**DC**	**Dd**	**Dp**	**GL**	**Lm**	**SC**	**SD**
4322	Late	Crow	9.8	8.7			8.2	5.2	51.1	49.6	4.2	
2075	Late	Dog										8.2
4123	Late	Dog		29.5	33.5	14.6						10.5
4322	Late	Dog	32.9	42.1	45.0	19.7			195.0			12.8
1027	Middle	Domestic fowl	16.8	15.5			14.3	10.8	87.2	83.2	7.7	
1100	Roman	Domestic fowl	15.9	15.2			13.4	11.1	82.4	79.4	6.8	
1100	Roman	Domestic fowl	13.9	16.9			12.2	10.4				
1100	Roman	Domestic fowl									6.7	
2075	Late	Domestic fowl									7.8	
2199	Middle	Domestic fowl		16.3				10.5			6.8	
2322	Early	Domestic fowl		15.9				10.8				
2322	Early	Domestic fowl	15.5	15.6			13.0	10.5	78.5	75.9	6.8	
2322	Early	Domestic fowl		15.8				11.9	85.4	82.4	7.2	
2322	Early	Domestic fowl		15.5				10.7			6.6	
2322	Early	Domestic fowl		16.0				10.2				
2322	Early	Domestic fowl									7.0	
2308	Early	Domestic fowl	14.0	14.3				9.4				
2315	Early	Domestic fowl		15.6				11.5			7.0	
2320	Middle	Domestic fowl		16.7				10.8				
4341	Middle	Domestic fowl	16.4									
2075	Late	Horse	77.3									
4237	Late	Magpie	7.4	7.3			5.7	4.6	38.0	37.4	3.2	
1007	Roman	Raven	14.4	14.8			11.2	8.3	65.7		6.4	
2308	Early	Sheep/Goat										15.1

Table AB33

Patella				
Context	**Period**	**Species**	**GL**	**GB**
4231	Late	Horse	55.3	56.9

Table AB34

Os malleolare			
Context	**Period**	**Species**	**GD**
4194	Roman	Sheep/Goat	12.8

Table AB35

Tibia/Tibiotarsus										
Context	**Period**	**Species**	**Bd**	**CD**	**Dd**	**Dip**	**GL**	**La**	**SC**	**SD**
4030	Roman	Cattle	48.9							
4030	Roman	Cattle	50.7							
4030	Roman	Cattle	53.7							
4202	Middle	Cattle	53.3							
1100	Roman	Dog	21.6	40.0						13.6
1027	Middle	Domestic fowl	11.5							
1027	Middle	Domestic fowl							7.1	
1100	Roman	Domestic fowl				16.7			6.2	
1100	Roman	Domestic fowl							7.2	
1466	Early	Domestic fowl				18.1				
2075	Late	Domestic fowl							6.7	
2199	Middle	Domestic fowl	10.6							
2322	Early	Domestic fowl				22.7			7.1	
2322	Early	Domestic fowl							6.9	
2322	Early	Domestic fowl	10.9		12.0					
2322	Early	Domestic fowl	11.5		12.2				6.8	
2322	Early	Domestic fowl							6.4	
2322	Early	Domestic fowl	14.5		11.6					
2322	Early	Domestic fowl	11.9		13.3					
2322	Early	Domestic fowl	10.5		12.3				6.6	
2322	Early	Domestic fowl	10.9							
2322	Early	Domestic fowl	12.3		12.3					
2322	Early	Domestic fowl				18.8				
2322	Early	Domestic fowl							6.7	
2322	Early	Domestic fowl							6.5	
2315	Early	Domestic fowl							6.8	
2230	Early	Domestic fowl				22.8				
4202	Middle	Domestic fowl	11.0		12.1	20.4			6.5	
4030	Roman	Horse	67.8							
4264	Early	Horse	64.1	104.0	44.0					36.6
1100	Roman	Lapwing	5.4						2.9	
4237	Late	Magpie	6.0		6.3	9.7	65.5	64.2	3.6	
4247	Late	Raven	11.4		10.5				5.2	
1027	Middle	Sheep/Goat	23.6							
1027	Middle	Sheep/Goat	23.8							
1100	Roman	Sheep/Goat	23.2	41.0						13.0
1100	Roman	Sheep/Goat	24.5							
1100	Roman	Sheep/Goat	24.1							
1100	Roman	Sheep/Goat	22.4							
1100	Roman	Sheep/Goat	23.1							
1100	Roman	Sheep/Goat	23.2							
2038	Late	Sheep/Goat	23.5							
4165	Roman	Sheep/Goat	25.2							

Table AB36

Atragalus											
Context	**Period**	**Species**	**Bd**	**BFd**	**Dl**	**Dm**	**GB**	**GH**	**GLl**	**GLm**	**LmT**
2189	Early	Cattle	35.2		31.4	31.1			56.8	52.0	
4030	Roman	Cattle	41.0		34.0	35.2			63.1	57.1	
4322	Late	Cattle	37.3		32.0	31.4			56.5	51.1	
1510	Early	Horse		48.8			53.8	51.0			53.0
2038	Late	Horse		45.7			52.0	53.0			
4231	Late	Horse		45.9			58.8	52.1			53.8
2190	Early	Pig							42.0	40.2	
4030	Roman	Pig							39.3	37.6	
1027	Middle	Sheep/Goat	18.4		14.8	15.8			27.2	26.7	

Table AB37

Calcaneus				
Context	**Period**	**Species**	**GB**	**GL**
2030	Early	Cattle	30.0	
2199	Middle	Cattle	29.0	122.5

Table AB38

Centrotarsal			
Context	**Period**	**Species**	**GB**
1027	Middle	Cattle	45.4
4030	Roman	Horse	46.9
4231	Late	Horse	45.6

Table AB39

Tarso(metatarsus)											
Context	**Period**	**Species**	**B**	**Bd**	**Bp**	**CD**	**Dd**	**DD**	**GL**	**SC**	**SD**
2030	Early	Cattle		45.7	39.5	77.0	21.5		197.0		21.5
2032	Late	Cattle		45.3							
2189	Early	Cattle			42.8						24.5
4030	Roman	Cattle		47.6	41.7	80.0	23.1		203.0		23.2
4030	Roman	Cattle			42.9	87.0	25.2		197.0		25.9
4030	Roman	Cattle				73.0	20.2				21.8
4030	Roman	Cattle				98.0	29.2				29.0
4202	Middle	Cattle			52.9						
2322	Early	Domestic fowl			14.3						
2322	Early	Domestic fowl		13.8	13.6				77.1	6.6	
2322	Early	Domestic fowl			14.0						
2322	Early	Domestic fowl			12.7						
2322	Early	Domestic fowl		13.3						6.6	
4237	Late	Domestic fowl		12.8	13.7				75.0	6.4	
4231	Late	Horse		44.2	47.5	89.0	34.0	25.1	245.0		28.5
2165	Roman	Pig (III)	12.5	14.8	15.2				81.4		
4237	Late	Raven		8.2	12.1				65.5	4.0	
1436	Early	Sheep/Goat		21.9	18.7	37.0		10.1	133.3		11.2
2075	Late	Sheep/Goat		21.7	19.5	39.0		10.9	136.0		11.6
4030	Roman	Sheep/Goat		21.9							
4165	Roman	Sheep/Goat			19.2	36.0					10.7

Table AB40

First Phalanx									
Context	**Period**	**Species**	**Bd**	**BFd**	**BFp**	**Bp**	**Dp**	**GLpe**	**SD**
1027	Middle	Cattle	24.9			25.5		50.3	21.3
1027	Middle	Cattle	23.3			27.3		55.1	23.8
1100	Roman	Cattle	22.6						19.7
2030	Early	Cattle				24.4			18.7
2030	Early	Cattle	24.1			25.7		49.9	22.9
2309	Early	Cattle	22.8			24.0		46.6	20.7
4030	Roman	Cattle	22.8			23.5		50.0	20.5
4030	Roman	Cattle	23.8			26.4		48.5	21.8
4030	Roman	Cattle	30.4			31.7		55.7	27.0
4341	Middle	Cattle				27.4			23.2
4231	Late	Horse	41.5	38.7	45.2	50.1	34.6	71.0	29.5
2165	Roman	Pig	14.9			16.4		35.8	12.7
4202	Middle	Pig	15.3			16.0		33.5	12.8
4341	Middle	Pig	15.9			17.1		35.3	13.3
1027	Middle	Sheep/Goat	9.6			10.8		34.0	8.1
2099	Roman	Sheep/Goat	15.0			16.3		38.7	12.5
2165	Roman	Sheep/Goat	10.4			11.9		33.3	8.6
4030	Roman	Sheep/Goat	23.5			26.0		49.3	22.9
4030	Roman	Sheep/Goat	24.0			27.6		53.6	22.5
4030	Roman	Sheep/Goat	9.9			11.1		35.5	8.8

Table AB41

Second Phalanx						
Context	**Period**	**Species**	**Bd**	**Bp**	**GL**	**SD**
2024	Late	Cattle	19.9	25.2	34.9	20.4
2165	Roman	Cattle	19.9	25.2	34.8	18.8
4179	Roman	Cattle	29.2	31.6	48.7	26.5
1100	Roman	Pig	15.2	15.9	33.0	12.4
2165	Roman	Pig	14.0	16.6	24.1	14.1
2165	Roman	Pig	13.6	16.1	25.6	13.5
2036	Late	Sheep/Goat	11.2	12.2	35.1	9.9

Table AB42

Nacivular cuboid			
Context	**Period**	**Species**	**GB**
4231	Late	Horse	40.8

Table AB43

Third Phalanx						
Context	**Period**	**Species**	**DLS**	**Ld**	**LF**	**MBS**
4275	Late	Cattle	70.1	51.0		19.1
4165	Roman	Horse			25.5	

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