

STEART POINT, SOMERSET: ANIMAL BONE PUBLICATION REPORT

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Introduction

The assemblage comprises 2657 fragments (or 35.091 kg) of animal bone. This is a raw count and once conjoins are taken into account this falls to 2035 fragments. The bulk of this material was recovered by hand during the normal course of hand excavation, and the rest was retrieved from the sieved residues from a number of bulk soil samples.

Animal bone was recovered from all four of the open area excavations (Table 1), with the largest stratified groups coming from Areas 501 and 503, and small amounts from Areas 500 and 502, and the evaluation and watching brief stages of fieldwork.

Methods

A detailed methods statement is provided in the Site archive, in summary, the following information was recorded for each identified fragment; element, anatomical zone (after Serjeantson 1996, 195-200; Cohen and Serjeantson 1996, 110-12), anatomical position, epiphyseal fusion data (after O'Connor 1989), tooth ageing data (after Grant 1982; Halstead 1985; Hambleton 1999; Payne 1973), butchery marks (after Lauwerier 1988; Sykes 2007a), metrical data (after von den Driesch 1976; Payne and Bull 1982), gnawing, burning, surface condition, pathology (after Vann and Thomas 2006) and non-metric traits. This information was directly recorded into a relational database (in MS Access) and cross-referenced with relevant contextual information.

Quantification methods applied to the assemblage include the number of identified specimens (NISP), minimum number of elements (MNE), and minimum number of individuals (MNI). The term 'sheep' is used throughout this report to refer to all undifferentiated caprine (i.e. sheep/goat) remains.

Results

Preservation condition

Bone preservation was found to be quite variable between the various sites, and also between features and contexts in the same area. In general terms however most fragments were in a good to fair state of preservation, with intact cortical surfaces showing little or no signs of erosion. Poorly preserved fragments were noted from all four areas, and the condition of these fragments suggests that they had been reworked from earlier contexts or re-deposited after a period of surface exposure. In the most extreme cases cortical surfaces have been entirely eroded away effacing any butchery evidence.

Gnaw marks were evident of 5% of bone fragments, most of which are from Area 503. This suggests that scavenging dogs had greater access to accumulations of refuse than at the other investigated sites on the peninsular.

Middle/Late Iron Age

A small number of bone fragments were recovered from Middle/Late Iron Age contexts in Area 500, and evaluation Trenches 168 and 327. Poor preservation conditions and high levels of fragmentation mean that the assemblage is skewed towards the survival of more robust elements such as teeth, small compact bones from the ankle and foot, and the distal ends of some long bones (e.g. the tibia).

Sheep/goat skeletal elements account for 62% NISP (Table 2), and the majority are from spread 20060 in Area 500. Other identified species include cattle, pig and horse. The latter is represented by a lower molar tooth from spread 20060.

Romano-British

A modest-sized assemblage of animal bone was recovered from Late Romano-British features and deposits in Area 501, with smaller amounts from evaluation Trenches 316, 321, 324 and 327 in Area E. Approximately 41% of this material is identifiable to species and skeletal element, with relatively large groups recovered from contexts associated with two discrete spreads of stone rubble (20204 and 20213).

The assemblage is dominated by bones from livestock species, which together account for 87% NISP (Table 2). Based on NISP, MNE and MNI calculations it is clear that the pastoral economy of the peninsular during this period was primarily based on sheep

farming. Sheep account for between 62%-70% of livestock, while cattle account for between 25%-28%, and pig only 12%-4% depending on the method of quantification (Table 3).

All parts of the sheep carcass are represented in the assemblage including loose teeth and small bones from the foot and ankle. The body part information indicates that the whole carcasses are represented, and this is a general indication that sheep were slaughtered and butchered on the site. Indeed the most common sheep elements are the mandible, distal tibia and metapodials, all of which are considered to represent primary butchery waste. The body part data is however slightly skewed by three associated bone groups (or ABG's) from palaeochannel 20721 and stone rubble spreads 20204 and 20213. The remains from the palaeochannel consist of the skull, mandibles and lower fore- and hind-quarters from at least two separate animals (ABG 53), one aged between 3-4 years and the other between 4-6 years. The group (ABG 47) from stone rubble spread 20204 is largely composed of post-cranial elements, in particular foot bones such as metapodials and phalanges. These are from a minimum of at least three separate animals aged between 1½-2 years. The group (ABG 51) from stone rubble spread 20213 is particularly interesting since it is associated with the burial of a new born infant. The remains consist of post-cranial bones from the fore- and hind-quarters of at least two animals aged over 3 years.

The body part data for cattle also indicates that these animals were brought to the site on the hoof where they were slaughtered and butchered for local consumption. Mandible and other cranial fragments (e.g. pieces of skull, horn cores and loose teeth) are particularly common from the stone rubble spreads, which suggests perhaps that these areas are where animal carcasses were processed or at least where primary butchery waste was dumped. The overall number of pig bones is very small however there is enough of a range of different skeletal elements to suggest that whole pig carcasses are represented.

Age information based upon mandibular tooth wear and the epiphyseal fusion state of post-cranial bones is quite limited and only provides a rough indication of mortality patterns amongst livestock species. All of the 17 sheep mandibles recovered from Romano-British contexts are from animals over the age of 2-3 years. Indeed 35% of

sheep were culled in this age group, a further 30% between 3-4 years and the remainder between 4-6 years. A more intensive mortality pattern is suggested by the epiphyseal fusion data, which indicates that almost half of sheep were culled before the age of two years. The overall pattern suggests that sheep husbandry was geared towards a range of products, some sheep were culled to provide prime meat, whilst others were maintained as wool producers and breeding stock.

Only six cattle mandibles were recovered and these are from a range of different ages including calves aged 8-18 months and senile animals. This is largely confirmed by epiphyseal fusion data which indicates that 9% of cattle were culled as calves, a further 16% at *c.* 2-2½ years, and the rest as mature adults. This information, although limited appears to suggest that cattle were primarily managed for secondary products such as milk, and that prime beef production was only a minor concern. It is also highly likely that cattle were used as traction animals, in particular to plough the heavy clay fields on the peninsula.

Pigs appear to have been culled at a young age judging by the unfused state of post-cranial bones and a single mandible from a young animal aged between 7-14 months. This mortality pattern is fairly typical for pigs largely because they do not produce any secondary products, are relatively fecund and reach full body weight at a younger age than other livestock species.

Butchery marks are comparatively scarce but do nevertheless provide evidence for a range of different processes, including skinning, dismemberment, secondary portioning, filleting, and even specialist preparation techniques such as curing. Evidence for the latter was seen on cattle scapulae recovered from stone rubble spreads 20204 and 20213, and takes the form of cut marks on the medial side of the distal end and nick marks along the cervical margin of the blade. Cured meat has a longer shelf-life than fresh meat, and is likely to have been stored for use over the lean winter months. Cured shoulder joints of beef were also popular in urban areas during the Late Romano-British period (see for example Dobney *et al* 1996, 24-8), although here their consumption had more to do with Romanising influences on diet and less to do with self-sufficiency and food security.

In addition to evidence for the processing of animal carcasses for food, there is also limited evidence for horn-working. The evidence includes several sawn fragments of cattle horn core from stone rubble spreads 20204 and 20213.

Horse and dog are the only other two identified species from the Late Romano-British assemblage. Horse bones are common, accounting for 12% NISP, and the majority are from stone rubble spread 20213. The range of skeletal elements is consistent with the presence of whole carcasses, however, the number of metapodials relative to other skeletal elements is quite high, and one possible explanation for this is that horse metapodials were selectively retained or procured as raw material for object manufacture. For example, two metapodials from 20213 had been trimmed at either end and along the length of the shaft to produce uniform cylinders of bone ready for further modification or adornment.

Dog is represented by just three bones, a scapula and humerus from Area 501, and a mandible from one of the evaluation trenches in Area E.

Medieval

The medieval assemblage is smaller than the Late Romano-British assemblage but includes roughly the same number of identified fragments (Table 2). A large proportion (62%) of the assemblage is from Area 503, a further 18% from Area 502, and the rest from a few evaluation trenches, notably those targeting moated sites (e.g. Trenches 160, 165 and 167). Approximately 60% of fragments are identifiable to species and skeletal element, and relatively large groups were recovered from stone rubble spread 20504 in Area 502 and from ditch 21166 in Area 503.

The medieval assemblage is also dominated by bones from livestock species, which together account for 88% NISP. All three main quantification methods (NISP, MNE and MNI) indicate that sheep-farming was the mainstay of the local rural economy, much as it was during the Romano-British period, with sheep accounting for between 58%-61% of livestock (Table 3).

All parts of the mutton and beef carcass are represented in the assemblage, which suggests that livestock were brought to the site on the hoof to be slaughtered and

butchered for local consumption. Common elements include sheep distal tibia, and cattle mandibles and foot bones, all of which are generally discarded at the primary butchery stage of the carcass reduction sequence. There are however no large or obvious concentrations of butchery waste to indicate that certain activities were spatially organised, rather it would seem that the assemblage derives from mixed deposits of bone waste. For example, the relatively large group of material from stone rubble spread 20504 includes a number of cattle mandibles and foot bones, but equal numbers of good quality meat joints from the upper forequarter.

Only 17 pig bones were recovered, and the majority are from Area 503. Both cranial and post-cranial elements are present therefore it is likely that these animals were also slaughtered on the site.

Only a small number of complete mandibles were recovered from medieval contexts, and these are from sheep aged between 2-4 years, and cattle aged between 8-18 months and senile. This basic pattern is confirmed by the epiphyseal fusion data, which indicates that the majority of sheep survived beyond 2 years of age, while some cattle (*c.* 16%) were culled as calves but the rest survived into adulthood (Table 4). Age information for pig is extremely limited but suggests that these were culled as immature animals bred entirely for meat.

Butchery evidence is also quite scarce on bones in the medieval assemblage, nevertheless there was evidence for a number of different processes in the carcass reduction sequence, and even some, albeit limited evidence for specialist preparation techniques such as curing. Evidence for the latter was noted on a cattle and a pig scapula from two of the moated sites targeted in the evaluation.

The rest of the assemblage is made up of a diverse range of other species, including domestic and wild mammals, birds and fishes (Table 2). The horse bones are scattered between contexts, and are from both juvenile and adult animals. Butchery marks consistent with skinning and dismemberment were noted on a few horse bones, indicating that horse carcasses were utilised for their hides and meat. The latter was probably intended as dog food given the general aversion to the consumption of horseflesh by during the medieval period.

The only other identified mammal from the medieval assemblage is the stoat, which is represented by three bones from ditch 21410 in Area 503.

The bird bone assemblage includes a small number of fragments from domestic fowl, goose, duck and crow. One of the domestic fowl bones, a complete tarso-metatarsus from ditch 21369 in Area 503, is from an extremely small cockerel, roughly the size of a bantam. The size of the goose and duck bones indicates that these are also from domestic birds.

Fish bone was recovered from a number of sample residues. Identified species include roker (*Raja clavata*), ling (*Molva molva*), and possibly cod (*Gadus morhua*), or at least a similar-sized *Gadidae*. All of these species can be caught off the coast of Britain, and the site is ideally placed to take advantage of coastal resources.

Post-medieval

A small amount of animal bone was recovered from post-medieval contexts in Areas 502 and 503. Fifty-four percent of fragments are identifiable to species (Table 2), and relatively large groups were recovered from ditch 21048, latrine pit 21165, and layer 21421 in Area 503.

Sheep bones are common and account for 57% NISP. All parts of the mutton carcass are represented, and common elements include mandibles and metapodials. These elements are usually discarded at the primary butchery stage, however the metapodials are frequently left attached to the skin because they are useful during the tanning process (e.g. for hanging and stretching; see Yeomans 2007, 111). The largest concentration of metapodials is from latrine pit 21165 at the north end of Area 503.

The group includes equal numbers of metacarpals and metatarsals from a minimum of seven sheep, as well as skull fragments from a juvenile and adult animal. Approximately 40% of the metapodials have unfused epiphyses and are therefore from sheep under the age of 13-16 months, the rest are from sheep over the age of 1½-2 years. The average withers (or shoulder) height of these animals is 0.54m, with a range of 0.48m-0.62m. The size range is similar to the sheep from post-medieval Exeter in

Devon (Maltby 1979, 183 and 185), which varied from 0.47m to 0.63m at the shoulder. It has not been possible to determine if there were any changes in the size or conformation of livestock that might be associated with improvements in husbandry techniques brought about by the 'agricultural revolution' (Albarella and Davis 1996, 58; Albarella *et al* 2009, 91), which some historians suggest was an earlier and more gradual processes than is often claimed (Kerridge 1967). However, Maltby (*ibid* 51) noted that at Exeter '*the improvement in size of sheep in the post-medieval period was not reflected in the estimation of withers heights, which showed at most a small increase*'.

Cattle are the second most common species after sheep, accounting for 23% NISP, while pig bones account for only 12% NISP. Most parts of the beef and pork carcass are represented, which suggests that cattle and pigs were slaughtered locally, perhaps even within the confines of the moated site itself.

The available age information suggests that sheep were culled between the ages of 2-3 years and 8-10 years, and this pattern is consistent with a mixed economy base on the production of wool and prime mutton. Based on limited data it would appear that most cattle were culled as adult animals, while most pigs were less two years of age when selected for slaughter.

The post-medieval assemblage also includes a small number of horse, dog, and domestic fowl bones, and single bones from a roe deer and fish of the *Gadidae* family.

Discussion

Analysis of the animal bone assemblage recovered from the four excavation areas on the Steart Point peninsula indicates that the pastoral economy was similar to the present day and largely based upon sheep-farming, which is general more suited to exposed areas with rough pasture fields that are prone to seasonal waterlogging. Prior to land reclamation during the Romano-British period (Rippon 2000), the coastal salt-marshes of the peninsula were probably only used on a seasonal basis, as for example at Hallen, near Avonmouth, which has been interpreted as a seasonally occupied grazing settlement (Gardiner *et al* 2002), however once drained and protected from high tides

behind embankments the land could be grazed all year round (Rippon 2006). Indeed by the 13th century, the monastic estates of Glastonbury Abbey grazed a significant proportion of its 7000 head of sheep along the coast (Trow-Smith 1957). The above explains why the evidence for Middle/Late Iron Age occupation of the peninsula is so ephemeral.

The general composition of the animal bone assemblages recovered from the larger excavation areas (i.e. 501 and 503) is typical of the type of mixed bone waste that accumulates in and around settlement sites where animals are brought in from the surrounding fields to be slaughtered and butchered for local consumption, and carcass by-products such as hides, horns and bones are also utilised. This self-sufficiency is also evident in some of the specialist butchery techniques employed to preserve meat for use over the lean winter months.

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