

## **APPENDIX 11: ASSESSMENT OF ANIMAL BONE**

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### **1. Introduction**

- 1.1 Animal bones were recovered during excavation works at the Watching Brief sites ARC 330 98.
- 1.2 Animal bones were recovered by hand-collection on site and through wet-sieving bulk samples taken in the field. All hand-collected animal bones were washed and air-dried, then bagged and labelled as context groups. Bulk samples were washed using a modified Siraf tank fitted with 1.0mm and 0.25mm flexible nylon mesh to retain the residue and flot fractions respectively. These fractions were visually sorted for floral and faunal remains and labelled as individual sample groups.
- 1.3 The study of the material was carried out to study the following fieldwork event aims,
  - to establish changes in the local environment through the recovery of suitable palaeo-environmental samples from the fills of cut features.
  - to investigate patterns of natural resource exploitation through the recovery of economic indicators such as faunal and charred plant remains.

### **2. Methodology**

- 2.1 All contexts containing faunal remains were analysed and recorded onto the Oracle CTRL animal bone database (RLE Dataset). No sub-sampling of contexts was carried out.

### **3. Quantifications**

- 3.1 A total of 5.90kg, approximately 520 fragments, of animal bones were hand recovered from 57 contexts, and an additional 0.24kg or 270 fragments, from 44 soil samples. Amongst the hand collected assemblage, 305 fragments were identifiable to species and body part. This included 82 bones with potential for ageing data, 12 that can be measured and nine showing evidence of butchery. There were also two examples of worked bone. The samples provided 46 identifiable bones. The combined information from the site assemblage organised by feature and date, along with the data drawn from a selection of contexts are given in the tables below.
- 3.2 The last table shows the percentage of identifiable fragments represented by each of the specified species groups. The representative sample of context assemblages within this table clearly show a general dominance of the major domesticates, cattle, sheep/goat and pig. In addition the data shows that the predominant species in most cases is sheep/goat.

#### 4. Provenance

- 4.1 Most of the bone material was in a generally moderate to good condition, here referring to the surface condition of the bone fragments. There were only six assemblages where the overall condition was poor. These few contexts offer no discernible pattern (spatial or temporal) to explain their poor condition. Fragmentation was generally low to moderate. Here, fragmentation is divided into three size categories, where 'low' describes an assemblage where the majority of bones are at least 75mm in length. It can be suggested that the bones from this area were generally in better condition than those from the other chainage zone watching brief excavations (ARC 330 98 within Zones 1 to 3, and 5). This is also shown by the good representation of identifiable bones and the fact that these bones are represented by a wide range of skeletal parts. It was noticeable within these other areas that most of the identifiable bones were teeth, a sure sign of advanced fragmentation.
- 4.2 Animal bones were found within a variety of deposits, the majority arising from pitfills, with lesser quantities from ditches, a well, a trackway, a hearth and then from a few layers (unconnected to deep features). The dating is generally good, although certain features did provide deposits dating to different periods, and also there are a number of undated deposits. Overall, the date range covers the Late Bronze Age through to the early medieval period - up to the 13<sup>th</sup> century AD. There is a possibility of some post-medieval occupation/use, but no such dating could be connected, at the time of writing, with the bone bearing deposits.
- 4.3 Most of the pitfill assemblage was recovered from 10 pits dated to the Late Bronze Age/Early Iron Age period. Well over 75% of these bones were taken from just 5 of these pits, including a large quarry pit and two others [1172] and [1174] (Figure 6). In general, these pit assemblages were dominated by the domestic mammals, in the order of sheep/goat followed by cattle and then pig. A notable feature of these domesticates is the relatively good representation of very young individuals, with one example of a young lamb and two examples of young calves. These are likely to represent infant mortalities, here providing clear evidence for the local rearing/breeding of domestic stock. Other species include a small quantity of horse bones and three deer fragments. The latter include food waste, a roe deer tibia, and two red deer antler fragments, one of which clearly represents working waste (see Appendix 10). The horse bones could represent food waste. One of these, a pelvis, shows a clear butchery mark, undoubtedly made by a heavy metal instrument.
- 4.4 The samples taken from these early pits provided relatively small assemblages. These confirmed the dominance of sheep-sized domesticates. The quantities were rarely sufficient to allow for a valid proportional comparison of sheep/goat or pig, although it was very clear that sheep rather than cattle-size fragments were predominant. These samples produced a small number of additional species/species groups, including bird (not identifiable) and amphibian (with potential for identification).
- 4.5 Two of these pits (from a total of four deposits) produced considerable quantities of small rodent bones (see those contexts with high proportions of small mammal). The rodents were identified from their skulls/mandibles (Lawrence and Brown, 1973) as field vole and wood mouse, with at least six individuals (3 voles and 3 mice) from one fill and another three individuals (with one identified as vole) from the other fill. It can be conjectured that these rodents may represent

the remains of owl pellets or that they fell into open features which acted as pit-fall traps.

- 4.6 Relatively small bone assemblages were recovered from the few pits dated between the early Iron Age and early Roman occupation periods. In all cases, as with the earlier pitfills, there is a clear dominance of the major domesticates. The quantities of identifiable bones within these deposits were generally insufficient to warrant any valid pronouncements on the representation of these domesticates. However, one late Iron Age/early Roman pitfill, did produce a reasonable assemblage, 20 identifiable bones, which was clearly dominated by sheep/goat. The other species present amongst these pitfills, include horse, red deer and vole, all from early Iron Age features. The vole represents the single identified bone from the few samples taken from these later prehistoric and Roman pitfills. Notably, deer are represented by a sawn antler fragment.
- 4.7 The medieval pits provided a small number of moderately sized bone assemblages. Within the ubiquitous dominance of the major domesticates, it is perhaps interesting to see a continuation of the predominance of sheep/goat. As with the earliest pitfills, there is again evidence of local production, here shown by the presence of an infant lamb shoulder blade. The other species represented within the hand collected assemblages are horse and roe deer. Unlike the majority of the deer remains found elsewhere, this animal is clearly represented by a food waste item, a tibia (shin bone). The samples mainly produced unidentifiable sheep-size fragments, although one did produce a sheep/goat and a pig bone, while another provided a mix of species, including, fish, amphibian, small mammal and pig. The fishbones were identified as gadid (cod family) and eel. Notably, this latter deposit is the only dated feature found at this site which produced fishbones (Figure 10).
- 4.8 As mentioned above, bones were found within a variety of other features, as well as pits. In the prehistoric period, a small quantity of bones was recovered from a single Late Iron Age ditch (from a sample) and also from a sump dated to the same period. Neither assemblage provided any identifiable fragments.
- 4.9 Most of the Roman assemblage, not counting that associated with the Late Iron Age, was recovered from a variety of other features, including two ditches, a well and a trackway. Each of these features provided a few bones, with identifiable fragments limited to the well and trackway, represented by two sheep/goat and one horse bone respectively.
- 4.10 The remaining medieval assemblage, similarly dated to the pitfills, was recovered from the fills of three sections of boundary ditches. These produced a very small number of bones with a handful of identifiable fragments, composed of a mixture of sheep/goat and cattle fragments.
- 4.11 A relatively large proportion of the site assemblage remains undated. This includes bones from a variety of feature types. Here it is worth mentioning the contents of two of these features. A sample taken from a pitfill [161] (Figure 11) provided a small collection of fishbones, including gadid (cod family), eel and clupeid (herring/sprat). As there is a distinctly poor representation of deposits at this site with fishbones, it is of paramount importance that some dating evidence is found for this deposit. The second feature, a hearth, provided a few bones, all of which are calcined. The condition of these bones can be used as an aid to the interpretation of other calcined assemblages recovered at this site (see below).

- 4.12 Finally it should be mentioned that there is a general scatter of burnt bones throughout the site deposits (in addition to the hearth assemblage described above), with a concentration within the prehistoric features. Some of these are merely charred, while others have become calcined. Small concentrations of calcined bones were found, most notably from the Late Bronze Age/Early Iron Age pitfill [401] and the Late Iron Age ditchfill [555]. Each of these fills provided small assemblages which are entirely composed of calcined animal bone fragments. A possible ritual association cannot be discounted. Obviously they do not represent the remains of human cremations. While they may represent the cattle or sheep ritual equivalent, their similarity to the bones from the aforementioned hearth, would strongly suggest that they are more likely to be the remains of hearth sweepings.

## **5. Conservation**

- 5.1 It is recommended that all material be retained for the next stage of analysis and for future comparative work.

## **6. Comparative material**

- 6.1 Any comparisons will clearly have to take into account the relative quantity of bones from the respective occupation periods. At this site, most of the bones were recovered from the Late Bronze Age/Early Iron Age and early medieval periods. The nearest and perhaps largest assemblages dating to these periods, within the North Kent area, include those excavated as part of the present project. Moderately sized late Bronze Age/early Iron Age and medieval assemblages were recovered from a series of features, mainly pits, within the Hazells Farm site and Hazells road/Northumberland Bottom sites respectively (Area 330 Zone 3), while a relatively large medieval assemblage was excavated from Parsonage Farm on the CTRL.
- 6.2 Further comparisons could include the bones recovered from the Iron Age farmstead at Farningham Hill in the Darent Valley (Locker 1984. 71), and, though somewhat distant, the very large Bronze Age assemblage recovered from Runnymede.

## **7. Potential for further work**

- 7.1 This excavation provided a moderately sized bone assemblage which is clearly in good condition and generally well dated. The late Bronze Age/early Iron Age and medieval collections are clearly the major components of this assemblage, and each of these provided reasonable quantities of age and size data. There is therefore, at least regarding these two periods, some potential for further analysis. This analysis should follow the recording of a range of aspects within each of the chosen assemblages, including the state of the bones (fragmentation and preservation), species, skeletal part, age (epiphysis fusion and mandible tooth eruption and wear), sex and size data. It would be appropriate to record this data onto a database, as for example that used at the Museum of London Archaeology Services incorporating Oracle. The analysis will then proceed with the intention

of describing any species differences between the major periods, as well as any changes in exploitation patterns (this based on a review of the age and sex data) and also any changes in size. The latter two analyses will almost certainly be limited to the major domesticates ie cattle, sheep/goat and pig.

- 7.2 The questions/aims asked in the introduction to this report are concerned with economic and environmental indicators. Turning first to the economic question, there are sufficient quantities of bones throughout the prehistoric (including the Late Iron Age/Early Roman levels) and medieval deposits to suggest which animals were used. Notably, samples were taken, to a lesser or greater extent, from each period. Thus it can be suggested that the species representation is unlikely to be biased against the smaller species. The evidence for exploitation strategies (age information) is best represented amongst the assemblages from the earliest and latest occupation levels. Here it should be possible to suggest how the individual domestic species were exploited and whether on an extensive or intensive basis.
- 7.3 The setting of the site, the presence of domesticates and other work/food animals (such as horses), would strongly suggest a continuation of a small rural community. There is certainly evidence that it was a production site, at least during the late Bronze Age/Early Iron Age and the medieval periods. There is no clear indication, at least from the present analysis, of the status of these communities. Deer remains can often be viewed as the remains of high status foods, although this interpretation is perhaps best used either within an urban setting, reflecting the difficulty of obtaining such foodstuffs, or within a medieval community where hunting was generally viewed and, indeed, kept, as a pastime for the more affluent members of society. Notably, one roe deer fragment was recovered from a medieval deposit, which may be indicative of high status. However, this conclusion cannot be viewed as absolute when it is dependent on just one bone. It is unfortunate that the Roman levels produced so few bones. A possible indicator of status here would have been the proportion of cattle against sheep/goat and pig. A high count of cattle is generally taken to mean a greater level of Romanisation and, by inference, a higher level in local society.
- 7.4 Of some interest regarding the species used during these periods, is the food use made of the horse from the earliest levels and the apparently very poor representation of fish, this only appearing within the medieval levels. It is well known that horses were valued food items during the Iron Age in this country (Maltby 1981. 184), and indeed the single example may date to this period. Any further analysis of the horse bones, from the prehistoric levels, should aim to closely examine the other bones for butchery marks. The absence/lack of fishbones would appear to be a common trait of prehistoric sites (Serjeantson pers comm), which would appear to be deliberate.
- 7.5 The possible connection between deer and status, at least in the medieval period, was mentioned above. Overall, the presence of such animals would perhaps suggest the use of local resources, with perhaps the intention being to supplement the general domestic diet as well as to provide some raw materials for craft purposes. Note the presence of antler (worked and unworked) within the earlier periods. It can certainly be imagined that most of the meats used by these communities were derived from local sources, principally the surrounding farmland, of which these sites were a part. These could also include the fish represented within the medieval levels, where the gadidae (cod family) may have derived from the Medway estuary and the eels from a local river. Conversely the

estuarine fish may have been caught somewhat further afield, and these may then represent evidence of imported foodstuffs.

- 7.6 There is also some potential for study of evidence concerning the local environment. A notable aspect of the prehistoric assemblage, and indeed the medieval assemblage, was the good representation of sheep. This would clearly suggest the local availability of suitable pasturage. In addition, there is a good representation of cattle throughout these period assemblages. Such animals were generally used as the major beast of burden, including their use as plough animals. Thus, the proportion of cattle can be used to roughly gauge the proportion of the local area which had been turned over to arable land.
- 7.7 It was noted that two of the late Bronze/early Iron Age pits provided copious quantities of small rodent bones. As these are identifiable to species, eg wood mouse and field vole, there is an obvious potential for determining the nature of the environment within this local area during this period. These pits also produced a few amphibian bones, which are potentially identifiable to species and so these could also add further data to the environmental interpretation.
- 7.8 There is one obvious addition to the above noted research aims/objectives. This concerns the analysis of the size and/or type of domesticates exploited. Notably, the two largest assemblages, and in particular that from the earliest level, provided a large number of measurable bones.

## **8. Bibliography**

Lawrence, MJ and Brown, R W, 1973, *Mammals of Britain: Their tracks, trails and signs*. London.

Maltby, M, 1981, 'Iron Age, Romano-British and Anglo-Saxon animal husbandry - a review of the faunal evidence. In M. Jones and G. Dimbleby (eds). *The environment of Man: the Iron Age to the Anglo-Saxon period* B.A.R. *British Series 87*. 155-203.

Table 1: Distribution of Animal Bones in Area 330 Zone 4 by period and feature type

Feature/ Interpretation	Period	Hand collected			Sieved		
		N.cont	N.	Wt	N.Samp	N	Wt
Pits	LBA	29	317	3.192	24	127	0.179
	EIA	3	24	0.536	3	30	0.013
	LIA	2	11	0.14			
	LIA	2	34	0.391	1	5	0.001
	RO	1	1	0.01			
	MD	5	63	0.599	5	23	0.016
	UN	4	40	0.392	2	55	0.026
Ditches	RO	1	6	0.02			
	LIA				1	2	0.001
	RO	1	1	0.03			
	MD	2	5	0.09	3	10	0.004
	UN	1	2	0.344	1	3	0.001
Well	RO	1	2	0.02			
Trackway	RO	1	1	0.03			
Hearth	UN				1	10	0.001
Other	LIA	1	10	0.02			
	LIA/RO				1	2	0.001
	UN	2	2	0.03	1	1	0.001

N.cont number of contexts, N.Samp. number of samples, N approximate number of bones, Wt weight (in kilograms)

Table 2: Quantities of Identified Bones, and age and size data

Hand collected bones only.

Period	N.bones	N.iden	N. Ageable	N. Meas	N. Butch	N.Worked
LBA	317	199	47	5	7	2
EIA	24	19	5	1	0	1
LIA	11	4	3	0	0	0
LIA/RO	34	20	5	0	0	0
RO	1	0	0	0	0	0
MD	69	48	16	4	1	0
UN	40	5	3	2	1	0

N - approximate number of bones. Iden - bones identifiable to species/species group

Table 3: Assessment of Animal Bone – species, quantity and interpretation for a selection of context assemblages

Organised by date and feature type.

Context	S.No	Interpretation	Period	% of identified fragments									Count	Weight
				Sheep goat	Cattle	Pig	Horse	Dog	Small mammal	Bird	Fish	Other		
ARC 330 98														
373	0	Pit	LBA/EIA	60	30	10	0	0	0	0	0	0	40	0.65
373	82	Pit	LBA/EIA	0	0	0	0	0	0	0	0	100	5	0.003
352	0	Quarry pit 372	LBA/EIA	50	50	0	0	0	0	0	0	0	10	0.25
352	81	Quarry pit 372	LBA/EIA	0	0	0	0	0	0	0	0	0	2	0.003
385	0	Quarry pit 372	LBA/EIA	80	20	0	0	0	0	0	0	0	8	0.17
386	0	Quarry pit 372	LBA/EIA	60	40	0	0	0	0	0	0	0	15	0.38
386	89	Quarry pit 372	LBA/EIA	0	0	0	0	0	50	50	0	0	12	0.01
389	0	Pit	LBA/EIA	100	0	0	0	0	0	0	0	0	25	0.18
389	91	Pit	LBA/EIA	0	0	100	0	0	0	0	0	0	4	0.002
411	100	Pit	LBA/EIA	0	0	0	0	0	0	0	0	0	10	0.006
1175	0	Pit 1174	LBA/EIA	50	33	0	0	0	0	0	0	17	10	0.1
1175	328	Pit 1174	LBA/EIA	0	0	0	0	0	0	0	0	0	3	0.001
1187	0	Pit 1174	LBA/EIA	100	0	0	0	0	0	0	0	0	10	0.098
1187	334	Pit 1174	LBA/EIA	0	0	100	0	0	0	0	0	0	2	0.003
1196	0	Pit 1174	LBA/EIA	0	0	0	0	0	100	0	0	0	20	0.001
1196	338	Pit 1174	LBA/EIA	0	0	0	0	0	90	0	0	10	15	0.005
1186	0	Pit 1172	LBA/EIA	0	0	1	0	0	62	0	0	37	100	0.02
1186	339	Pit 1172	LBA/EIA	0	0	0	0	0	0	0	0	0	1	0.002
1193	0	Pit 1172	LBA/EIA	12	55	33	0	0	0	0	0	0	25	0.238
1193	340	Pit 1172	LBA/EIA	0	100	0	0	0	0	0	0	0	3	0.041
415	0	Pit	EIA	0	70	30	0	0	0	0	0	0	10	0.18
416	0	Pit	EIA	25	25	0	50	0	0	0	0	0	10	0.3

Context	S.No	Interpretation	Period	% of identified fragments									Count	Weight
416	99	Pit	EIA	100	0	0	0	0	0	0	0	0	10	0.008
741	0	Pit	EIA	0	33	0	0	0	0	0	0	67	4	0.056
509	0	Pit	LIA	30	70	0	0	0	0	0	0	0	10	0.12
633	0	Sump	LIA	0	0	0	0	0	0	0	0	0	10	0.02
1149	0	Pit	LIA/RO	80	10	5	5	0	0	0	0	0	30	0.361
538	0	Well	RO	100	0	0	0	0	0	0	0	0	2	0.02
162	0	Pit 163	MD	75	0	0	25	0	0	0	0	0	10	0.12
179	30	Pit 163	MD	0	0	38	0	0	13	0	36	13	12	0.008
605	161	Pit 463	MD	0	0	0	0	0	0	0	50	50	4	0.001
769	0	Pit	MD	24	50	13	13	0	0	0	0	0	10	0.203
769	231	Pit	MD	50	0	50	0	0	0	0	0	0	3	0.004
771	0	Pit	MD	78	10	8	0	0	0	0	0	4	40	0.255
807	235	Ditch	MD	0	0	0	0	0	0	0	0	0	5	0.001
1225	0	Ditch	RO	0	0	0	0	0	0	0	0	0	6	0.02
1232	0	Trackway	RO	0	0	0	100	0	0	0	0	0	1	0.03

A number of pits have been given context numbers (in the Interpretation column) to show how various fills are from the same feature.