# Chapter 13: Environmental Evidence from Tower Hill

## ANIMAL BONE FROM THE NEOLITHIC GROOVED WARE PIT

*by Kate Clark*

This report considers the animal bone recovered from pit 1403, a feature 1.1 m in diameter and 0.5 m deep (Fig. 8.4). The upper context, 1402, was interpreted as intentional backfill of the pit with upcast, and the lower context 1404 contained fragments of Neolithic Grooved Ware pottery. A diffuse boundary between these two contexts was designated as context 1406. The pit was an isolated Neolithic feature within the area of excavation, apart from the possible flint extraction pit 2211. The assemblage was small but the potential was assessed in the light of characteristics exhibited by Grooved Ware pits in other locations in southern Britain (Serjeantson 1996). The condition of the bone was good and the recovery techniques applied rendered the group of high integrity.

### Methodology

The assemblage was recorded at the Centre for Human Ecology and Environment (CHEE), Department of Archaeology, University of Southampton. The methodology followed was the same as that outlined in Chapter 9 with the distinction that diagnostic goat remains were not observed, and ovicaprid material is described as sheep/goat, rather than as previously when the ovicaprid material was assigned to a sheep category.

### Species representation

Table 13.1 shows the range of species observed in this assemblage, in both the hand-retrieved material and the sieved residues. The size of the cattle remains indicates that these derive from the domestic *Bos taurus*, and the pig bones are of domestic pig except for a single mandibular canine which is from wild boar (*Sus scrofa*).

### Anatomical representation

The results achieved from analysis of the hand-retrieved material relating to the anatomical presence of animals older than neonate, are not contradicted by examination of the sieved residues. Therefore, Table 13.2 illustrates the dichotomy observed between the element distribution of cattle, and that of pig and sheep/goat. For the latter species there is clear evidence of deposition of whole carcasses, and this evidence includes a neonate lamb/kid where there is representation of axial and appendicular elements. Lack of neonate skull fragments is most probably due to taphonomic influences on fragile material. For cattle the remains are confined to the skull, mandible and extremities; the two metapodial fragments observed are both distal ends. Furthermore, fragments identifiable only as cattle-sized are restricted to a few skull or rib fragments with the exception of one very leached limb bone sliver from context 150, a specimen which is taphonomically anomalous with respect to the rest of the assemblage and may be residual or reworked. Red deer and roe deer are both recorded in antler, and skeletally only in cranial and mandibular fragments.

The evidence from the sieved portion is essentially that of infantile limb bone epiphyseal ends and vertebral bodies of pig and sheep/goat, elements which are easily overlooked in hand retrieval.

### Butchery

Deliberate carcass reduction was noticeably absent. Fragmentation of elements under burial conditions is discussed below, and the main carcass processing evidence is confined to fine cuts which, taken overall, are more indicative of skinning of carcasses than of disarticulation.

No definitive butchery marks were observed on the cattle remains. In the sheep/goat material a distal humerus, fused and therefore from an animal older than one year, has cuts on the posterior-lateral surface, and there are a series of parallel cuts on the external surface of a zygomatic bone. A pig zygomatic has similar cut marks, together with fine incisions on the distal surface of a tarsal bone (navicular). Knife marks were also visible on the external face of a rib fragment probably deriving from a cattle-sized mammal which also exhibited carnivore damage.

### Taphonomy

Observations on post-mortem modification of carcasses, apart from butchery evidence described above, are relatively few. The general nature of the assemblage is that it is very fragmented, and while this may to some degree be a result of butchery practices the evidence overall suggests that it is mainly due to natural diagenetic weakening and fracturing of the elements within the burial environment. Grant (1988) has suggested that the ratio of loose teeth to other identified elements can indicate the level of post-depositional disintegration, and the result from pit 1403 of 1:3.7 suggests a fairly high degree of element fragmentation after burial.

However, the assemblage has retained a significant level of preservation of neonatal and likely

foetal material. This suggests a non-aggressive chemical environment for the bone, where post-depositional fracturing will occur mainly through mechanical stress and will be more visible in the remains of smaller mammals. This is borne out in this assemblage where only 14.1% of the material identified to mammal size is categorised as cattle-sized and 85.9% is assigned the sheep/goat/pig classification.

Gnawing by carnivores is a significant category of evidence when considering the circumstances surrounding the bone post-mortem but ante-burial. Only four instances of carnivore damage were observed on these remains, all from context 1404. A cattle zygomatic was affected, as were a large mammal rib, a small mammal limb bone fragment, and the distal end of a sheep/goat humerus. In each of these cases the damage could have been inflicted by short-lived opportunistic assaults on whole bodies or individual elements. The random and very occasional incidence of carnivore gnawing in this assemblage does not suggest that these bones were generally available to dogs. Rodent gnawing was observed only in one specimen, on the beam of a red deer antler recovered from the interface context 1406.

Fourteen burned fragments were identified in the sieved material and all were unidentifiable to element or species. In the hand-retrieved assemblage three specimens were observed. A small mammal limb bone fragment was calcined, but two other fragments exhibited exposure to fire which was clearly delineated. An unidentifiable fragment showed deep charring in linear fashion with clearly defined edges to the burning, as did a sheep/pig-sized rib. The inference in these latter specimens is that only a portion of the bone element was exposed to the direct heat source. Work done by Albarella and Serjeantson (2002) on material from Durrington Walls suggests that such particular evidence of cooking processes from Neolithic sites should be clearly catalogued as a potential characteristic of cultural food processing activity.

## Ageing

Evidence provided by the fusion sequence of the long bones is the most applicable technique for this assemblage. This data is presented in Table 13.3 for the hand-retrieved material, excluding neonate and foetal fragments, and is summarised below.

The cattle remains suggest the presence of animals younger than skeletal maturity, and given the calculation of the minimum number of individuals it is indicated that all the remains may derive from a single animal of around one year of age. A mandible with the deciduous fourth premolar in place and early wear visible on the first molar (Grant 1982) also suggests an animal in the first months of its second year (Hillson 1986).

For sheep/goat, the hand-retrieved material indicates the presence of a neonate, a juvenile, and an animal in its second or third year. The pig remains appear to be from at least one animal less than a year old, and another which was less than 3.5 years, to which a mandible with the second molar in wear and thus older than one year (Habermehl 1975; Hillson 1986) may belong. The incidence of neonate and foetal material visible in both the hand-retrieved material and the samples is summarised in Tables 13.4a and b.

### *Microfauna*

The remains of the small vertebrates were all recovered in the sieved residue from context 1404. The pit was relatively shallow and as micromammals naturally burrow, it is possible that these are intrusive. The bank vole (*Clethrionomys glareolus*) will construct very shallow burrows but nests above ground level. The common shrew (*Sorex araneus*) can burrow in light soil but not to any depth, although it will use subterranean runs created by other species. The wood mouse (*Apodemus sylvaticus*) is an accomplished burrower and will both nest below ground and store seeds against the winter in subterranean caches (Flowerdew 1991). The yellow-necked mouse (*Apodemus flavicollis*) is more opportunistic and tends to exploit ground level habitats, but while it tunnels usually within 0.5 m of the ground surface burrows have been observed to a depth of 1.5 m (Montgomery 1991).

Common shrew, bank vole and wood or yellow-necked mouse have been recognised as incorporations within other Neolithic features (Rouse 1993; Levitan 1990; Powell and Clark forthcoming). As environmental indicators they are somewhat ambivalent; all that is required is a degree of cover, and this can be provided in woodland, scrub, or at the edge of afforested areas.

The fragment of amphibian bone, identified on size as probably frog (*Rana* sp.) is unlikely to be intrusive as frogs do not burrow. Frog remains are frequently recovered in quantity from pits and wells of all periods, and the most likely explanation in the majority of cases is that they are pitfall victims. This presupposes that the dug feature is exposed for a sufficient period for the animal to enter it. In the case of pit 1403, the occurrence of a single fragment of frog limb bone points more towards the incorporation of the fragment from infill rather than the arrival of a frog while the pit was open.

## Worked antler

Antler remains of both red and roe deer were recovered, but only the roe deer retained the bur to indicate that this was a shed antler. A red deer specimen, incorporating the beam and the bez, exhibited a degree of wear and polish on the distal end of the bez tine which can only be anthropogenic. This element was used as a tool and this type of wear is not uncommon in red deer antler from a variety of Neolithic contexts.

Analysis of antler use as observed in Neolithic features has been summarised and discussed by Serjeantson (1995; in press) where the use of antler as picks and rakes is described and the subsequent deposition of the tools in the features is illustrated. In that analysis Serjeantson raises the significant point that a number of deposited antler tools may be considered as worn to the point that they were no longer functional, but others were still viable as excavation tools and the deposition of the latter category indicates something other than pragmatic discard. The tine from pit 1403, although worn, had not reached the end of its useful life.

**Seasonality**

The evidence from the sample offers the greatest insight into the possible seasonality of these deposits from pit 1403. In this sub-assemblage there is clear evidence for the presence of foetal and/or neonate skeletons of both sheep/goat and pig. Piglet skeletons can be ambiguous regarding time of year; modern sows come into season every 21 days, the only variation during the year being the length of the heat period which is shorter in the winter (Hulme 1979; Epstein and Bichard 1984). However wild boar breed seasonally in spring, and it may well be that early domestic pig also farrowed then. Sheep can be more useful as seasonal indicators, and although many modern sheep have been developed to reproduce at almost any time of year the natural breeding cycle of the ovicaprids in north-west Europe is stimulated by shortening day length in the autumn (Ryder 1983). The five month gestation period therefore results in spring born lambs and kids when the ewes and progeny can benefit from the abundant vegetation into early summer.

The shed roe deer antler will have been cast during late November or early December, but is a storable item and therefore not indicative of the season of deposition. Likewise the red deer antler which, although not retaining the bur to show that it was shed, has evidence of working on a tine and therefore fulfilled a pre-deposition function which is impossible to assess in terms of time.

**Discussion**

The evidence regarding the cattle remains plainly indicates that the deposition was highly selective. Only skull, mandible and first two vertebrae together with the extremities are present, apart from a small group of rib fragments, and there are no conclusive signs of butchery or skinning although the metapodials may have been chopped through the distal diaphysis. This contrasts with the presence of whole sheep and pigs, and the survival of low-density neonatal and foetal bone.

These observations do not concur with those of Legge (1991) on the material from seven Grooved Ware pits at Firtree. Legge considers that these pits at Cranborne Chase contain bones collected from those available on the ground around the settlement, with the criterion of size being the main selector, as the assemblage was biased towards those bones having the highest density. Ewbank (1964) also notes a similar pattern at Puddlehill, Bedfordshire, where mandibles were well represented and limbs present only in their epiphyses.

The marked difference between the anatomical representation of cattle and sheep/goat and pig in pit 1403 makes selective surface collection an inappropriate hypothesis to apply at Tower Hill.

Levitan and Serjeantson (1999) examined the faunal contents of six Grooved Ware pits from the Neolithic and Bronze Age monument complex at Radley, and comparison can be made between these and pit 1403. There are some immediate similarities, the species representation (apart from a dog radius in one Radley pit) is comparable in that there is the abundance of pig and the very low but persistent presence of red deer. Infant and foetal pig and sheep/goat are usually present at Radley, and perhaps would invariably appear had the pits been sampled. Worked red deer antler commonly appears.

There is, however, a contrast in the cattle deposit between pit 1403 and Radley, where cattle are represented by axial and appendicular elements absent from Tower Hill, and they exhibit more butchery. For example, the detachment of vertebral processes from the carcass in pit 3196 at Radley indicates thorough butchery and filleting. There is also a higher representation of sheep in pit 1403 than in any at Radley.

Thomas (1991) has discussed the nature of Grooved Ware pit fills, pointing out that while the faunal assemblages can be varied in nature, along with the artefactual deposits they are not characterised by direct domestic waste, nor by the process of tidying up surface accumulation of debris. They can indicate the consumption or deliberate wasting of prime meat or exhibit particular selection, as in the pig assemblage from King Barrow Ridge (Maltby 1990), where heads, distal limbs and feet predominated.

The high representation of pig in later Neolithic contexts and in certain Grooved Ware pits could be the result of woodland regeneration, which provides the ideal pig habitat. However, it was considered more likely (Richards and Thomas 1984) to be an indication that pig was utilised as a feasting animal, its fecundity enabling pig herds to be deliberately over-exploited without risk of extinguishing the herd. They also draw attention to the lack of butchery evidence at Durrington Walls (Harcourt 1971) and Mount Pleasant (Harcourt 1979b) which, they suggest, indicates that the full value of the carcasses was not exploited, indicating feasting. Furthermore, they comment that the lack of dog gnawing on these bones and the presence of many unfused epiphyses articulating with recovered diaphyses indicates prompt burial.

There are problems in comparing evidence reported in the 1970s and earlier with current observations in that there are differences in retrieval,

post-excavation treatment of the material, and in the foci of interest. Fine butchery and canid activity have been described quantitatively rather more recently. However, the pig and sheep/goat material from pit 1403 is characterised by a lack of carcass deconstruction, exhibits a low level of dog gnawing and retains a high proportion of very immature epiphyseal ends, and it can therefore be suggested that these remains were not fully utilised and were interred promptly. At the same time it seems certain that these animals were not carcasses disposed of without a degree of exploitation because there are highly observable instances of fine butchery in both species groups.

The cattle remains present a different picture. These can be seen as primary butchery waste where the head and extremities are discarded in the pit and the meat-bearing carcass is processed elsewhere. Possibly the deposition of head and feet in a highly structured deposit may relate to a cultural practice, or alternatively the head and feet may indicate that a hide was deposited. The phenomenon of 'head and hooves' burials in Britain has been summarised by Robertson-Mackay (1980). Thomas (1991, 23–5) reconsiders the material evidence from long barrow and causewayed enclosure sites. Associated primarily with human interment, the appearance of skull and extremity material of cattle is traced through to the later Beaker burials, where folded hides have been interpreted as integral with human burial practice on the basis of the presence of these particular cattle elements. Of significance is the observation that the skulls and feet rarely accompany the human body directly, but seem to be disposed of in close proximity, and a recent possible example of this has been noted at Boscombe Down, Wiltshire (Powell and Clark forthcoming).

### Conclusion

The faunal component of this Grooved Ware pit provides a number of lines of evidence which relate to other comparable features and to the wider appreciation of Neolithic activity in the southern part of Britain. Clearly there is a need for further considered synthesis of the contents of these particular feature types.

The majority of the bone in pit 1403 came from context 1404. Those fragments recovered from 1402 are small enough to have been relocated by local bioturbation. The interface, context 1406, shows limited faunal presence and contains no material deemed to be unassociated with that from 1404. Modification associated with exposure, such as dog gnawing or differential trample damage, is minimal. It is likely therefore that context 1404 contains the primary faunal infill, deposited in a single or chronologically restricted episode.

The pig and sheep/goat assemblage show sufficient butchery evidence to conclude that these remains were exploited and were not deposited as whole, unmodified, carcasses. However, this assemblage of the smaller domesticates does not conform to domestic waste, but is more suggestive of immediate consumption. No elderly animals of any species are present. The cattle remains suggest a subadult, and the sheep/goat and pig material indicate animals of reproductive age, albeit probably only one reproductive animal of each species. Neonate and foetal pig and sheep/goat are present.

Pig and sheep/goat remains suggest that whole carcasses were deposited, in the pit, after minimal meat extraction. Cattle remains are restricted to the head and the extremities. Within the interpretation of the faunal remains having been deposited in a single episode, this indicates a differential selection between species. It is possible that the cattle remains represent the deposition of a hide, and the pig and sheep/goat remains are the result of short-term meat consumption. The presence of well preserved foetal and neonate sheep/goat remains suggests deposition in the spring or early summer.

The group of worked antler is small, but sufficiently diagnostic to suggest the deposition of an antler rake in the pit. The possible cowhide and the wild boar canine should perhaps also be considered primarily as artefacts.

The interpretation from the faunal assemblage of pit 1403 relies substantially on the material available from the flotation residue from context 1404. This sub-sample has yielded significant information on the presence of neonate and foetal sheep/goat, and has supplied all the evidence for neonatal pig. The discussion of the faunal remains of this pit in relation to contemporary assemblages is therefore prejudiced to some extent, in that none of the comparative site excavations employed a sampling regime. However pit 1403 fits the overall picture of Grooved Ware pits in southern Britain, where the Neolithic communities are making depositions in these pits according to a recognisable pattern.

## ANIMAL BONE FROM LATE BRONZE AGE, EARLY IRON AGE AND ROMANO-BRITISH CONTEXTS

*by Claire Ingrem*

A total of 56 animal bone fragments were recovered from a variety of features. The bone from the site was divided into groups comprising early Iron Age, Romano-British and undated contexts. The majority of animal bone was recovered from the fills of pits and postholes associated with settlement features dated to the early Iron Age. A few fragments were recovered from Romano-British lynchets. Cattle, sheep/goat, fish, and rodent were all represented although the majority of the fragments were unidentifiable to species or element.

### Methodology

The remains were identified at CHEE, University of Southampton with the aid of comparative specimens as described in Chapter 9.

### Early Iron Age

Fifteen fragments of animal bone were recovered from pits and postholes dated to the early Iron Age (Table 13.5). Of these, only five fragments were identifiable which were all derived from sheep/goat. A greater number of fragments were recovered from the undated feature near building A. These included ten fragments of cattle, sheep/goat, indeterminate fish and rodent.

Table 13.6 shows the species representation according to feature including the undated pit (79). Of the major food species both cattle and sheep/goat were identified, large mammal was present which is likely to represent cattle or horse. The two sheep/goat fragments were derived from radii, probably belonging to the same element. In addition, two rodent bones and two unidentifiable fish fragments were recovered from this feature. The tertiary fill of another undated pit (309), near structure A, produced a tooth fragment belonging to cattle.

Two pits dated to the early Iron Age produced sheep/goat remains. Part of a sheep/goat mandible and three loose teeth were recovered from pit 942; again these are likely to derive from the same element. An isolated deciduous third premolar was also recovered from pit 924. The majority of fragments with evidence of surface modification came from pit 79. The rib of a large mammal had been gnawed probably by a canid. Four unidentifiable fragments were calcined, two charred and one partly burnt. One fragment had been chopped. In addition, one unidentifiable fragment from each of pits 942 and 924 had been chopped.

### Romano-British

Six fragments of animal bone were recovered from Romano-British lynchets. The only species identified was cattle which is represented by three tooth fragments.

### Conclusion

The small size of the assemblage prohibits further analysis. It is only possible to conclude that sheep/goat were present at the site during the early Iron Age, and cattle during the Romano-British occupation.

## MOLLUSCS AND CHARRED PLANT REMAINS *by Mark Robinson*

### Methodology

Samples were floated onto a 0.5 mm mesh to recover charred plant remains from a late Neolithic pit which contained Grooved Ware and some late Bronze Age/early Iron Age settlement features at Tower Hill. The site was on the crest of the Berkshire Downs and the chalk bedrock resulted in the preservation of mollusc shells, which were numerous in some flots. The flots were sorted under a binocular microscope and the charred plant remains identified.

The results are given in Table 13.7. Charred remains were absent from a further two late Bronze Age/early Iron Age postholes. Although flotation is not a reliable means for quantitative snail analysis, it is effective for showing the range of species present, so notes were made of the species in the flots.

### Neolithic pit 1403

The samples from the Neolithic pit (1403) were dominated by fragments of *Corylus avellana* (hazel) nut shell fragments. There was also a single stone of *Prunus spinosa* (sloe) and a grain of *Triticum* sp. (wheat). Such assemblages of collected food plants with only a slight presence of cereals are typical of the period (Moffett *et al.* 1989). The lower layer in the pit (1404), also contained much charcoal of *Corylus avellana* (hazel).

The molluscs from the late Neolithic pit included shade-loving species such as *Ena obscura*, *Discus rotundatus*, *Clausilia bidentata* and *Oxychilus cellarius*, as well as open-country species such as *Helicella itala*, *Pupilla muscorum*, *Vallonia excentrica* and *V. costata*. It is possible that the area around the pit had not been fully cleared and there were vestiges of scrub from which the shade-loving species were able to colonise the pit, or there were still many shells of woodland snails in the soil which was used to backfill the pit.

### *Late Bronze Age/early Iron Age settlement contexts*

Charred plant remains were very sparse from the late Bronze Age/early Iron Age contexts. The bottom layer of one of the pits, feature 924, contained a few cereal grains including both *Triticum* sp. (wheat) and *Hordeum* sp. (hulled barley). Unfortunately, it was not possible to determine whether the wheat grains were from *T. dicoccum* (emmer wheat) or *T. spelta* (spelt wheat), the late Bronze Age being a period of transition between these cereals in the region. Two cereal grains were found in other features but chaff was absent. Feature 924 and another pit, 79, also contained some seeds of *Galium aparine* (goosegrass), a common arable weed which is characteristic of autumn-sown cereals. While the occupants of the settlement clearly used cereals, there was certainly no evidence of large-scale crop processing. There was only a slight trace of charcoal, which included possible Pomoideae (hawthorn, apple and similar), *Corylus avellana* (hazel) and *Quercus* sp. (oak). Charcoal was absent from the postholes.

The majority of the molluscs from the late Bronze Age/early Iron Age contexts were open-country species. They included *Helicella itala*, *Pupilla muscorum*, *Vertigo pygmaea*, *Vallonia excentrica* and *V. costata*. The area around the settlement had probably long been fully cleared and woodland snail shells were absent from any soil used to backfill features.