CHAPTER 14: THE FAUNAL REMAINS

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Introduction

The animal bone assemblage from Football Field, Worth Matravers comprised a total of 13,047 fragments from 211 contexts. Faunal remains came from archaeological features and deposits in nine phases covering the Neolithic/EBA to the Post-Roman period. The most significant component is the material from the Late Bronze Age features and deposits dating to the Late Bronze Age-Early Iron Age. Unfortunately, a large proportion of the total assemblage came from the upper layers of the midden which had been worked over in the later Iron Age and particularly the Romano-British period. Consequently, although this material was examined, it was excluded from detailed analysis.

Methodology

Each bone fragment was identified where possible to element and species, and where this was not possible Large Mammal (e.g. cattle or horse-sized), Medium Mammal (e.g. sheep-sized, but potentially pig) and Unidentified Mammal categories. Where feasible, sheep and goat elements were identified to species utilising diagnostic morphological criteria (Boessneck 1969; Prummel and Frisch 1986). These are all included in the total sheep/goat counts in tables and figures, and individual instances mentioned in the text. This included axial elements identifiable to species.

Identification was carried out using comparative collections and with reference to Hillson (1992) Schmid (1972) and Hillson (2005) for domestic mammals, Yalden (2003) for small mammals, and Cohen and Serjeantson (1996) for birds. Zones were recorded where possible for each anatomical element using the Maltby/Hambleton method (n.d.). All data were recorded in an Access relational database, which has been deposited in the site archive. Species abundance was considered in respect of number of identified specimens (NISP), or number of fragments for material not identified to species, as well as minimum number of individuals (MNI) (Table 48 and Table 49 for birds). Element representation was considered in respect of minimum number of elements (MNE) (Table 50) and NISP (tables and figures available in the site archive).

The condition of all fragments was assessed on a five-point scale through poor, poor-average, average, average-good and good. This was not a site specific scale but intended to reflect the general condition of the assemblage in comparison with others. The percentage of the element present was estimated and recorded to the nearest 10% for all identified fragments. Each fragment was also examined for pathological changes, breakage patterns, butchery, gnawing and weathering indicators. Burnt bone was recorded by colour (buff, brown, grey, black and calcined). Butchery was recorded by location on the bone and number and type of cuts (Table 51). Pathological information was recorded with respect to location on the element, type and size of lesion and included a description (Table 52).
Where available the eruption and wear of teeth of cattle, sheep/goat, and pig was assessed using Grant (1982), and Payne (1973, 1982) (Table 53). Hambleton (1999) and Halstead (1985) were also used in assigning age categories.

Morphological indicators of sex were also considered for appropriate elements, but the data were very limited in this regard. Bone porosity was recorded for all fragments, and each fragment examined for fusion information which was assigned to age ranges using (Silver 1969), which is included in the site archive.

Metrical data were recorded in accordance with von den Driesch (1976) and are given in Table 54. All of the values recorded were consistent with the expected size range for the period, but due to the small sample size no further analysis has been undertaken.

Results

The assemblage from Football Field, Worth Matravers comprised a total of 13,047 fragments of disarticulated and co-mingled animal bone and a number of associated bone groups (ABGs). The material which could be assigned to phase came from a total of 211 contexts, spread over nine phases and episodes (Table 55), and was largely hand-collected. A number of sieved samples submitted for analysis produced largely unidentifiable material, which implies that there was probably only a limited degree of retrieval bias. Twenty fragments (<1%) of the material was assigned to the Neolithic-Early Bronze Age and was recovered from a total of nine contexts, three ditch fills, a posthole, and layers encountered in test slots. Fifty (<1%) fragments came from 12 Late Bronze Age contexts either directly associated with the house (10 posthole contexts) or two pit contexts. 1177 fragments (including 30 fragments from two associated groups) (9%) came from 85 Late Bronze Age/Early Iron Age contexts associated with features and deposits. 1578 fragments (12%) came from 45 interventions in the Late Bronze Age/Early Iron Age midden. 420 fragments (3%) came from eight contexts in a Middle Iron Age pit. 1588 fragments (12%) came from 39 Late Iron Age contexts, mainly pits, but including a building and other features and deposits. 410 fragments (3%) originated from 23 Romano-British contexts, including pits, a posthole and other deposits. 5644 fragments (44%) were from 87 interventions in the upper layers of the midden. 80 fragments (<1%) came from the fill of post-Roman grave (311). A further 1726 fragments (14%) were recovered from undated or modern contexts, mainly from the clearance levels. Full analysis was not undertaken of the upper (mixed) midden material, the probably redeposited material in Grave (311) and the undated and modern material.

Preservation and taphonomy

The condition of the bone was fairly consistently poor to poor-average and was highly fragmented. Twelve associated bone groups were noted which occurred in four of the phases. In total 34% of the co-mingled material was identified to species, which is fairly typical of local assemblages. Of the identified fragments, loose teeth comprised 34%, which is not unexpected, and underlines the fragmented nature of the assemblage. Helical and longitudinal breaks, indicative of breakage when the bone was fresh, and examples of butchery were noted in all assemblages and this will have contributed to the degree of fragmentation in the assemblage. 282 fragments (2.5% of the total analysed assemblage) demonstrated taphonomic changes (Table 56), largely relating to gnawing and burning, with some weathering. Canid gnawing was present in all periods except the Late Bronze Age.

The Late Neolithic-Early Bronze Age

The material from this phase was recovered from a small range of contexts of Neolithic and/or Early Bronze Age date. Only three fragments were contributed by Neolithic ditch contexts (two fragments of pig tooth and an unidentified mammal fragment), several fragments came from layers encountered in test pits and associated with Neolithic flint, whilst two probably Early Bronze Age postholes contributed a total of three fragments, including a fragment of cattle metatarsal. Whilst the date

range is wide, the material has been dealt with all as one group due to the size of the assemblage.

All of the material from this phase was highly fragmented, constituting co-mingled disarticulated material. The species identified were cattle, sheep/goat, pig and dog. The relative abundance of cattle, sheep/goat and pig cannot be commented on due to the small numbers, but cattle-sized fragments were also present. The range of elements of all species is particularly limited (Table 50). Nine out of 11 elements identified to species were loose teeth, and it is possible that at least some of the material is intrusive.

Cattle

Cattle and cattle-sized animals were represented in low numbers. No ageing information was available, but no porous bone was present to indicate very young individuals. A single example of butchery was noted on a cattle metatarsal. This fragment had been gnawed by dogs.

Sheep/goat

Four fragments of sheep/goat were identified; all tooth fragments. It was not possible to positively identify either sheep or goats. A single maxillary tooth was a worn example from the permanent dentition.

Pig

Pig was only represented by two tooth fragments.

Dog

Dog was represented by single loose tooth, an unworn permanent mandibular first molar from context (1271). The presence of dogs on the site in this period is also attested by a single example of gnawed cattle bone.

The Late Bronze Age

The majority of the material assigned to the Late Bronze Age phase which was associated with the house, came from the postholes of the structure itself. Less than half of the material could be identified to species, and constituted scattered fragments of disarticulated bone. One fragment was burned, a piece of pig tooth from a pit fill (1764). The range of elements is limited for all species. However, there are both head and limb bones present. There are too few data to comment on distribution across features.

The species identified were cattle, sheep/goat and pig, with unidentified cattle-sized and sheep-sized mammal fragments also represented. With only 18 fragments identified to species, it is problematic to comment on the relative proportions of livestock abundance. However, the slightly greater number of sheep/goat fragments is mirrored in the much greater representation of sheep-sized mammal fragments than cattle-sized, so it may reflect generally more abundant sheep/goat remains. It is worth noting however that considering MNIs, the cattle bone has been contributed by a minimum number of three individuals, whilst sheep/goat was contributed by two. No butchery was noted, but two fragments displayed evidence of breaks when fresh which may relate to deliberate processing.

Cattle

Cattle were represented by a total of six fragments and a further six cattle-sized fragments were present. However, the minimum number of individuals was three, including a juvenile, there being a single example of porous cattle bone. There was no further information on age.

Sheep/goat
Ten fragments of sheep/goat bone were present, with a further 19 fragments of sheep-sized mammal. It was not possible to positively identify either sheep or goats. Aging information was limited to two worn permanent mandibular teeth, an unfused proximal phalanx, indicating a juvenile animal, and two porous fragments from younger individuals. This does at least indicate that animals of a range of age groups were present on the site.

Pig
Pigs were only represented by two loose incisors, from two different contexts.

Late Bronze Age/Early Iron Age Features
A total of 1177 fragments were recovered from Late Bronze Age-Early Iron Age feature contexts. This comprised 85 contexts, mainly within pits (881 fragments) but also representing a number of postholes (46 fragments) and other deposits (Tables 57, 58 and 59). Only 34% of the material could be identified to species. 59% of the material scored as poor-average on bone condition, with 31% as average, which is generally better than other local assemblages of the period. The quantities of bone in the postholes and deposits were too small to enable consideration of preservational differences between those contexts and the pits. Whilst the material was generally fragmentary and 27% of identified mammal bone comprised loose teeth, two associated bone groups were also noted, one relating to a horse skull in pit [326/390] and two articulating foot bones in pit [335]. Unsurprisingly, the larger pits (Type 1) generally contained more bone, whilst the smallest Type 3, pits had less, and that tended to be unidentified material. However, there were three pits which stood out, not only for volume of bone, but also for a greater diversity of material. [326/390], [335] and [1412] also contained virtually all of the horse and dog bone of this phase. However, there were no immediately apparent associated bone groups, and the material was spread between the fills, particularly in [326/390] and [335].

The species identified were cattle, sheep/goat, sheep, pig, dog, horse, frog, unidentified small mammal, bird and fish. The majority of the material related to the three main livestock species, with a significant number of dog and horse fragments. Sheep/goat were the most numerous species by NISP (74 % of the three main species), with a lesser representation of cattle (22%) and pig in the minority (6%). The larger number of sheep/goat is also reflected in the minimum number of individuals, with sheep/goat bone originating from at least nine animals, cattle three individuals, and pig, two. The latter may indicate that pig is under-represented in this assemblage, or the small number of fragments is a result of only partial carcases reaching the site.

The assemblage was highly fragmented. However, only ten examples of butchery were noted, on cattle, sheep/goat and unidentified mammal bone (1% of the whole assemblage). Fifty examples of potentially deliberate breakage of the bone were noted (4% of the total assemblage), with cattle, sheep/goat, cattle-sized and sheep-sized animals involved. Two horse bones had been broken when fresh. A total of 88 fragments had taphonomic changes noted (in some cases more than one). Gnawing occurred at a rate of 2% of the assemblage, whilst weathering was rare

(1%). Burnt fragments accounted for 4% of the assemblage. No one species appeared to be more affected by this than others, although there was a greater representation of fragments not identified to species amongst the burnt material (59% of burnt fragments), which is a function of the burning process. However, almost half of all sheep/goat fragments with a recorded taphonomic change were burnt, which may indicate differences in cooking practice between the different sizes of livestock. However, it should be noted that there were also five cattle-sized mammal fragments which had been burnt.

Cattle

A total of 70 fragments were identified as cattle, with another 70 fragments relating to cattle-sized animals. The minimum number of individuals was three, a minimum of two adults and one juvenile. Aging information was limited as there were no mandibles which could be assigned a wear stage. A permanent mandibular premolar was unworn, whilst two permanent mandibular molars were in wear, and a third molar was very worn at stage 'j'. Six maxillary molars and one premolar were worn, although there was one unworn deciduous example. There were a total of four porous fragments of cattle bone. Four elements gave fusion information, a scapula fragment with a fused glenoid indicating an animal of at least 7-10 months; a fused proximal femur to an animal of at least 42 months. A fused distal tibia related to an animal of at least 24-30 months, and an unfused proximal humerus from an animal of less than 42-48 months. Whilst most of the material seemed to relate to mature individuals, the presence of a small amount of porous bone indicates that younger animals were present and may have been being reared on or near the site. Taphonomic conditions may have affected the preservation of juvenile bone.

All areas of the body were represented (Figure 14.1) including the axial skeleton, limbs and feet, although the small numbers do not allow a great deal of comment. The MNI was calculated from more robust elements, so there has evidently been some loss of more fragile parts of the body. Three examples of butchery on cattle bone and one on a cattle-sized animal fragment occurred, one having a heavy cut, the others light cuts associated with disarticulation or skinning. A single pathological cattle fragment was noted, an axis with degenerative change to the joint surface of the articulation with the cranium. Eleven fragments had been gnawed, and two showed signs of weathering.

Sheep/goat

259 fragments of sheep/goat bone were identified, as well as 278 fragments of sheep-sized mammal bone. Two fragments were positively identified as sheep, but no goat was identified. This material was contributed by a minimum number of nine animals, with at least six adults and at least three juveniles. Aging data is limited, but a small number of mandibles provide Grant Mandible Wear Stages and Payne stages of 2, 2, 15, 21, 33 and 34 and B, B, C, D, E and F respectively. Four loose deciduous mandibular fourth premolars have a wear stage consistent with Payne stage B (2-6 months), whilst three mandibular third molars would fit within Payne stage G or H (4-6/6-8 years), and one example with a younger individual. With the 41 porous fragments of bone, this indicates a spread of sheep/goat age groups, although the evidence for very young animals is scant. The fusion data (Table 62) also indicates a spread of age groups, but there is a apparent slight emphasis on animals under 24 months. This may well be consistent with later Iron Age culling practice focussing on animals in the 6-12 months of age range.

All parts of the body were represented, including the axial skeleton, limbs and feet (Figure 15.2). There is an apparent emphasis on limb bones, but when considering the actual frequency against the expected number of fragments calculated from the MNI, the most well-represented elements were the radius, tibia and mandible. This is to be expected in a fragmented assemblage as these are robust elements. It is likely that taphonomic factors have produced this pattern, rather than selection of elements/body parts, especially as there was a large representation of loose sheep/goat teeth. It is likely that animals were culled and consumed close to the point of disposal.

Four examples of butchery were noted on sheep/goat, two utilising light cuts and apparently related to skinning and filleting. In two cases heavier cuts had been made, one through the spine and another across a long bone shaft, which indicate portioning of the carcase and in the latter case, potentially breaking of bones for marrow. Light skinning or filleting cuts also occurred on two fragments of sheep-sized mammal bone. Probably deliberate fragmentation appears to have affected three further sheep/goat fragments, and 25 sheep-sized mammal fragments. Sheep/goat fragments had been subjected to gnawing (11 fragments) weathering (8 fragments) and burning (17 fragments). Sheep-sized mammal fragments had also been subject to gnawing, weathering and burning. There did not appear to be any pattern in the deposition of this material. Four examples of pathological change were noted in sheep/goat; two examples of moderate periodontal disease, a single example of calculus, and slight degenerative change in a metacarpal. A single sheep-sized mammal skull fragment had evidence of an active non-specific infection.

Pig

Pig contributed only 22 fragments to this assemblage, originating from a minimum number of two pigs, one adult and one juvenile, which suggests that they may have been under-represented. The majority of the material relates to head and limb elements, which are robust elements, indicating that preservational conditions may have affected the assemblage. Ageing information was very limited, although three permanent incisors were noted, one in wear, a maxillary third molar was just in wear, and a single porous fragment was noted. A fused glenoid of the scapula indicates and animal of more than 12 months, whilst an unfused distal radius relates to one less than 42 months of age. A range of age groups were apparently present. No butchery or evidence for deliberate fragmentation was noted. Two fragments of pig bone had however been gnawed. There were no pathological changes noted.

Horse

A total of 29 fragments of horse bone were recovered, but 13 of these related to an associated group of skull fragments in Pit [326/390]. Two articulating foot bones came from Pit [335]. Four other fragments of horse bone came from Pit [335]. A minimum number of two adult individuals was indicated, and inclusion of the associated groups of material does not change this. A small selection of head and limb bones was represented, but the assemblage was not large enough to draw any further inference. Ageing information is very limited. No porous bone was present. However, two distally fused femur fragments (from different individuals) indicate animals of over 36-42 months of age, a fused distal metatarsal an animal of more than 16-20 months, and a fused ulna an animal of more than 42 months. The lack of evidence of younger horses is entirely in keeping with most later prehistoric assemblages. No evidence of butchery was noted, although there were two examples of bone broken

when fresh, so horse bone may have been processed and utilised in a similar fashion to the main livestock species. A single fragment was weathered, but no other taphonomic changes were noted. A single pathological fragment was noted, with very uneven wear on a single incisor.

Dog

A total of 20 fragments of dog bone were recorded, spread across eight contexts. Dog bone mainly came from two larger Type 1 pits. It is notable that of the entire dog bone assemblage only a single bone occurred in the upper fill of the (originally Neolithic) ditch, and one in Type 3 pit [1241]. Six fragments occurred in Pit [335] and the rest occurred in the fills of Pit [326/390]. A minimum number of two dogs contributed this material. No porous bone was noted and where available all fragments were fully fused. No butchery or deliberate fragmentation was noted, and there were no taphonomic changes. No pathological change was noted.

Other

Three frog bones were recorded all from pit [335] where one each occurred in contexts (359) (380) and (392). Single small mammal ribs occurred in pit context (1524), and the upper fill of the (Neolithic) ditch. An unidentified small mammal innominate of mouse-size occurred in the layers under the pavement. A premaxilla of a large gilthead seabream, occurred in context (1127) of Type 2 pit [1126] and is discussed in Chapter 15.

The Late Bronze Age-Early Iron Age Midden

A total of 1578 fragments came from 45 interventions in the Late Bronze Age-Early Iron Age midden. Only 28% could be identified to species, and 37% of the identified material comprised loose teeth indicating that the material in the midden suffered a greater degree of fragmentation than the material in the Late Bronze Age-Early Iron Age features. This is supported by the fact that 86% of the material scored poor-average for condition, and only 13% average. No associated bone groups were noted.

The species identified were cattle, sheep/goat (sheep was positively identified in four fragments, with one fragment potentially representing goat), pig, horse, dog, red deer and small amounts of small mammals (including mouse/vole sized rodents), amphibian, bird (including a group of blackbird fragments). Sheep/goat were the most numerous of the livestock species (68% of NISP), with cattle (22%) and pig (10%) providing a minority of fragments. This is also reflected in the MNIs which give ten, four and two respectively. This may indicate that there is an under representation of cattle. However, when sheep-sized mammal bone is considered in relation to cattle-sized, this supports the likely dominance of the smaller species in absolute numbers. Whilst the assemblage was highly fragmented, only nine examples of butchery were noted in a range of species. Nineteen examples of apparently deliberate breakage whilst the bone was fresh were noted (Table 23), mainly in unidentified mammal bone. A total of 85 fragments had taphonomic changes noted (in some cases more than one) (Tables 20 & 21). Gnawing occurred at a rate of 2% of the assemblage, whilst weathering was rare (<1%). Burnt fragments accounted for 3% of the assemblage. Cattle fragments only displayed gnawing, whilst sheep/goat were gnawed, weathered and burned. There was a greater representation of fragments not identified to species amongst the burnt material (86% of burnt fragments), which is a function of the burning process.

Cattle

Cattle were represented by a total of 96 fragments, with a minimum of four individuals, comprising three adults and one juvenile. In addition there were 123 fragments of cattle-sized mammal bone. Ageing information was limited as there were no mandibles which could be assigned a wear stage. A selection of loose teeth include both deciduous and permanent examples, both unworn and in wear. There were a total of six porous fragments. Five elements gave fusion information. Three fused distal tibiae related to animals of at least 24-30 months. A fused distal humerus was from an animal of more than 12-18 months, and a fused calcaneus an animal greater than 36-42 months. Whilst most of the material seems to relate to mature individuals, the presence of a small amount of porous bone would indicate that younger animals were present and may have been being reared on or near the site. Taphonomic conditions may have affected the preservation of juvenile bone.

All areas of the body were represented (Figure 15.3) including the head, axial skeleton, limbs and feet. There has evidently been some loss of more fragile elements given that the most robust elements are the best represented. The degree of fragmentation indicated from the loose teeth present supports this. A single example of butchery was observed on cattle bone, a heavy cut on a scapula, likely associated with disarticulation. Two potentially pathological cattle fragments were noted, both tibiae with slight changes to the distal articulation. Ten fragments had been gnawed, but there were no examples of weathering or burning.

Sheep/goat

291 fragments of sheep/goat bone were identified, as well as 296 fragments of sheep-sized mammal bone. Four fragments were positively identified as sheep, with a single possible goat fragment. This material was contributed by a minimum number of ten animals, with at least seven adults and at least three juveniles. Aging data was limited, but a small number of mandibles (Table 34) provide Grant Mandible wear stage and Payne stages of 5, 22, 22, 33, 37 and 37 and B, D, D, E, G and G respectively. Four loose deciduous mandibular fourth premolars had a wear stage consistent with Payne stage B (2-6 months) or C (6-12 months), whilst one mandibular third molar would fit within Payne stage D (1-2 years, four E, one F (2-4 years) and one G (4-6 years). With the 25 porous fragments of bone, this indicates a spread of sheep/goat age groups, although the evidence for very young animals is scant. The fusion data also indicates a spread of age groups, but there was an apparent emphasis on younger animals. There were not any animals under 10 months of age represented and the majority (72%) of early and later fusing (up to *c.* 24 months) elements were fused. However, there was a clear difference with the latest fusing elements were 77% of examples were unfused. This implies a peak in culling in the second-third year of life (equivalent to Payne stages E-F) (See Figure 15.4). This appears to be inconsistent with later Iron Age culling practice of focussing on animals in the 6-12 months age range, and whilst the assemblage is highly likely to have been affected by taphonomic factors, this may indicate a greater emphasis on culling full meat-weight animals.

All parts of the body were represented, including the head, axial skeleton, limbs and feet (Figure 15.5). There was however a clear emphasis on robust elements such as the tibia and mandible. It is likely that taphonomic factors produced this pattern, rather than selection of elements/body parts, especially as there was a large representation of loose sheep/goat teeth. It is likely that animals were culled and consumed close to the point of disposal.

A single example of butchery was noted on sheep/goat, a light cut across the base of the transverse process of a lumbar vertebra, apparently related to skinning or filleting. A light cut also occurred on a fragment of sheep-sized mammal bone. Deliberate fragmentation appears to have affected one further sheep/goat fragment, and five sheep-sized mammal fragments. Sheep/goat fragments had been subjected to gnawing (14 fragments) weathering (4 fragments) and burning (6 fragments). Sheep-sized mammal fragments had also been subject to gnawing, weathering and burning. There did not appear to be any pattern in the deposition of this material. Five examples of pathological change were noted in sheep/goat, which all related to oral health. A single example of moderate periodontal disease, was supplemented by two examples of calculus and two loose teeth with abnormal wear patterns.

Pig

Pig contributed 41 fragments to this assemblage, originating from a minimum number of two pigs, one adult and one juvenile. The majority of the material related to head, axial, and limb elements, but most are robust elements, indicating that preservational conditions probably affected the assemblage; most parts of the carcase were present however, and pig meat was probably processed on or near the site. Ageing information was very limited, although one mandible can be estimated as being mandible wear stage 18 (which falls into a category around 15-26 months). Two well worn deciduous premolars were noted along with a first and third molar just in wear. A permanent third maxillary molar was also recorded as just in wear. Five porous fragments were recorded, including one which appears to be of foetal or neonatal size. The fusion data are limited and there are no examples of the latest fusing elements. A fused metacarpal (which occurs at around 24 months) was the latest fusing element represented. A fused acetabulum indicates and animal of more than 12 months, whilst an unfused distal humerus related to one less than 12 months. A single canine came from a male individual. Three examples of butchery were noted, all of them on innominates, two heavy cuts around the acetabulum were evidently intended to disarticulate the limbs. In one case the bone appears to have been sawn across the auricular surface, also presumably aimed at disarticulation or jointing the carcase. No evidence for deliberate fragmentation was noted. A single fragment of pig bone had been gnawed. There were no pathological changes noted.

Horse

Only two fragments of horse bone were recovered, two foot bones from intervention (313). These related to adult individuals. No evidence of butchery or taphonomic changes were noted.

Dog

A total of three fragments of dog bone were recorded, spread across three interventions, and comprised a carpal, maxilla fragment and piece of mandible. The material derived from a minimum of one dog. No porous bone was noted, and a first mandibular molar was in wear. No butchery or deliberate fragmentation was noted, and there were no taphonomic changes. No pathological change was noted.

Other

A total of five amphibian bones were recovered from two interventions. Sixteen small mammal fragments came from two interventions. Two unidentified long bones came from (1133), whilst a total of 14 fragments of limb, axial and head elements of a mouse or vole sized animal occurred in (1025). Five bird bones were also recovered

from two interventions. An unidentified fragment of tarsometatarsus came from (1491); four fragments of blackbird, comprising ulna, carpometacarpus, humerus and a tibiotarsus came from (1227), and are likely to be associated. This material was all probably an incidental inclusion.

Eight fragments of red deer antler were also identified coming from three interventions. One in (1033) was worked and comprised a comb fragment. A tine from the same intervention was cut along the base. A single fragment came from (1168) and five further pieces from (1558). There is no evidence to indicate that the antler originated from hunted animals and may well relate to collected shed antler.

The Middle Iron Age Pit [1182]

All of the Middle Iron Age material was recovered from a single pit. The 420 fragments were spread through eight fills (Table 15.13). 35% could be identified to species, and 25% of the identified material comprised loose teeth. 82% of the material scored poor-average for condition and the material was generally fragmented. No associated bone groups were noted. The majority of material occurred in the upper fills comprising contexts (1151), (1156) and (1159). The accumulation of a small group of disarticulated small mammal and amphibian bones may indicate that the pit remained open for some period of time at this point in its filling, becoming a trap for small mammals. The primary fills (1199) and (1186) only contained small numbers of bone fragments, as did the middle fills (1161) and (1162). This seems to indicate general refuse. There was however a further concentration of material in contexts (1163) and (1156) which is discussed below.

The species identified were cattle, sheep/goat (sheep was positively identified from a single fragment), pig, horse, with small amounts of small mammals (including mole and mouse/vole sized rodents), frog, bird (including a fragment of swan coracoid) and a single fish rib. Sheep/goat were the most numerous of the livestock species (81% of NISP), with cattle (13%) and pig (6%) providing a minority of fragments. This is also reflected in the MNIs which give five, two and two respectively. This may indicate that there is an under representation of cattle and pig. However, when sheep-sized mammal bone is considered in relation to cattle-sized, this supports the dominance of the smaller species in absolute numbers with a count of 106 and 13 respectively. The dominance of sheep/goat (generally mainly sheep) is a common feature of Middle Iron Age assemblages in southern Britain (Hambleton 1999).

Whilst the assemblage was highly fragmented, only two examples of butchery were noted, in a cattle proximal phalanx and the swan coracoid. Six examples of apparently deliberate breakage whilst the bone was fresh were noted. Whilst the numbers of fragments displaying taphonomic change are few, all eight from context (1156) and all six from context (1199) were gnawed, whilst four out of five in context (1151) were burned, with one gnawed example. It isn't possible to tell if one species or another was more subject to burning or gnawing. However, it is notable that no weathering was evident.

Cattle

Cattle were represented by a total of 13 fragments, with a minimum of two individuals. In addition there were 13 fragments of cattle-sized mammal bone. Head, axial and limb bones were present, but in too few numbers to allow meaningful comment. Virtually no information was available on the age groups represented. All of the material appeared to represent adult animals, with three worn permanent molars

were present. There was no porous bone; two proximal phalanges were fused proximally, and a distal humerus was also fused, representing an animal of at least 12-18 months. Two cattle-sized mammal fragments displayed signs of breaking whilst fresh, and a proximal phalanx displayed butchery marks.

Sheep/goat

Sheep/goat occurred in eight contexts and was represented by 104 fragments. The minimum number of individuals was five. In addition, 106 fragments of sheep-sized mammal bone were recorded. A single fragment could be identified positively as relating to sheep, but no goat bone was positively identified. Fragments were concentrated in the upper fills of the pit and context (1163), but this is in common with other material. The bone was highly fragmented with a third of identified sheep/goat fragments comprising loose teeth. Considering element representation (Figure 15.6), all parts of the body are represented from head, axial skeleton, major limb bones to the extremities. However, the most frequently occurring element was the radius, which as a more robust element may indicate the degree to which the pattern has been affected by processing and depositional factors, rather than an indication that the lower forelimb was particularly selected.

Ageing information was limited, but tooth wear was provided by the two mandibles which could be assessed. These related to an animal of 6-12 months and one of 6-8 years. Worn loose premolars and molars indicated animals between these ages. Fusion data hints at animals both under and over two years of age. There were also 14 fragments of porous bone including neonatal material, so it is clear that the full range of age groups were present, and animals were being reared either on the site or near to it. No indications of sex were recorded. One sheep/goat fragment showed signs of having been broken when fresh, along with two sheep-sized mammal fragments. No butchery was noted on sheep/goat fragments.

Pig

Pig was represented by a total of seven fragments, with a minimum of two individuals. Head and limb bones were present. However, different age groups could be identified, with a worn permanent premolar present along with two porous fragments. These comprised a radius which was unfused proximally and distally, representing an animal of less than 12 months of age and a metapodial fragment with was unfused distally, representing an animal of less than 24-27 months.

Horse

Horse was represented by a single metacarpal fragment. This had been broken whilst the bone was fresh and may represent deliberate processing. A development of additional bone was noted where the lateral metapodial had fused to the shaft.

Other

Other species comprised a single mole bone, which may or may not be the result of burrowing. Small mammal and frog bones occurred in (1156) and (1163). The small mammal bone was related to rodents, either voles or mice. A single fish rib was recovered from context (1156). Three bird bones came from context (1163), including part of a swan coracoid which had been butchered.

The Late Iron Age

A total of 1588 fragments (1776 including associated bone groups) were recovered from 39 Late Iron Age contexts which included a house floor and structure, deposits, layers and pits (Tables 62, 63 and 64). Several associated groups of material were noted and subsequently excluded from calculations. The material was generally fragmented and only 42% of the material could be identified to species. It was generally disarticulated and co-mingled. 69% of the material scored poor-average for condition with 30% as average. 24% of the material which was identified to species (not including ABGs) comprised loose teeth. The majority of material (66%) came from pits, 22% from a house floors and a house wall, and 12% from other contexts including floors and layers. There are differences between the pits in the volume of faunal remains which they contained. Features [324], [398], [1412], [1131] and [1740] contained a moderate amount of material, with, bar one, all other pits containing only a handful of fragments. The exception is pit [304] which provided 60% of the faunal material from the group of pits (672 fragments).

A number of associated groups of material were noted, as can be seen from the element representation in [304]. A group of 51 cattle-size mammal skull fragments in pit [1704] were probably the remnants of a larger fragment, although it is difficult to ascertain whether there was any significance to this deposit. Pit [304] contained a cattle skull, and eight fragments of pig bone have been recognised in analysis as the associated remains of at least one neonatal pig, and the remains of what were probably the associated remains of at least four dogs, two adults, a sub-adult and a neonate. Pit [304] is discussed further below.

The species identified in this phase were cattle, sheep/goat, pig, dog, horse, with small amounts of frog, bird and fish. The majority of the material related to the three main livestock species, with horse and dog being minority species (excepting the associated groups of dog bone in pit [304]). Wild species were only represented by a handful of elements and in the main are likely to be incidental incorporations. Sheep/goat were the most numerous species by NISP at 56%, with a significant proportion of cattle (32%), and pig as a minority (12%). This ranking is reflected in the minimum number of individuals at 14, eight and six respectively. It should however be taken into account that a large proportion of the material comes from pit [304], which had a greater proportion of cattle (44%) and less pig (6%) than the aggregated assemblage. The MNIs in this feature are also more even (cattle, 6, sheep/goat, 6 and pig, 5, including associated neonatal material). Without the material in pit [304], the dominance of sheep/goat is greater (60%, with cattle and pig at 24% and 16% respectively). Pig is more poorly represented in the contexts associated with the house (cattle 31% of NISP, sheep/goat 60% and pig 9%). All species were represented by a spread of elements, but there were some differences between the elements represented in pit [304] and the broader picture. In general however, there were similarities in the elements represented between the species with head and limb elements most frequent. However, for cattle, there is a greater representation of scapulae. This was almost entirely contributed by the material in pit [304], which also had a higher proportion of skull elements, contributed by a minimum of five animals. This may have been a deliberate selection given that skulls are frequent components of these types of deposit. The scapulae are however a meat bearing element and may indicate the incorporation of material that had been jointed. Twelve elements had signs of butchery (Table 17), five of them from pit [304], which represents less than 1% of the entire assemblage. Potentially deliberate breakage was noted in a total of 27 fragments, less than 2% of the total assemblage. Five cases came from pit [304]. Cattle, sheep/goat and horse bones had been freshly broken as well as

cattle-sized and sheep-sized animals. In total 75 fragments had taphonomic changes, with gnawing the most frequent at 2% of the total assemblage, and weathering and burning rare (<1% and 1% respectively). There were some differences between pit [304] and the rest of the assemblage as most of taphonomic changes noted there were gnawing. This also seemed to affect cattle bone to a proportionately greater degree than in the rest of the assemblage (73% of gnawed fragments identified to species compared to 49% in the rest of the Late Iron Age assemblage). Burned fragments throughout the assemblage tend to be those not identified to species.

Cattle

Cattle were represented by a total of 212 fragments as well as an associated group of skull fragments, relating to a minimum of eight individuals. There were 188 fragments of cattle-sized mammal bone; 22% of identified fragments were loose teeth. Head elements, in particular mandibles, were well represented (Figures 15.7), as were scapulae, although the majority of these occurred in pit [304]. Limb bones and peripheral elements also occurred, but there was an emphasis in pit [304] at least on meat bearing elements. Evidence for butchery was limited, although it occurred more frequently in cattle than sheep/goat or pig, regardless of the former being more numerous. This is probably a function of the necessity of dividing the carcase for consumption, although three of the seven examples occurred on head elements which may be indicative of skinning. A total of seven cattle bones and eight large mammal fragments had been broken when the bone was fresh, which is greater than for sheep/goat, again probably indicating the necessity of portioning a larger carcase and the desire to extract marrow. Cattle bone was also subject to weathering, and in particular to gnawing. The latter notably affecting cattle bone in pit [304].

Ageing information was limited. A mandible provided a MWS of 48, and related to an old adult. Two incomplete mandibles probably related to slightly younger adult individuals, and a sub-adult individual was also noted. All the loose mandibular teeth were from the permanent dentition, and all in wear or worn. Two deciduous maxillary teeth were present, one unworn. Of 14 permanent maxillary teeth, 11 were worn or very worn. The fusion information provided a similar picture, with the majority of elements fused. Early, later, and latest fusing elements were all fused, except an unfused distal metatarsal, relating to an animal of less than 27-36 months of age, and an unfused proximal femur of an animal less than 42 months of age. Only six porous fragments were noted, relating to a minimum of one juvenile individual. Whilst the youngest animals were present, and the lack of juvenile bone may have been affected by taphonomic factors, it seems that older animals were present, or at least being consumed and disposed of on site during this period. Seven articular surfaces had signs of resorbtion which may relate to degenerative joint disease, possibly related to the age of the population.

Sheep/goat

Sheep/goat occurred in 32 contexts and comprised 350 fragments, with an additional 249 fragments of sheep-sized mammal bone. The minimum number of individuals was 14, made up of eleven adults and three juveniles. Twelve fragments were identified as sheep, contributed by a minimum of three individuals, but no goats could be positively identified. 25% of identified fragments were loose teeth. All parts of the body were represented, with mandibles most common. In pit [304] in particular, the best represented elements (Figure 15.8) were the mandible, radius and tibia, all more robust elements, which may indicate that a degree of attrition had occurred before

final deposition. Butchery was limited to three fragments with light cut marks probably relating to portioning or skinning the carcase. Two sheep/goat and eight sheep-sized mammal fragments were broken when fresh. Sheep/goat fragments were subject to gnawing and weathering and a single fragment was burned.

Aging information from toothwear (Figure 15.9) appears to indicate a range of age groups present, from the very youngest animals, suggesting lambing took place on or near the site, through to elderly animals. With respect to the mandibles there appeared to be a preponderance of older animals (Payne Stage G, 4-6 years). In the loose mandibular teeth, there were only two deciduous fourth premolars, both worn, although there were also only two permanent fourth premolars, which may indicate a lack of recovery of smaller teeth. Three third molars would fit in Payne stage E, F and F respectively and indicates a greater spread of ages. This would fit with the information from epiphyseal fusion, which, whilst it indicates only one animal under 10 months of age, had a greater representation of unfused later fusing elements (nine examples of elements which normally fuse at 18-24 months), and only four out of 26 late fusing elements fused, relating to animals over 30-36 months of age. It is likely therefore that a larger proportion of animals fell into the young adult category (consistent with Payne stage E-F). This may indicate that whilst taphonomic factors have affected the assemblage, older animals were being consumed and deposited at this site. It may indicate a difference in husbandry strategy, or the disposal and consumption of younger animals elsewhere on the site, or alternatively, at another location. Slight changes were noted to the proximal articulation of two metacarpals, which probably relate to mild degenerative change. A single mandibular tooth showed silicaceous calculus and there were four examples of mandibles with slight periodontal disease along the tooth row. This is not however surprising as these relate to the older individuals which provided the Payne Stage G scores referred to above.

Pig

73 fragments of pig bone came from 20 contexts. In addition eight fragments were identified as probably related, and in actuality most of the juvenile bone from pit [304] may relate to a number of associated groups of bone representing four neonatal and juvenile pigs. In total, a minimum of six pigs contributed the bone, at least two adults and four juveniles. 30% of identified pig elements were loose teeth. The range of element is relatively limited, comprising mainly mandibles and limb bones. The occurrence of radii and tibii fits with the elevated frequency of the same elements for sheep/goat. However, this is marked in pit [304] where humerus, femur and tibia were well-represented. In this case however, most of the bone was porous and of neonatal size, so it is likely that alongside taphonomic loss, smaller and axial elements may not have been collected. No pig bones were noted to have butchery marks or have been fragmented when fresh, but this again may relate to the proportion of the assemblage which relates to neonatal individuals. Only two pig bones were noted to have taphonomic changes, both having been gnawed.

Three mandibles with mandible wear scores of 4, 4 and 8 are of juvenile animals, although the first two are probably from one animal. Loose teeth indicated permanent dentition coming into wear, but not well-worn. There were 37 fragments of porous bone in total, including what must be associated material in pit [304]. All of the epiphyseal areas which could be assessed were unfused, with many of the later and latest fusing areas which were unfused, actually belonging to porous and neonatal sized fragments. The picture is skewed by the evident inclusion of associated groups of material representing a small number of neonatal individuals, but the limited

toothwear information also indicates that there is no evidence of elderly animals. This fits with the general picture of later Iron Age pig consumption where animals were killed at prime meat weight (Hambleton 1999). There was no information available on sex, and no pathological change was noted, neither of which is surprising given the likely age range of these individuals.

Horse

Horse was represented by a total of 18 fragments from eight contexts, and contributed by a minimum of one single individual. Nine fragments came from pit [304], five fragments from four other pit contexts, three fragments from two house contexts and a single fragment from layer (1521). No cut marks were noted on horse bone, although two fragments had indications of having been broken whilst fresh. Three fragments had been gnawed. No porous bone was noted, and the only other aging information was two metacarpal fragments fused distally, indicating an animal of over 15-18 months of age. Two fragments had evidence of pathological change. An astragalus had macroporosity and eburnation indicative of osteoarthritis, implying an older individual. A first phalanx had periostitis around the shaft.

Dog

103 dog bones were recovered from three contexts. All but two were from Pit [304], and the distribution of elements implies that these must comprise the remains of several partial carcases of dogs (Figure 15.10). A minimum number of four adults and one neonatal individuals are indicated. There were no cut marks or indications of breakage whilst the bone was fresh. Only a single fragment from pit [1740] had been gnawed. Five fragments of porous bone were noted in pit [304]. Fused and unfused elements were also noted in non-porous bone, with distal metapodials in particular being fused and unfused. A juvenile or sub-adult dog was likely present alongside at least one fully adult individual. At least one male is indicated by the presence of a baculum. Most areas of the body were present, with head, axial skeleton and limbs all represented. There seems to be fewer lower rear limb bones than should be expected, and in general, the indication is that these were not entire carcases, although one skull and pair of mandibles was intact. No foot bones were noted.

Other

Ten frog bones were present, all from pit [304]. Although it is not possible to say where in the fills they occurred, it is likely that these were incidental inclusions from pit falls. A single fish bone in pit [304] could not be identified to species. A total of five bird bones were noted . A femur of a medium sized corvid, probably a crow, came from pit [1412]. A humerus and an ulna of the thrush family, likely blackbird, came from the pavement layer (1095). These were most likely incidental inclusions. A tarsometatarsus of a small species of duck came from the house floor context (358). No butchery was noted. A juvenile humerus of an unidentified species of bird was recovered from context (1084).

The Romano-British period

A total of 410 fragments (485 including associated bone groups) were recovered from 23 Romano-British contexts which included a house floor and structure, deposits, layers and pits (Table 65). Two associated groups of material have been noted and excluded from calculations. The majority of material came from pit fills. The material was generally fragmented and only 35% of the material could be identified to species.

70% of the material scored poor-average for condition with 25% as average. 31% of the material identified to species (not including ABGs) comprised loose teeth. Most of this material was disarticulated. The majority of material (62%) came from pits, 6% from postholes and 32% from other contexts including deposit and rubble layers. There were differences between the pits in the volume of faunal remains they contained, with most features containing a limited range of material. One pit however, [1465] contained a greater volume of material and range of species as well as the two associated bone groups noted. A large portion of an adult cat came from context (1457) and (1458) in pit [1465]. A group of 45 fragments of red deer antler came from context (1441) in the same pit.

The species identified in this phase were cattle, sheep/goat, pig, dog, horse, cat, red deer and a small selection of small mammals, bird and fish. The majority of fragments related to the three main livestock species with horse, dog and cat being minority species. Wild species were only represented by a handful of elements, and apart from the group of antler fragments in pit [1465] are likely to be incidental incorporations. Sheep/goat were the most numerous species by NISP at 69%, with a significant proportion of cattle (22%) and pig as a minority (9%). This ranking is reflected in the minimum number of individuals at four, three and two respectively, which might imply that cattle in particular are under-represented in the NISP.
Five elements had signs of butchery three of them antler from the associated group in pit [1465]. The total represents less than 1% of the entire assemblage. Fresh breakage was noted in a total of 21 fragments, 5% of the total assemblage. In total 10 fragments had taphonomic changes, with gnawing the most frequent at 2% of the total assemblage, and weathering and burning rare (<1% and 1% respectively).

Cattle

Cattle were represented by a total of 29 fragments. There were 64 fragments of cattle-sized mammal bone. All areas of the body were present including head, axial, limb and foot bones. No examples of butchery or breakage of fresh bone were noted. A single cattle fragment was gnawed, and another was burnt. Ageing information was limited, with no mandibles available. Two loose mandibular teeth were from the permanent dentition, and in wear. Two permanent maxillary teeth were present, both worn. Early, later and latest fusing elements were all fused, including a radius fused proximally, relating to an animal of over 12-18 months, a fused distal metacarpal (>24-30 months), two fused distal femurs and two fused proximal tibiae (>42-48 months). Only two porous fragments were noted, relating to a minimum of one juvenile individual. Whilst the youngest animals were present, and the lack of juvenile bone may have been affected by taphonomic factors, it seems that older animals were present, or at least being consumed and disposed of on site during this period. No pathological examples were noted.

Sheep/goat

Sheep/goat occurred in 12 contexts and comprised 93 fragments, with 93 fragments of sheep-sized mammal bone. The minimum number of individuals was four, two adults and two juveniles. No fragments could be positively identified as sheep or goat. 31% of identified fragments were loose teeth. All parts of the body were represented (Figure 15.11), but head elements, particularly mandibles, and more robust limb bones were most common. No butchery was noted but three sheep/goat and 13 sheep-sized mammal fragments were broken when fresh. Five sheep/goat fragments were subject to gnawing.

Aging information from toothwear was limited but included two mandibles at Grant wear stage 2, Payne stage B (2-6 months). A wider range of age groups was indicated by loose mandibular teeth which included three deciduous premolars in wear and three third molars which were worn and represented much older animals. A similar pattern of worn deciduous and permanent teeth was represented in the maxillary dentition. The epiphyseal fusion was limited to a single fused distal humerus (an animal >12-18 months) and an unfused distal metatarsal (<27-36 months). No pathological conditions were noted.

Pig

Pig was only represented by eleven fragments from ten contexts. In total a minimum of two pigs contributed the bone, at least one adult and one juvenile. The range of elements was limited, to a small number of head and limb bones. A single pig bone had cut marks, a humerus fragment with four light cuts across the shaft, but none appear to have been fragmented when fresh. A single pig bone had been weathered. Aging information was extremely limited, although a single mandible had a worn third molar. Two loose mandibular teeth were worn, one a fourth deciduous premolar, and a very worn first molar. There was a single fragment of porous bone. However, younger individuals were represented by a humerus which was unfused both proximally (<42 months) and distally (<12 months), an unfused metatarsal (<27 months) and a proximally unfused femur (<42 months). There was no information available on sex, and no pathological changes were noted.

Horse

Horse was represented by a total of six fragments from two contexts, and contributed by a minimum of one single individual. Five fragments came from deposit (1752) and one from pit [1465]. The elements represented were two maxilla fragments, three loose teeth and a fragment of radius. No cut marks or fresh breaks were noted on horse bone, and there were no taphonomic changes. No porous bone was noted, and the only other aging information was three worn loose teeth, and a fused proximal radius, indicating an animal of under 15-18 months of age. There was no indication of pathological changes.

Dog

A single fragment of dog bone, a small part of a mandible, was recovered from pit [1465]. The bone was not porous.

Other

Red deer antler was recovered from two locations, a worked or utilised fragment from pit fill (1754), and a group of 45 fragments from pit [1465] which included three fragments demonstrating cuts. There is nothing to indicate that deer were hunted, as this material could have been collected. It is likely that this represents antler working waste. Pit [1465] also contained the majority of a cat skeleton. This comprised the head, axial skeleton and some limb bones, accounting for about 60% of the body of an adult animal. It was most likely a domestic cat. A single fish vertebra was recovered from deposit (1506), analogous to sea bream. Two bird bones were noted, an unidentified long bone from deposit (1464), and a tarsometatarsus of a pigeon from pit [1465].

The Mixed Midden

The upper layer of the midden was heavily reworked in the later Iron Age and Romano-British period; it contained mixed cultural material from the earlier Iron Age onwards. As such, the faunal remains which were contained in these deposits cannot be reliably assigned to a date range, and consequently were not examined in depth, but records are retained in the archive. A total of 5,644 fragments were recovered from these deposits in 87 interventions. The species identified were cattle, sheep/goat (10 fragments were identified as sheep, but no goat were positively identified), pig, dog, horse, cat, red deer antler, small mammals of vole and mouse-size, amphibian, fish, and a variety of birds (which are discussed below). 32% of the fragments were identified to species, with 39% of the identified fragments comprising loose teeth. The majority of the identified material was contributed by the three main livestock species and sheep/goat was the most numerous by NISP, contributing 1,294 fragments (73%), cattle 316 fragments (18%) and pig 154 (9%).

The Post-Roman Grave (311)

A total of 80 fragments were recovered from the fill of a post-Roman grave (311). It is highly likely that the material was unintentionally incorporated into the grave fill and was derived from the earlier deposits through which it was dug. Consequently this material has not been considered in detail, but records are available in the archive. The material was generally fragmented but 50% of the material could be identified to species. 28% of the identified material comprised loose teeth. The species identified were cattle, sheep/goat, pig, and dog. The majority of fragments related to the three main livestock species, with no wild species. Sheep/goat were the most numerous species by NISP with 22 fragments, cattle, 13 fragments and pig as a minority with four fragments.

Wild species

Common Frog (Rana temporaria)

Three frog bones came from the fills of a single LBA-EIA pit [335]. Four frog bones occurred in the middle fills of Middle Iron Age pit [1182]. These were associated with a small concentration of small rodent bones, which may represent pit fall victims. Ten frog bones occurred in the fill of Late Iron Age pit [304]. All of the frog bone is likely to result from incidental incorporation.

Mole (Talpa Europea)

A fragment of mole was recovered from context (1156) of Middle Iron Age pit [1182]. This may have been intrusive, or may relate to an animal caught in the pit, as the same context and an adjacent one held a small concentration of small rodent and four frog bones.

Red Deer (Cervus elaphus)

Red deer was represented by eight fragments in the LBA/EIA midden contexts. This included a comb fragment and a cut tine from (1033). A single fragment came from (1168) and five further pieces from (1558). There is no evidence to indicate that the antler originated from hunted animals and may well relate to collected shed antler. A group of 45 fragments of red deer antler came from Romano-British pit [1465] and there was a worked or utilised fragment from pit fill (1754). Five further fragments from the mixed midden contexts could relate to either the LBA/EIA transition or the Romano-British period.

Red deer has been widespread in Britain since the beginning of the Holocene, but only generally occurs in prehistoric and Romano-British assemblages in low levels. However, the number of sites producing red deer increased during the Romano-British period (Allen 2015, 176).

Birds

The bird assemblage from the site is small, comprising 34 fragments from six phases. Of these, 16 fragments could be identified to species, of which ten came from the disturbed upper midden layers. A further four fragments of blackbird were recovered from one intervention in the Late Bronze Age-Early Iron Age midden, and appear to relate to a single individual.

Domestic fowl (Gallus gallus)

A carpometacarpus and a tarsometatarsus, with spur, were recovered from the upper mixed midden. This would be consistent with a large proportion of the material in the upper midden being of Romano-British origin, as chicken is rare in Britain before this period.

Goose

A carpometacarpus analogous with Brent Goose (*Branta bernicla*) was recovered from the upper mixed midden, along with a humerus from a juvenile goose. Modern Brent geese have a coastal distribution along the south coast and are winter visitors, present between October and March in coastal marshes and estuaries where they graze on eel grass.

Duck (Anas sp)

A tarsometatarsus of a small species of duck came from the Late Iron Age house floor (358); this was smaller than a specimen teal, but may represent a number of smaller diving or dabbling ducks. A mallard-sized synsacrum came from the mixed upper midden layers.

Corvidae

A femur of a corvid, probably a crow (*Corvus corone*) was recovered from Late Iron Age pit [1412] context (1413). A similar fragment came from the upper mixed midden. Crows have been widespread birds since the beginning of the Holocene and their scavenging behaviour leads to them commonly being incorporated into deposits. It is likely that they represent incidental inclusions here.

Thrushes Turdus sp.

Four fragments probably of blackbird (*Turdus merula*) (a carpometacarpus, humerus, tibiotarsus and ulna), came from intervention (1227) in the LBA-EIA midden, and most likely represent the remains of a single individual. Blackbird also occurred in the midden at Potterne, Wiltshire (Locker 2000). A humerus and ulna of blackbird were recovered from late Iron Age layer (1095), and probably represent incidental inclusions. A single tibiotarsus analogous to redwing (*Turdus iliacus*) was identified in the material from the upper mixed midden. A fragment of ulna of the Turdus family also came from the mixed midden. These hedgerow birds have been present since the beginning of the Holocene (Yalden and Albarella 2009, 45), with blackbirds being resident and redwings winter visitors, being present from October to March. Culinary use of thrushes is potentially the reason for good representation of these species in

Romano-British contexts nationally (Yalden and Albarella 2009, 112), but there is no direct indication that these birds were exploited in the prehistoric period at Worth Matravers.

Swan (Cygnus sp.)
A single fragment of swan coracoid came from context (1163) of the Middle Iron Age pit [1182]. It was not possible to determine whether this was a Mute or Whooper Swan (*cf* Serjeantson 2009, 75). This example had been butchered, so it is clear that this fragment relates to exploitation of a wild bird, although it could be for either meat or feathers. Occurrence of swan on Iron Age sites is rare, but occurred at Danebury in Middle Iron Age contexts (Grant 1984, 1991). Both Mute and Whooper Swan was recovered at Glastonbury (Andrews 1917). Locally, a single swan bone was recovered from the Late Iron Age assemblage at Ower on the southern shore of Poole Harbour (Coy 1987).

Woodcock (Scolopax rusticola)
A single tarsometatarsus was recovered from the upper mixed midden. This is a large resident wading bird which has been present from the beginning of the Holocene (Yalden and Albarella 2009, 57). These are largely nocturnal birds which prefer dense cover.

Guillemot (Uria aalge)
A humerus of guillemot was recovered from the upper mixed midden. These are cliff nesting birds which congregate in localised areas of south coast cliffs during the summer breeding season. They feed on fish and crustaceans. Guillemots have been present in Britain since the beginning of the Holocene (Yalden and Albarella 2009, 57).

Pigeon
A single fragment of pigeon tarsometatarsus, probably woodpigeon (*Columba palumbus*) came from the Romano-British pit context (1458). Present since the beginning of the Holocene (Yalden and Albarella 2009, 57-8), this bird prefers fields and woodlands. The earliest domesticated birds occur in the Romano-British period, and there were three partial carcases from Greyhoud Yard, Dorchester similar in form to rock dove (Maltby 1993). This example is most likely an incidental inclusion.

The species in the Mixed midden
The bird species represented in the mixed layers of the midden were domestic fowl, goose, duck (probably mallard), corvid (probably crow), blackbird, redwing, woodcock and guillemot. Compared with the bird species from the Potterne midden in Wiltshire (Locker 2000), the only species not represented there is domestic fowl which was a Late Iron Age introduction. Whilst all of these species would also have been present in the Romano-British period, it may be that there is a degree of genuine reflection of the contents of the LBA-EIA midden represented by these birds.

Conclusions
The Neolithic and Early Bronze Age
No animal bone was identified from the earlier Neolithic phase on this site. The material from the Neolithic-Early Bronze Age phase comprises only a handful of fragments which can be identified to species, and the potential date range is wide, so

this group of material does little more than underline the presence of the three main livestock species, and dogs. Only adult animals were identified, probably a function of the preservational conditions and the limited nature of this assemblage. It should be noted that assemblages of this period of any size are relatively rare in this region, so this small assemblage still provides a contribution to the broader picture.

Cattle have generally been seen as the most important livestock animal in central southern British assemblages in the Beaker period and Early Bronze Age, although there was a decline in absolute numbers as sheep became more important (Serjeantson 2011, 15). The point at which sheep/goat became more important has been suggested to be the late Neolithic/Early Bronze Age. However, there is considerable variability between types of assemblages and features. Particular practices at sites such as henges may not reflect the wider animal economy or consumption practice (Allen and Maltby 2012, 290). Sheep/goat tend to be poorly represented in most Beaker contexts. Faunal remains in a Beaker grave at Fordington Farm, Dorchester related to cattle (Bellamy 1991). At Brean Down, Somerset, cattle were the most abundant species with fewer sheep/goat and a few pig bones (Levitan 1990, 221-2). Within Dorset, the later assemblage at Mount Pleasant had a low proportion of sheep/goat (Harcourt 1979, 215-6). However, a small assemblage in Beaker pits at Bryanston School had a greater proportion of sheep/goat (Randall 2016).

The Late Bronze Age

The Late Bronze Age assemblage associated with the round house is similarly limited in scale. There is some indication that sheep/goat may have been the most abundant species, but cattle were also probably important, with pig constituting a minority. This pattern is in keeping with other assemblages of the period. Cattle, sheep/goat and pig are largely ubiquitous on Late Bronze Age sites in central Southern Britain. During the Bronze Age, cattle and sheep/goat generally occur in similar frequencies on most sites, with pig a common but minority element (Serjeantson 2011). The Period 1 deposits at Eldon's Seat contained cattle, sheep/goat and a small amount of pig, in that order of abundance (Cunliffe and Phillipson 1968, 227). Sheep/goat generally became the more common species in the earlier Iron Age, but there was inter-site variation (Hambleton 2008, 40-1). In this case the potential greater abundance of sheep/goat may relate more to the size of the features excavated (largely postholes), with a hint of differing disposal practice in the pit and posthole on Site 4 and the larger species potentially being disposed of in features outside the area examined.

The Late Bronze Age-Early Iron Age Features and Midden

The Late Bronze Age/Early Iron Age material came from a range of features and the midden. These were considered as two separate units, but the range of species and the relative abundance of livestock species was very similar between them (Figure 15.12). The condition of the bone, degree of fragmentation, butchery and taphonomic changes were very similar between the material which occurred in features and that in the midden, so it appears that both groups of material had similar origins, although the midden material was marginally less identifiable to species. Gnawing occurred at the same rate (2%) in both groups, with rates of weathering and burning very close, and unlikely to be of any statistical significance. Both groups of material were dominated by the main livestock species, with a few dog and horse bones. Overall sheep/goat contributed 71% of the livestock assemblage, cattle 21% and pig 8%. The proportion of sheep/goat in feature contexts was elevated to 74% at the expense of both cattle

and pig, in comparison to the midden material, but the differences are very slight. The most significant difference appears to be that, whilst only occurring in small numbers, dog and horse fragments occurred more frequently in features (mainly in pits) than in the midden, whilst the few fragments of red deer antler all occurred in the midden. In both cases cattle were represented by a range of ages, from juveniles to older adults, which implies a mixed approach to cattle husbandry. Pig also derived from animals of a range of ages. Sheep/goat also displayed a range of age groups from *c*. 6 months of age to 4-6 years, although evidence for the youngest animals was scant.

The degree of fragmentation in the assemblage suggests that taphonomic factors may well have played a part, rather than indicating that lambing was not occurring in the area. It seems that there was a peak in culling between 6-12 months of age, and this fits well with the general pattern of sheep/goat husbandry in the area in the earlier Iron Age (Hambleton 1999; Randall 2010a). The retention of older animals will have been important to the management of the flock and maintaining a breeding stock, whilst supplying valuable secondary products as well as meat. In both groups of material all parts of the body of all livestock species are represented, indicating that they were likely to have been slaughtered, the carcases processed and meat consumed, close to the point of deposition. There did not appear to be any preferential areas for disposal of body parts. The small amount of butchery noted was similar across the piece, with light cuts used to reduce the carcase, and a few heavier cuts generally reserved for the cattle as the larger animal.

A couple of cases of probably deliberate deposition of material were noted. Pit [335], included articulating foot bones of a horse, a group of other horse bones from a minimum of two horses, and a group of six dog bones, possibly from one individual. Pit [326/390] also produced a significant portion of a horse skull and a group of dog bones. This may represent the beginnings of a practice of deliberate inclusion of animal remains in structured deposits within pits which continued throughout the Iron Age at Football Field.

The assemblage from Eldon's Seat, Encombe (Phillipson 1968) is informative (and may also be classed as a midden, (*cf* Madgwick 2016)). Both the period I and II assemblages were typically dominated by the main livestock species with a much smaller representation of horse, dog, and red deer. Whilst pig only provided a minor contribution throughout, there is a clear shift from period I to period II in the relative abundance of cattle and sheep/goat, where cattle was marginally more abundant in the earlier period, but the balance swung considerably to sheep/goat in the later period.

Whilst a spread of age groups for cattle is indicated, it appears at first sight that sheep/goat were culled earlier at Football Field than Eldon's Seat, with larger proportions at the latter surviving into and beyond their second year (Phillipson 1968, 228). However, it needs to be recalled that the culling profile at Football Field has been reconstructed using some loose tooth data. It is therefore possible that there may have been some taphonomic element in the lack of younger jaws at Eldon's Seat. An apparent lack of axial elements of all species at Eldon's Seat was inferred to indicate that butchery of carcases took place away from site (Phillipson 1968, 229). However, the profile described is in keeping with other later prehistoric assemblages, similar to Football Field, and similarly favours more robust elements. Taphonomic factors are likely to have played a role.

At Rope Lake Hole the Period 1 Early Iron Age material was similarly dominated by the three main livestock species, and derived from features relating to structures and overlying dumps of shale waste. Pig was very much a minority species, whilst cattle and sheep/goat were present in similar numbers, with sheep/goat possible

marginally more abundant, although similarly to Football Field there did not appear to be much difference in representation between the features associated with buildings and the waste tips. Rope Lake Hole seems to have shown a similar range of meat and non-meat bearing elements across the species. The aggregated sheep/goat mandible wear information for the Iron Age periods shows a potentially similar range of age groups (Coy 1986b).

The Early Iron Age assemblage from Southdown Ridge, Weymouth also provides a significant and useful assemblage for comparison within the Dorset coastal zone. This assemblage was derived partly from features, but also extensively from layers regarded as abandonment material (Strid 2014, 256-7). Again the assemblage was dominated by the main livestock species with a small component of horse, dog and deer with a few incidental bird bones. Sheep/goat were the most abundant species both by number of identified specimens and most particularly, minimum number of individuals. Consideration of the distribution of material between the features and layers could not discern any preferential disposal of species between them (Strid 2014, 257). The small number of age-able cattle from Southdown Ridge shows a spread from juvenile to adult animals, whilst there were few sheep/goat represented under 12 months of age, emphasis falling on animals culled between two and six years, but not surviving into old age (Strid 2014, 258). Comparing this to Football Field and the other Purbeck sites, it appears that the marked pattern of later first year culling which became more widespread in southern England in the later Iron Age was not in place at the beginning of the period. It may indicate a less regulated or focussed approach to animal husbandry, exploiting the animals for their full range of products and carried on in a less than intensive fashion (*cf* Randall 2010).

The identification of the deep layer deposit at Football Field as a midden requires consideration of how its assemblage compares to other examples. One of the largest and best understood examples at Potterne, Devizes produced a very large sample of 134,000 animal bones to compare to the 1,578 which could be assigned to undisturbed midden contexts at Football Field. It is highly likely that some of the 5,644 fragments in the upper mixed layers at Football Field were also derived from this period, given the distribution of contemporary ceramics, but that material has had to be excluded from this analysis, despite some similarities. Consequently there are issues with respect to the dramatic differences in sample size between Football Field and other midden sites, particularly Potterne. However, some general observations around species abundance are likely to be valid. All of these deposits are entirely dominated by the main livestock species, but there may be some regional or local variation in the relative abundance between them.

At Potterne, whilst sheep/goat were the most abundant species, pig was very well represented with cattle in a lesser position (Locker 2000, 102-3), which clearly contrasts with the pattern at Football Field. At Potterne, sheep became increasingly important through the period of the accumulation of the midden, largely at the expense of cattle, whilst the age structures of the cattle and sheep populations suggest they were both kept for a variety of purposes and products (Locker 2000, 117-18), which does chime with Football Field. The importance of pig is also clear in the Late Bronze Age deposits at Runnymede Bridge (Done 1991; Serjeantson 1996) and the midden at Whitecross Farm, Wallingford (Powell and Clark 2006). Llanmaes, Glamorgan (Gwilt 2009) has a very high proportion of pig at 70-80% of material, which coupled with cauldron fragments has been regarded as indicative of feasting activity. However, local variation can be seen in the assemblage from Whitchurch, where sheep/goat were clearly the most abundant of the livestock species, and whilst

well represented, pig was in a minority (Madgwick 2011). The East Chisenbury, (Wiltshire) midden also has a sheep/goat dominated assemblage (Madgwick 2016). The data from Potterne are robust enough to indicate changes in deposition of body parts over time, with meat bearing elements decreasing over time in favour of more peripheral elements such as heads and extremities (Locker 2000, 109). Unfortunately the deposits at Worth are limited in terms of chronological depth and size of the data set, so potential changes cannot be seen. The Potterne assemblage clearly displays butchery relating to skinning, dismemberment of the carcase and filleting (Locker 2000, 114), so the treatment of the meat was probably analogous to that observed at Football Field. Cattle at Potterne show a wide range of age groups, without any specific peaks in culling, whilst the sheep/goat culling pattern produced a number of peaks, suggesting a regular annual cull in both cases suggesting animals kept for a number of purposes (Locker 2000, 115), similar to that suggested for the Purbeck LBA/EIA sites. A similar pattern of age groups for both cattle and sheep/goat was also seen at Runnymede Bridge (Serjeantson 1996, 216-217). The similarities have been noted above with respect to the incidence of taphonomic indicators between the faunal remains from features and those from the midden; there was indeed little variation between periods on the site. The low levels of modification might imply moderately rapid incorporation into deposits; the rate of incorporation for the material in the midden was evidently no slower than for other deposits. Madgwick (2016) has shown that there is greater potential for understanding the variation in accumulation processes between middens by detailed consideration of the variety of taphonomic markers. However, the scale and nature of the Football Field assemblage limits the potential for interpretation in this respect.

The Middle Iron Age

The Middle Iron Age assemblage was derived from a single feature, pit [1182]. Whilst there are issues with the degree to which a single feature is likely to reflect the animal economy, consumption and deposition practice, the number of fragments available provides a respectable dataset. The material was fragmented and there was some evidence of butchery and deliberate fragmentation when the bone was fresh. Sheep/goat were the dominant species, which fits well with the Middle Iron Age picture for central Southern Britain (Hambleton 2008), although this may be an elevated proportion given the tendency identified elsewhere to deposit smaller species' remains in pits and those of larger species elsewhere (Maltby 1985). However, the sheep/goat economy reflected, with a range of age groups, also fits well with the general culling profile for local sites in this period, with very young animals present, older juveniles and young adults culled, and older sheep maintained (Randall 2010a). This is a pattern which likely reflects a multi-purpose approach to husbandry, where the animals provided both primary (meat) and secondary products (wool and milk), and culling decisions were made on the basis of herd health and optimum maintenance.

The pattern of deposition in this single feature is also in keeping with other Middle Iron Age pits elsewhere. There are concentrations of material in the upper fills (1159), and (1151), a layer particularly rich in grain which may have been a deliberate deposit (Evans Chapter 15), but interestingly, the greatest diversity of species occurred in the fills (1156) and (1163) which also contained more than half of the animal bone fragments in this pit. It was in these two contexts that all of the small mammals and frog bones were found, implying that the pit had remained open for some time at this level, allowing animals to fall in and not escape, a scenario

supported by the fact that it was some 50cm deep. This would probably imply that the small rodents in this case are likely to be voles rather than mice, as they are less able to escape by jumping. Context (1156) contained a fish rib, and (1163) three fragments of bird, including a butchered swan bone. Wild species are generally rare on sites of this period (Hambleton 2008) and fish are normally absent from Iron Age contexts. It is therefore of interest that these contexts were also the ones which contained metalwork objects and a bone needle. The combination of unusual concentrations of animal bone with other special objects, particularly metalwork, in contexts which may have been open and accumulating for some time has been recognised at Sigwells, South Cadbury, Somerset. A particular structured activity relating to deposition has been identified there in later Iron Age pits (Randall 2010b), involving marking open pits and metalwork left exposed on the surface.

The Late Iron Age

The Late Iron Age assemblage is in many respects typical of this period in this area of southern Britain. The overwhelming majority of material was contributed by livestock species, and sheep/goat being most abundant with cattle and pig in sequence as lesser contributors is common, as is the propensity for material to be recovered from pits. The presence of a number of associated groups of material is also a common feature, as is the differential deposition of material, with some features receiving relatively little material and others large and obviously grouped deposits of animal bone including associated elements, partial and whole carcases. In this case, pit [304] stands out as one of these specifically selected features, with a very high volume of animal bone compared to other features, a greater species diversity, most of the dog bone from this period, and half of the horse fragments. This included a large portion of a cattle skull, the probable partial carcases of three or four neonatal pigs, whilst the dog fragments can probably be assigned to partial carcases of a minimum of four adult and sub-adult dogs and a puppy, based on the distribution of elements. It is possible that given the full range of elements of sheep/goat being present, at least some of the sheep/goat bone could also relate to partial or largely whole carcases.

In general the relative abundance of the species at the site fits the general picture of southern Britain (Hambleton 1999) and the south-west (Randall 2010a), with its dominance of sheep/goat. This has been widely discussed for the later Iron Age. There are interesting hints however that whilst there was a full range of age groups present, the sheep/goat population was potentially being culled at a later age than is generally recognised. In general terms, there is a tendency for there to be a peak in culling between 6 and 12 months of age in assemblages of this period; the Worth Matravers assemblage has a higher proportion of young adults and adults than might generally be expected. This may relate to a specific husbandry approaches or aims in this coastal location. There does not appear to be any effect introduced from the less general assemblage in pit [304]; age-able mandibles from that pit comprised jaws from two neonatal individuals and two old adults. It may be that there was a greater concern on this particular site with respect to meat and wool production. Locally, the main livestock species also dominated the Iron Age assemblage at Bucknowle Villa, Corfe Castle (Rixson and Rixson 2009, 160), although an exact comparison of the relative abundance of the species is obscured by differences in the methods of quantification. Taking differences in fragmentation between cattle and the smaller species into account it appears that sheep/goat were probably the most numerous species. At Bucknowle the cattle were generally mature when culled, whilst there was a more general spread of age groups amongst the sheep/goat population.

The Late Iron Age Period 3 assemblage at Rope Lake Hole, situated on the coast to the west, was more typical in the abundance of sheep/goat which it had in apparently similar proportions (Coy 1987b) to Worth Matravers, although it is unclear as to whether the age profile was similar for this latter part of the Iron Age. Further to the west in the coastal strip, the small Late Iron Age assemblage at Southdown Ridge, Weymouth had cattle and sheep/goat relatively even in abundance (Strid 2014). There is a marked contrast with the earliest assemblage at Ower, on the Poole Harbour south shore and dating to the end of the Iron Age, where pig was the predominant species (Coy 1987a) and there have been suggestions that this may relate to trading salted pork (Maltby 2006). There is potential for there to be considerable differences of approach to livestock husbandry within a relatively contained area, likely to relate to the constraints and opportunities of a varied landscape.

The contents of pit [304], in combination with the other materials and objects within it, fits within a well documented corpus of Iron Age pits as mentioned above in respect of the Middle Iron Age pit [1182]. Pit [304] shows a typical continuity of practice from the earlier period, but does stand out for the potential number of partial or whole carcases which it contained. Whilst associated bone groups are frequently seen in Iron Age pits in particular (e.g. Early Iron Age features at South Down Ridge, Weymouth (Strid 2014); Iron Age pits at Tolpuddle Ball (Hamilton-Dyer 1999), Maiden Castle (Armour-Chelu 1991); Ham Hill (Knight 2006); Gussage All Saints (Harcourt 1979)), larger concentrations of whole or partial animals are generally less common. One such was a later Iron Age pit within the hillfort at Cadbury Castle, Somerset, where whole or largely whole carcases of cattle, pigs, dogs and numerous sheep were deposited (Jones and Randall 2010). The inclusion of young pigs, an animal often associated with feasting activity suggests an origin in consumption practice. The Early Iron Age associated bone groups at Southdown Ridge, Weymouth included a piglet (Strid 2014, 262).

In this case the volume of material suggests a major event or communal gathering. It appears that both whole smaller animals, and joints of cattle (hinted at by an increased number of scapulae than expected) were involved. The incorporation of the remains of a number of dogs also indicates the different nature of the deposit from general disposal practice on the site. Dogs occur in later Iron Age contexts in associated bone groups in excess of what one might expect from their frequency of representation within co-mingled assemblages. A number of partial or whole dog skeletons came from Iron Age pits at Tolpuddle Ball (Hamilton-Dyer 1999), and also occurred at Gussage All Saints (Harcourt 1979), Maiden Castle (Armour-Chelu 1991,146-7) and Winterborne Kingston (Russell *et al* 2014). Further afield, dogs were included in a number of structured deposits at Sigwells, Charlton Horethorne (Randall 2010b) and at Dibble's Farm, Christon (Everton 1988). There is no evidence of consumption of dogs at Football Field, but this should not be discounted, as it has been indicated in this period elsewhere in the south-west (e.g. Cadbury Castle (Randall 2010a)).

The Romano-British features

The Romano-British assemblage has the characteristics of general waste, with all areas of the carcase of all species present and indications of processing and butchery. This assemblage came in small quantities from a diverse range of contexts and locations. The identified material was dominated again by the main livestock species with some dog, horse and the partial carcase of a cat; again sheep/goat was the most abundant species with cattle and pig constituting a minority. It is possible that much

of the material from the upper midden was also contributed in this period, and whilst the relative abundance of livestock species also chimes with the later Bronze Age/Early Iron Age midden, the greater abundance of sheep/goat would also not disagree with the more securely dated Romano-British assemblage. Whilst the more clearly Romano-British material is too small an assemblage to facilitate detailed consideration, a range of age groups of all species were evidently present, supporting production and consumption occurring on or close to the site. A dump of probable working waste of red deer antler may have come from collected rather than hunted animals. A couple of bird bones are likely incidental inclusions although the few fish bones also indicate some fishing.

Romano-British faunal assemblages are quite variable and normally relate to the type of site. Both the scale and nature of this rural assemblage contrasts with the pattern seen in urban Roman Dorchester, where specialist processing, concentrations of waste and differing relative abundance of livestock occurred between areas and periods (Maltby 1993, 334-5). The Romano-British assemblage at Bucknowle Villa, within Purbeck to the north, had relatively even numbers of fragments of cattle and sheep/goat, with pig in the minority but there are indications that sheep/goat were actually more abundant. Sheep/goat were slaughtered at all ages, whilst there are indications of cattle dairying (Rixon and Rixon 2009). Dog, horse and cat were also noted, along with red and roe deer antler and bone, indicating that hunting was occurring in this period associated with the villa landscape. There was also clearer evidence of the exploitation of a range of fish species (Hamilton-Dyer 2009). At Ower, in north Purbeck, on the fringes of Poole Harbour, the livestock dominated assemblages varied in the relative abundance of cattle, sheep/goat and pig from the later Iron Age through the Romano-British period, shifting from a high representation of pig in the first century AD, through to a relative balance between cattle and sheep/goat with pig a minority species in the 4th century AD (Coy 1986a). Sheep/goat were much more abundant in the 2nd-3rd century deposits at the Purbeck coastal site to the east at Rope Lake Hole, with cattle and pig in the minority. The age profile of the sheep/goat showed a shift from the later Iron Age deposits at Rope Lake Hole, with a greater proportion of older animals noted (Coy 1986b). It is clear that there was some variation in husbandry practice in this part of the Romano-British countryside.