Ancient Monuments Laboratory
Report 156/87

ANIMAL BONES FROM ABBOTS WORTHY (ITCHEN ABBAS ROAD), HAMPSHIRE.

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Summary

This small but very interesting collection of Saxon material from the M3 Motorway Watching Brief provides a sample from both grubenhaus and pit contexts and an attempt has been made here to compare the results from these two different deposit types.

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SUPPORTING ARCHIVE TABLES

ANIMAL BONES FROM ABBOTS WORTHY

INTRODUCTION

The bones described here were given an urgent first appraisal by Mrs Jennifer Bourdillon in 1985 (Bourdillon n.d.) in which it was recommended that the material should be recorded in detail. This report should therefore be read in conjunction with Bourdillon's earlier comments, which still stand, although an attempt at a more detailed contextual analysis has been possible now that full stratigraphic details and the results of sieving are available. The full archive for the site is attached to this report and includes a list of the computer archive and its whereabouts (Table A17). The methods used were the normal ones of the Faunal Remains Unit based on the Ancient Monuments Laboratory's computer coding system. Full results for the bones computer coded are in Table 1 with a key to species in Table 2.

Features and Layers Represented

The bones were recorded by layer and studied according to the features in which they were found. Five grubenhauser were represented and a number of pits. Detailed results for all grubenhauser and the six most productive pits are given in the archive (Tables A5-A15). Where bones resulted from the excavation of sections, halves, and quadrants of features the letters given to these parts by the excavator have been noted in the computer archive in Field 12 against the feature number, e.g. F7345B.

In cases where discrepancies in the available information were noted, layers were assigned to the feature with which they were associated on the bone bags. A full checklist of layers with animal bone is in Archive Table A1. In two cases an explanation should be added though. Bones from Pit 7341 labelled 'Layer 7337' were assumed to come from Layer 7377 on the basis of a tooth in one fitting the cattle jaw in the other. Second, there appear to be two collections called 'Layer 7344'. That in Pit 7404 has been left as 7344, that in Pit 7341 has been called Layer 73449 in the final archive.

Retrieval and Sieving

It has been impossible to separate material from sieving from that from normal retrieval in all cases. This is unfortunate and no doubt due to the extreme urgency of the rescue threat and the impossibility of involving the environmental archaeologists more closely in the sampling strategy. Layers from which bulk samples were subjected to wet-sieving are listed in Archive Table A2, and Table A4 lists those bones from these which were computer coded. Because of the imperfect controls on the sieved sample only identifiable fragments of the larger animals and the fragments identified to known microfaunal groups - small mammals, amphibians, and fish - were actually recorded from the known sieved samples and all these results are flagged in archive with the soil sample number and the word 'sieving'.

TABLE 1 DISTRIBUTION OF ANIMAL BONE FRAGMENTS

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	7	-	-	-	19	-	-	-	-	-	-	-	-	-	-	26
skull	-	60	34	12	35	4	-	-	-	-	-	1	2	-	-	-	1	149
hyoid	-	6	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
maxilla	3	7	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	16
mandible	-	60	65	12	3	-	-	-	-	-	2	-	-	-	-	-	-	142
vertebra	1	47	19	5	26	16	-	-	-	-	3	-	3	4	-	7	20	151
rib	-	49	13	2	107	250	-	-	-	-	-	-	-	3	5	-	-	429
sternum	-	-	1	-	-	-	-	-	-	-	-	-	1	3	-	-	-	5
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	3	1	1	-	-	5
scapula	1	32	17	10	11	3	-	1	-	-	-	-	4	1	-	4	-	84
humerus	1	17	21	6	6	2	-	-	-	1	1	-	6	3	-	9	-	73
radius	-	15	30	5	2	3	-	-	1	3	-	-	8	-	-	-	-	67
ulna	1	13	9	4	-	-	-	-	-	-	-	-	7	-	-	-	-	34
pelvis	-	20	9	1	5	2	-	-	-	1	1	-	1	-	-	11	-	51
femur	-	16	8	2	3	13	-	-	-	-	2	-	5	-	-	11	-	60
patella	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
tibia	2	28	54	5	7	2	-	-	-	1	-	-	10	1	-	11	-	121
fibula	-	-	-	8	-	-	-	-	-	1	-	-	1	1	-	-	-	11
carpal/tarsal	1	24	3	-	-	-	-	-	-	-	1	-	4	-	-	-	-	33
metapodial	-	47	59	9	-	-	-	-	-	-	-	-	15	-	-	-	-	130
phalanx	1	17	9	3	-	-	-	-	1	-	1	-	-	-	-	-	-	32
loose teeth	8	43	82	20	-	-	-	-	-	-	8	-	-	-	-	-	-	161
l.b.fragment	-	-	-	-	360	429	-	-	-	-	-	-	-	-	3	46	-	838
fragment	-	-	-	-	128	43	-	-	-	-	-	231	-	-	-	-	-	402
TOTALS	19	502	443	108	693	767	19	1	2	7	19	232	70	17	9	99	21	3028

TABLE 2 SPECIES ABBREVIATIONS USED IN TABLES

HOR	domestic horse
COW	domestic cattle
SHE	domestic sheep or identified to 'ovicaprid'
PIG	domestic pig
LAR	large ungulate
SAR	small ungulate
RED	*Cervus elaphus*, red deer
RAB	*Oryctolagus cuniculus*, rabbit
DOG	domestic dog
CAT	domestic cat
MIC	*Microtus agrestis*, field vole
SMM	small mammal
MAM	unidentified mammal fragment (probably mostly LAR/SAR)
FOW	domestic fowl
GOO	domestic goose
BIR	unidentified bird fragment (probably mostly FOW)
RAN	*Rana* sp, frog
BUF	*Bufo* sp, toad
AMP	amphibian
EEL	*Anquilla anquilla*, common eel
FIS	unidentified fish fragment

In addition to the material from the bulk soil samples, material from some contexts was dry-sieved and where this is suspected a comment has been included in Field 12 for those records. Like the material which it is known came from wet-sieving, these fragments have been excluded where possible from the percentage representation discussions below.

A far stronger bias on animal bone results is the tricky problem of comparability of 'normal' retrieval from site to site. The animal bone results provide some evidence that the great urgency of the rescue work resulted in a lower retrieval rate for small fragments than on a number of other M3 rescue sites. Calculations of cattle and sheep phalanx indices using the methods of Maltby give values of 33% and 0% respectively (Maltby 1985i, 39). It is important to be aware of such points in order that comparisons with other material take them into account.

Worked Bone and Antler

During Bourdillon's assessment in 1985 a number of catalogued worked bones or objects were commented on by Ian Riddler (Riddler n.d.). Some additional worked material was pulled out during the computer coding and returned to the Trust for Wessex Archaeology at Salisbury. These items are listed in Table A16.

RESULTS

Table 1 shows the overall animal bone finds, including those from sieving. A full list of species abbreviations used both in the text and in archive is given in Table 2 and Table A3. For the reasons given above it is impossible to provide a table of bones retrieved by trowelling alone. However, if the bones from the wet-sieving in Table A4 are subtracted from those in Table 1 and all other SMM, MAM, AMP, and FIS categories are ignored this would probably give a good approximation. Tables 3 and 4 give the collated values for all five grubenhauser and for all pit results, respectively.

Domestic Ungulates - Relative Importance

Most of the bones are either specific to domestic cattle and sheep or small fragments probably derived from them (LAR and SAR categories) with a much lower proportion of pig. Throughout the computer archive ovicaprid remains are recorded as 'sheep or goat' except where distinctive specific anatomical criteria were present. Bourdillon recognised 3 probable goat fragments but the bones on the site are overwhelmingly sheep and the code for sheep has therefore been used in all the tables in this report to include all the ovicaprids. The results for the whole site in Table 1 give roughly equal quantities between large and small ungulate remains. Table 5 gives the specific percentages for the whole site, the two major types of feature and the eight individual features with the largest samples. It finally shows the percentage of ungulate fragments which could be identified to the cattle, ovicaprid, and pig categories rather than left as 'large or small ungulate'. A sample size of 100 ungulate fragments was taken as the arbitrary lower limit here.

There are minor differences observable in the distribution of the species and in fragmentation but these are difficult to

pin down and variations in sample size may account for some of them. There seems to be more cattle in grubenhaus deposits and more sheep and pig in pits (Tables 3, 4 & 5). There is a slightly higher level of identifiability in pit than in grubenhaus material and a more detailed analysis of fragment size and the products of individual layers might show the extent to which this is a depositional phenomenon, perhaps with material arising from the hut depressions being either more heavily exploited or at least some of it resulting from trampled material from nearby which came to rest in the depressions after they had ceased to be used. There is a high incidence of splinters as opposed to cylinders in the fragmentary animal bones which suggests a degree of trampling.

The grubenhaus results, with their suspicion of greater fragmentation of small ungulate material, are largely a reflection of the results from F7339 which had the largest bone sample of any feature on the site. But this feature alone cannot account for the suspicion of higher cattle results for grubenhauser as the sample from F7445 has high results for cattle too and does not present a lot of small ungulate fragments. The results for individual features are discussed in more detail in the contextual section.

The overall low value for pig is comparable with values for nearby downland in Roman times and there is no doubt that these well-drained lands provided good grazing for cattle and sheep (Maltby 1985ii). But it is difficult to pitch the proportion that pig would have represented of the diet at Abbots Worthy, as pits provide a different story from grubenhaus deposits. Pig bones are deposited in a different way from those of cattle and sheep and a number of factors which influence pig percentages obtained from bones have been discussed elsewhere (Coy 1985). One of these, referred to as the 'King Index' after the work on Roman pigs by King (1978), is low at this site i.e. it has a high representation of long bones, showing that the pig results here are not unnaturally biassed downwards by preservation only of jaws.

There were only 19 bones of horse for the whole site and 16 of these came from pits. They are detailed in the contextual section.

Domestic Ungulates - Size

The complete set of measurements for the site is stored in archive and Bourdillon's comments on the size of the cattle still stand, even in comparison with what is now a phased and larger measurement set from Hamwic (Bourdillon n.d.). The few measurements of withers height she quoted compared well with good sized animals from Hamwic. One or two bones, such as the metatarsus in F7623, Layer 7624, are large for a Saxon context. But breadth measurements, as Bourdillon pointed out, are on average somewhat below those of Hamwic.

Sheep bone breadths were on the whole smaller than what Bourdillon expected from Hamwic and she compared the Abbots Worthy ones with other rural Saxon material from Hampshire (Bourdillon n.d.). Now that phasing of Middle Saxon Hamwic is possible it is of interest to compare some of these sheep bone breadths from Abbots Worthy with the ranges being developed for Hamwic material regarded as Early Middle Saxon (Bourdillon in prep and pers comm). This has been done for a few measurements in Table 6. The small samples from Early Hamwic seem to suggest that the upper end of the ranges were higher there than at Abbots

TABLE 3 DISTRIBUTION OF FRAGMENTS IN GRUBENHAUSER

	hor	cow	she	pig	lar	sar	red	dog	cat	smm	mam	fow	goo	bir	amp	TOTAL
antler/hc	-	1	4	-	-	-	16	-	-	-	-	-	-	-	-	21
skull	-	42	20	2	14	3	-	-	-	-	-	1	-	-	-	82
hyoid	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	4
maxilla	-	7	-	1	-	-	-	-	-	-	-	-	-	-	-	8
mandible	-	41	30	4	-	-	-	-	-	2	-	-	-	-	-	77
vertebra	-	23	10	1	13	10	-	-	-	1	-	2	-	-	1	61
rib	-	36	7	-	81	170	-	-	-	-	-	-	-	-	-	294
sternum	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	3
scapula	-	18	14	4	5	2	-	-	-	-	-	4	-	-	-	47
humerus	1	3	6	1	2	1	-	-	-	1	-	3	1	-	1	20
radius	-	8	17	3	2	2	-	1	1	-	-	8	-	-	-	42
ulna	1	8	1	1	-	-	-	-	-	-	-	1	-	-	-	12
pelvis	-	10	4	-	1	-	-	-	-	-	-	1	-	-	1	17
femur	-	7	1	1	1	10	-	-	-	2	-	5	-	-	-	27
tibia	1	11	25	2	2	2	-	-	-	-	-	9	-	-	-	52
fibula	-	-	-	5	-	-	-	-	1	-	-	-	-	-	-	6
carpal/tarsal	-	10	-	-	-	-	-	-	-	-	-	4	-	-	-	14
metapodial	-	19	28	7	-	-	-	-	-	-	-	7	-	-	-	61
phalanx	-	8	2	2	-	-	-	-	-	-	-	-	-	-	-	12
loose teeth	-	23	26	2	-	-	-	-	-	-	-	-	-	-	-	51
l.b.fragment	-	-	-	-	169	251	-	-	-	-	-	-	-	1	-	421
fragment	-	-	-	-	78	40	-	-	-	-	230	-	-	-	-	348
TOTALS	3	278	196	36	368	491	16	1	2	6	230	46	3	1	3	1680

TABLE 4 DISTRIBUTION OF FRAGMENTS IN ALL PITS

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	2	3	-	-	-	1	-	-	-	-	-	-	-	-	-	-	6
skull	-	8	14	10	20	1	-	-	-	-	-	1	-	-	-	-	1	55
hyoid	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
maxilla	3	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	8
mandible	-	17	34	8	3	-	-	-	-	-	-	-	-	-	-	-	-	62
vertebra	1	22	9	4	13	6	-	-	-	-	2	-	1	4	-	6	20	88
rib	-	12	6	2	23	72	-	-	-	-	-	-	-	3	4	-	-	122
sternum	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	3	1	1	-	-	5
scapula	1	14	3	5	6	1	-	1	-	-	-	-	-	1	-	4	-	36
humerus	-	14	14	5	4	1	-	-	-	1	-	-	2	2	-	8	-	51
radius	-	7	13	2	-	1	-	-	-	2	-	-	-	-	-	-	-	25
ulna	-	5	7	2	-	-	-	-	-	-	-	-	5	-	-	-	-	19
pelvis	-	10	5	1	4	2	-	-	-	1	1	-	-	-	-	10	-	34
femur	-	9	7	1	2	3	-	-	-	-	-	-	-	-	-	11	-	33
patella	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
tibia	1	17	29	3	4	-	-	-	-	1	-	-	1	1	-	11	-	68
fibula	-	-	-	2	-	-	-	-	-	-	-	-	1	1	-	-	-	4
carpal/tarsal	1	13	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-	18
metapodial	-	27	31	2	-	-	-	-	-	-	-	-	7	-	-	-	-	67
phalanx	1	9	7	1	-	-	-	-	1	-	1	-	-	-	-	-	-	20
loose teeth	8	18	55	17	-	-	-	-	-	-	8	-	-	-	-	-	-	106
l.b.fragment	-	-	-	-	186	173	-	-	-	-	-	-	-	-	2	46	-	407
fragment	-	-	-	-	48	2	-	-	-	-	-	1	-	-	-	-	-	51
TOTALS	16	207	243	68	313	262	1	1	1	5	13	2	20	14	7	96	21	1290

TABLE 5 Specific Percentages for Common Ungulates

	identified to species				grouped only			
	cattle	sheep	pig	n	LAR	SAR	n	% id to species
All	48	42	10	1053	47	53	1460	42
Gru	55	38	7	510	43	57	859	37
Pit	40	47	13	518	54	46	575	47
G7339	57	38	5	387	39	61	602	39
G7445	60	34	6	70	58	42	183	28
P7341	41	56	3	78	48	52	66	54
P7345	42	44	14	57	54	46	52	52
P7483	45	33	22	89	71	29	123	42
P7623	31	54	15	71	59	41	96	43
P7627	38	42	20	60	57	43	65	48
P7809	27	68	5	60	49	51	83	42

Worthy, although the samples are pretty small. The much larger samples from Main Period Hamwic generally produce even larger animals at the top of the range, probably more a factor of sample size than an increase in overall size of the stock. Even this very limited series of measurements would repay further study, paying attention to modes and other details of the distributions rather than to the somewhat misleading value of arithmetic mean.

For interest, I have added some ranges for Middle Iron Age sheep bone breadths for the nearby settlement at Winnall Down (Maltby 1985ii & pers comm). These suggest that the Saxon sheep were, despite their small size compared with the entire Hamwic range, not as small as the Iron Age material. They may match more closely the size of sheep found in Late Roman deposits in this area. Maltby's recent analysis of Late Roman sheep at Owslebury and at Northern Suburbs, Winchester, illustrates this well (Maltby n.d. Table 17).

The limited amount of horse material matched large pony size, although no withers heights could be estimated.

Other Domestic Species

Other domestic animals represented are the dog, cat, fowl, and goose. Dog produced only two fragments, from Gru F7337 and Pit F7345. Cat bones were from several widespread locations and could all be domestic, although one cat bone, a fibula in Gru F7339, could equally well have come from a wild individual. Some of the cat remains were immature. Fowl bones are from all areas of the settlement but not distributed in any particular pattern. All grubenhaus deposits contain some fowl bones but even some of the quite rich pits do not. The fowl bones that can be sexed are all from hens but no trace of medullary bone was found in any of the femora suggesting that no laying hens had been eaten. There was no evidence of caponisation. Young fowl were also present.

Pit F7623 contained a high proportion of fowl and goose bones. Domestic goose was represented by a total of only 17 bones, and 13 of them came from this pit.

Wild Species

There is, as usual on Saxon settlements in Hampshire, very little evidence of the exploitation of wild species. The picture from Ramsbury, Wiltshire, was a little different (Coy 1980). Red deer antler was utilised at Abbots Worthy for working and Riddler noted that the shavings from antler working were larger than are normally retrieved at Hamwic (Riddler n.d.). Bones of Microtus agrestis, the short-tailed vole, were widespread on the site and have turned up wherever sieving has taken place. This is a common small mammal of grassland and would be likely to fall into sunken features. It does not have a great leaping ability. The single bone of Oryctolagus cuniculus, the rabbit, in Pit F7341 is probably a later contaminant as this species does not normally seem to have been present in the Saxon Period. The remains marked as unidentified mammals are virtually all from the sieving of features and are mostly small crumbs of bone from the ungulates.

Apart from a sparrow-sized immature passerine coracoid bone from Pit F7345 all the unidentified bird remains could be fragments of domestic birds. Amphibian remains were found wherever sieving took place and represent both frog, probably the common brown frog, Rana temporaria, and toad, probably the common

TABLE 6 SHEEP MEASUREMENTS

meas		IAR Saxon n	IAR Saxon range	IAR Saxon mean	Early Hamwic n	Early Hamwic range	Early Hamwic mean	Winnall - MIA n	Winnall - MIA range	Winnall - MIA mean
SCA	GLP	3	24.2,28.9,31.4	-	20	28.9 - 33.7	31.6	3	25.5,26.6,30.2	-
"	LG	3	20,24,24.8	-	19	22.4 - 26.3	23.8	4	20.2 - 24.3	21.8
HUM	Bd	7	27.0 - 30.7	28.7	21	27.4 - 31.2	29.5	7	24.7 - 27.6	24.7
"	BT	5	23.3 - 26.6	24.7	9	25.5 - 29.2	28.0	9	23.4 - 26.7	24.8
RAD	Bp	2	28.5, 29.5	-	13	26.8 - 33.8	29.7	7	23.2 - 27.7	25.5
MC	Bp	5	19.6 - 22.0	20.5	8	20.3 - 23.6	22.6	13	18.1 - 21.2	19.5
TIB	Bd	2	23.8, 24.4	-	21	23.7 - 29.0	25.9	14	21.1 - 23.7	22.3
MT	Bp	3	17.7,18.5,19.8	-	8	16.6 - 21.8	19.6	13	16.2 - 18.8	17.5

KEY: SCA scapula; HUM humerus; RAD radius; TIB tibia; MC metacarpus; MT metatarsus
n = no of bones in sample
Measurements are those taken by Von den Driesch 1976

toad, Bufo bufo. The frog, toad, and short-tailed vole remains were in some cases obviously from partial skeletons.

Fish bones represented in the material from wet-sieving of bulk samples are from the ubiquitous common eel, Anguilla anguilla, which could easily have been caught in or near the meandering waters of the River Itchen nearby and is commonly eaten on Saxon settlements in Wessex. A more extensive sieving programme might have shown up evidence of freshwater fish as it did at Hamwic (Bourdillon & Coy 1980; Coy in prep) and Wraysbury (Coy n.d.1).

Although four of the bulk samples examined were from the large grubenhaus feature F7339, only three separate toad bones were produced. Grubenhaus feature F7445 produced in addition a partial skeleton of short-tailed vole from Layer 7487 (this was probably from dry sieving on site). No fish remains came from grubenhaus material. Without knowing more about the exact quantities of soil involved it is impossible to be sure that the much larger quantities of microfauna produced from the pits represent a clear difference in deposit type. This might be worth further analysis in the future as small fish bones are frequently linked with the use of features as cesspits.

CONTEXTUAL ACCOUNT

The layers involved in each feature discussed are given in Archive Table A1. The overall grubenhaus and pit results are in Tables 3 and 4). Detailed results of the eleven major features discussed below are in Tables A5-A15. These features are discussed in number order below. Some preliminary analysis of the distribution of species detected no apparent pattern compared with the position of the feature in the settlement.

In addition there were no traces of specialised treatment or disposal of ungulate carcases or bones; and occupational, butchery, and bone-working evidence was widely dispersed. This is fairly typical of Middle Saxon occupation in Hampshire, wherever we have analysed it.

Grubenhauser

The five grubenhauser were scattered about the excavated settlement area apart from the partially excavated F7337 which was close to F7339, the grubenhaus which produced the largest bone sample (1,057 bones).

Only twelve fragments were retrieved from F7337 and these merely show the presence of cattle, sheep, dog, and domestic fowl. Half the fragments are long bone splinters (Table A5).

F7339 provides a useful sample from this type of structure but only a preliminary attempt has been made to sort out the different layers. Superficially there seem to be no obvious differences but analysis in depth might give some clues about the formation processes which were involved in the different layers. The layers with most bone were 7417, 7497, 7498, 7512, 7522, and 7544. Most of the bones identified to species are from cattle, sheep, and pig, with cattle forming the major species and pig representing only 5% (Tables 5 and A6). There were 3 horse bones in Layer 7498 which, judging by the butchery details discussed below, represent food remains. Large and small ungulate unidentifiable fragments were heavily weighted towards the small ungulates. Cat, fowl, and goose are also represented and there is a little amphibian bone from the wet-sieving of bulk samples.

Indicators of occupation, such as butchery and burning were present throughout the layers. The butchery is widespread and on all the domestic species and all anatomical areas, showing that all parts of the body were utilised. A number of skulls and long bones have been split open and there is evidence for the utilisation of horns of cattle and sheep.

The types of butchery are quite varied with knife cuts being used, occasionally for disjointing - as for the horse humerus in Layer 7498. Both the eating of horse and this type of butchery is more usually seen in the Iron Age than the Saxon Period. There is also evidence for a great deal of chopping with a heavier implement that seems to leave no marks of its blade. This often goes right through even the largest bones and includes longitudinal splitting of some metapodials. This type of butchery is quite common at Middle Saxon Hamwic. Occasionally there are cut surfaces with blademarks of what seems to be a very sharp knife. There are such examples in F7339 - in Layers 7498 (cattle zygomatic), 7511 (cattle rib), 7514 (cattle pelvis and sheep scapula). This is referered to by Bourdillon in the earlier report as 'clean' or 'neat' cuts and it is possible that what she refers to as sawing might be a similar knife butchery.

There are two examples of paramedian butchery, with blademarks, on vertebrae, both in Layer 7522 (cattle lumbar vertebra and sheep thoracic vertebra). This method of halving the carcase is described in detail for Late Saxon deposits at Winchester (Coy n.d.2) and is overtaken in the Medieval Period by accurate halving down the centre of the neural canal. In F7339 there are two possible occurrences of such medial splitting in a cattle atlas in Layer 7512 and a later cervical vertebra in Layer 7511.

A high proportion of the bones here, are either dog-chewed (23%), ivoried (24%) or both. Some of the chewing has destroyed the surface or occasionally even the identity of the bones (recorded in archive as 'C2' and 'C3', respectively). In some ways the association of these two conditions is strange as the dog-chewing suggests the bones had been lying around the settlement, whereas the 'ivoried' condition is usually considered to be the result of swift burial. But Sarah Colley's discussions on Saxon rubbish disposal here may be relevant (Colley in prep) and it is suggested that the rubbish may have been disposed of as if in a pit with the material lying around giving access to dogs for only a short time and then being tipped into relative inaccessibility. Only 17 bones, less than 2%, showed evidence of burning. Presumably this type of disposal took place after the grubenhaus phase of this structure. More evidence could be gained by comparing the bones in detail with some of those from the sunken features at West Stow where an attempt was made to distinguish deposition which occurred during and after occupation of the buildings (Professor Pamela Crabtree personal communication).

There were several examples of bone working in this feature, especially shavings from the working of red deer antler.

In addition to the pathological occurrences in sheep jaws mentioned in Bourdillon's earlier notes there are two interesting occurrences of the same pathological condition of the lower jaw condyle (both from left jaws) in this feature, one in Layer 7522, the other in Layer 7498. There is also a sheep horn core with very marked thumbprint-like depressions often thought to represent an uneven nutritional history (Bourdillon & Coy 1980, 92: Bourdillon 1983, 146). There was a regular scattering of the remains of calf and immature cattle, of lamb, and of immature domestic fowl throughout this feature. Most pig remains are from

skeletally immature animals as would be expected. For most species, where bones could be sexed both sexes were represented, but all fowl tarso-metatarsi represented hens.

Grubenhaus F7403 produced only 24 fragments from one layer, all from the common domestic ungulates (Table A7). On the other hand Grubenhaus F7445 ranked second amongst such features for bone production, with 493 fragments, although only 253 of these fragments were from ungulates; as the total is swelled by the inclusion of 230 unidentifiable mammalian fragments in the bone bags which probably came from dry sieving (Table A8). The remaining bones show a similar species distribution to F7339 although unidentifiable ungulate fragments are more likely to have been from cattle (Table 5). In addition there are remains of domestic fowl. Even excluding the small mammal bones and small crumbs of larger animals, thought to have come from sieving, this feature gives much lower values than F7339 for dog-chewing (13%), and ivoried fragments (13%). The value for charred bones is about the same. There is a small amount of butchery, again of various types, recorded. One cervical vertebra of cattle in Layer 7488 shows paramedian butchery, and a small ungulate rib blademarked sharp knife butchery. Again there is evidence of immature cattle and sheep.

Grubenhaus F7698 produced only 94 fragments from one layer (Table A9). These represent cattle, sheep, and pig in roughly equal proportions; twice as many small ungulate as large ungulate unidentifiable fragments; and a single bone of domestic fowl. The proportion of bones which show dog-chewing (22%), ivoried condition (23%), and charring (1%) compares with F7339. Both knife cuts and chopping butchery were found and there was a worked pig fibula.

Pits

The pits generally represent deeper features than the grubenhaus depressions and the types of bones deposited may therefore be expected to be different. Some discussion of this has already occurred in the 'Domestic Ungulate' section.

Pit F7341 produced 189 bones which included 39 of amphibian and fish from sieving and a rabbit scapula in Layer 7376 that was probably intrusive. Cattle, sheep, pig, cat, and kitten are represented but no trace of the domestic birds (Tables 5 and A10). This pit, like many of the others, shows a higher number of sheep bones than cattle bones. If the fish and amphibian fragments from sieving are excluded, the pit gives values for dog-chewing similar to some grubenhauser (22%) but much lower values for ivoried bone (3%), and higher ones for burnt and calcined bone (8%). Blademarked butchery appears on a cattle scapula, there is a fragment of a sheep skull which had been split axially, and a split cattle metapodial. Layers 7377, 7390, and 7391 in particular, produced frog and toad remains from wet-sieving and Layers 7377 and 7388 eel remains.

Pit 7345 showed some similarities to the last and the two were near one another, near Grubenhaus F7403. Of the 162 bones recorded 45 are from frog, toad, and eel from wet-sieving (Tables 5 and A11). The other bones are from horse (a single maxillary fragment with all molars in wear), cattle, sheep, pig, dog and fowl, with a shaped piece of red deer antler tine in Layer 7349. Identified fragments of cattle and sheep are in equal numbers and small and large ungulates are evenly balanced too. This is not the same as most other pits. The value for pig, like that in the

previous pit are very low indeed, lower than in the grubenhaus deposits and nowhere near as high as the rest of the pits. The percentage of bones dog-chewed is 28%, ivoried 7%, and charred less than 2%. Very little butchery was noted on these bones.

Pit 7483 with 223 bones is the largest pit sample (Tables 5 and A12). It was the only pit which produced more identified cattle bones than sheep bones. Unidentifiable ungulate fragments are also heavily weighted towards large ungulate (71%) with some of the cattle bones looking rather large. At 22%, pig is better represented here than anywhere else on site, although two pits discussed below come near it. The seven horse fragments are all teeth or jaw fragments except for one piece of scapula. One of the teeth represents an animal of about 9 years. Cat and fowl are also represented. Of the 223 bones, 27% are canid chewed, 5% ivoried, and only one charred. Blademark butchery is on a cattle pelvis fragment in Layer 7507, which also produced a longitudinally split metapodial. In addition there are a few occurrences of both knife cut and chopping butchery. There is a large ungulate bone splinter with possible wear through useage.

Pit 7623, very close to Pit 7483, produced the second largest ungulate sample for a pit, with identified sheep outnumbering cattle, as is more usual in the pits here. The large cattle metatarsus mentioned in the ungulate section came from here. Pig results, as for the last pit and the next one, are unusually high at 15% of identifiable ungulate (Tables 5 and A13). But large ungulate unidentifiable fragments exceed small ungulate. With such small samples and such a wide variety of anatomical elements represented these shifts are highly likely. Fowl and goose are well-represented in this pit.

Pit 7627 was an isolated pit which produced 129 fragments (Tables 5 and A14). Cattle and sheep are equally represented but the value for pig, at 20%, is the second highest for the site. Canid chewing is on 28% of bones, only one fragment is ivoried, and none charred. There is a blademark cut on a cattle femur and a small ungulate rib.

The only other pit which produced any bones to speak of is another isolated one, F7809, which produced the lowest value for cattle and the highest for sheep of any of the eleven features discussed here (Tables 5 and A15). This is interesting to look at in more detail as it has some preservational similarities to grubenhaus deposits, with a high value for ivoried bone (16%). Canid gnawing occurs on 23% and there is no charred bone. There is also a high proportion of immature sheep and lamb bones compared with other pits and at least one individual was a newborn or foetal animal. One fragment shows blademark butchery and a sheep metapodial is longitudinally split.

Pit 7680 only produced 49 bones but included four bones of horse, two teeth have very heavy wear suggesting a senile horse. Cattle, as in F7483, seemed a little larger than elsewhere.

Pit 7404 with 39 fragments is of interest as containing a butchered cervical vertebra of horse and evidence of a 16-8year old horse in the same layer (7398).

Other Features

A handful of bone fragments came from ditch, gulley, and posthole features and none of these collections is worthy of comment.

CONCLUSIONS

The animal bones from Abbots Worthy produce a mosaic of results. Some of them, such as the evidence for eating of horse and the small knife cuts on some bones, have a native Iron Age feel about them. On the other hand the animal sizes from the small sample of measurements is more in line with the Romano-British sizes developed in Hampshire and retained into the Saxon Period. This is more true of cattle here than for sheep. The incidence of smooth, blademarked butchery, and a trace of paramedian splitting, is not typical of Middle Saxon Hamwic but has been seen at Late Saxon Winchester.

Should time permit further study there are a number of archaeological questions which it would be interesting to address using this sample.

The reasonably sized deposit from the deepest Grubenhaus feature, F7339, may be a good representation of what was happening in terms of waste disposal during one period of occupation of this site. The type of deposition compares closely with what occurs in a Hamwic Pit and this deposit might repay further study. There is slight evidence, however, that deposition into grubenhaus holes, if these were used for disposal of rubbish, differed slightly from that in the pits. Despite its much smaller size and bone sample, F7445 shows this as well as F7339 (Table 5). The amount of ivoried bone in pits was much lower showing that bone in them may not have been excluded from the action of the atmosphere so rapidly as those deposited in the Grubenhaus features F7339 and F7698, and yet the identifiability of grubenhaus bones is low (37%) compared with that in pits (47%). There are many factors which might influence this, not least the percentage of loose teeth involved and the incidence of splinters, which could be quantified from the archive. The figures do suggest that the material deposited in the grubenhaus deposits has been more heavily utilised, and further analysis of the factors would be interesting.

On the whole the bones were well preserved and very few bones were recorded as eroded in the computer archive. In future work, erosion rates could however be calculated from this archive, where three levels of erosion have been recorded. Another aspect which might shed light on the formation processes involved in the different types of feature, and the depositional picture on the different areas of the settlement, is the density of bone deposition (number of fragments per cubic metre of soil) as calculated for some Iron Age settlements (e.g. Maltby 1985ii). Some pits seem slightly different from others, e.g., F7483 and F7680 are suggested as containing larger cattle material. This might suggest that they are from a different phase of occupation, but whether earlier or later would need more investigation.

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SUPPORTING ARCHIVE TABLES

TABLE A1 Features and Layers with Animal Bone Recorded

Feature	Layers
Grubenhaus F7337	7338
Grubenhaus F7339	7320,7340,7417,7489,7491,7493,7497,7498,7510 7511,7512,7513,7514,7516,7522,7544,7616
Grubenhaus F7403	7438
Grubenhaus F7445	7446,7451,7469,7487,7488
Grubenhaus F7698	7699
Pit F7341	7342,7343,7352,7373,7374,7376,7377,7388,7390 7391,73449
Pit F7345	7346,7347,7349,7371,7372,7378
Pit F7404	7344,7398
Pit F7483	7484,7507,7508,7509,7598
Pit F7485	7486,7518,7519,7520
Pit F7623	7624,7625
Pit F7627	7628
Pit F7809	7810,7811
Other pits	7329,7331,7500,7515,7533,7542,7545,7681,7700
Ditch	7526,7831
Postholes	7453,7480,7712,7859
Others	7348,7394,7395,7528,7626,7824,7835

TABLE A2 Contexts with Soil Samples

Contexts underlined contained material which was computer coded.

Feature	Layer	Sample Number	Amount if known
7345	7349	855/857	1 litre
7341	7352	885/6	
7345	7371	838	
7345	7372	833/836	1 litre
7341	7374	874/875	
7341	7377	865	500ml
7345	7378	841/842	1 litre
7345	7378	841	
7341	7388	861/862	1 litre
7485	7486	1022/10	
7339	7491	977/978	
7339	7497	973/974	
7339	7511	970	500ml
7485	7519	1013/1014	1 litre
7485	7521	1010/1011	
7339	7522	971/972	
7541	7545/3	1053/5	2 x 500ml
7627	7628	1043/1044	
7680	7681	1037/1038	
7809		1182	500ml

TABLE A3 SPECIES ABBREVIATIONS USED IN TABLES

HOR	domestic horse
COW	domestic cattle
SHE	domestic sheep or identified to 'ovicaprid'
PIG	domestic pig
LAR	large ungulate
SAR	small ungulate
RED	*Cervus elaphus*, red deer
RAB	*Oryctolagus cuniculus*, rabbit
DOG	domestic dog
CAT	domestic cat
MIC	*Microtus agrestis*, field vole
SMM	small mammal
MAM	unidentified mammal fragment (probably mostly LAR/SAR)
FOW	domestic fowl
GOO	domestic goose
BIR	unidentified bird fragment (probably mostly FOW)
RAN	*Rana* sp, frog
BUF	*Bufo* sp, toad
AMP	amphibian
EEL	*Anguilla anguilla*, common eel
FIS	unidentified fish fragment

TABLE A4 BONES IDENTIFIED AND RECORDED FROM SIEVED SAMPLES

	cow	pig	mic	smm	fow	bir	ran	buf	amp	eel	fis	TOTAL
skull	-	-	-	-	-	-	-	-	-	-	1	1
vertebra	-	-	-	3	-	-	-	-	3	17	3	26
coracoid	-	-	-	-	-	1	-	-	-	-	-	1
scapula	-	-	-	-	1	-	-	-	1	-	-	2
humerus	-	-	-	-	1	-	-	-	1	-	-	2
pelvis	-	-	-	1	-	-	1	2	-	-	-	4
tibia	-	-	-	-	-	-	1	-	-	-	-	1
fibula	-	1	-	-	-	-	-	-	-	-	-	1
carpal/tarsal	1	-	-	1	-	-	-	-	-	-	-	2
phalanx	-	-	-	1	-	-	-	-	-	-	-	1
loose teeth	-	-	7	1	-	-	-	-	-	-	-	8
l.b.fragment	-	-	-	-	-	-	-	-	46	-	-	46
TOTALS	1	1	7	7	2	1	2	2	51	17	4	95

TABLE A5 DISTRIBUTION OF FRAGMENTS GRU 7337

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
skull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
mandible	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
vertebra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
rib	-	1	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	3
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
humerus	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
radius	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
ulna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
pelvis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
femur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
fibula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
carpal/tarsal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
metapodial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
phalanx	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
loose teeth	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
l.b.fragment	-	-	-	-	1	5	-	-	-	-	-	-	-	-	-	-	-	6
fragment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
TOTALS	0	1	1	0	1	7	0	0	1	0	0	0	1	0	0	0	0	12

TABLE A6 DISTRIBUTION OF FRAGMENTS GRU 7339

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	1	2	-	-	-	16	-	-	-	-	-	-	-	-	-	-	19
skull	-	38	16	-	10	3	-	-	-	-	-	-	1	-	-	-	-	68
yo'd	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
maxilla	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
mandible	-	30	22	4	-	-	-	-	-	-	-	-	-	-	-	-	-	56
vertebra	-	18	7	-	6	5	-	-	-	-	1	-	2	-	-	1	-	40
rib	-	30	5	-	65	145	-	-	-	-	-	-	-	-	-	-	-	245
sternum	-	-	-	-	-	-	-	-	-	-	-	-	1	2	-	-	-	3
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	16	14	4	5	2	-	-	-	-	-	-	4	-	-	-	-	45
humerus	1	3	6	1	1	1	-	-	-	-	-	-	2	1	-	1	-	17
radius	-	7	13	3	2	1	-	-	-	1	-	-	7	-	-	-	-	34
ulna	1	6	1	-	-	-	-	-	-	-	-	-	1	-	-	-	-	9
pelvis	-	8	1	-	1	-	-	-	-	-	-	-	1	-	-	1	-	12
femur	-	6	1	-	1	9	-	-	-	-	-	-	3	-	-	-	-	20
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	1	7	20	-	2	2	-	-	-	-	-	-	7	-	-	-	-	39
fibula	-	-	-	4	-	-	-	-	-	1	-	-	-	-	-	-	-	5
carpal/tarsal	-	8	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	12
metapodial	-	17	25	1	-	-	-	-	-	-	-	-	7	-	-	-	-	50
phalanx	-	5	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6
loose teeth	-	12	14	2	-	-	-	-	-	-	-	-	-	-	-	-	-	28
l.b.fragment	-	-	-	-	98	173	-	-	-	-	-	-	-	-	-	-	-	271
fragment	-	-	-	-	43	27	-	-	-	-	-	-	-	-	-	-	-	70
TOTALS	3	219	149	19	234	368	16	0	0	2	1	0	40	3	0	3	0	1057

TABLE A7 DISTRIBUTION OF FRAGMENTS GRU 7403

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
skull	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
mandible	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
vertebra	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
rib	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
humerus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
radius	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
ulna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
pelvis	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
femur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
fibula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
carpal/tarsal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
metapodial	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
phalanx	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
loose teeth	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
l.b.fragment	-	-	-	-	7	3	-	-	-	-	-	-	-	-	-	-	-	10
fragment	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
TOTALS	0	4	8	1	7	4	0	0	0	0	0	0	0	0	0	0	0	24

TABLE A8 DISTRIBUTION OF FRAGMENTS GRU 7445

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
skull	-	3	4	-	4	-	-	-	-	-	-	-	-	-	-	-	-	11
hyoid	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
maxilla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
mandible	-	6	3	-	-	-	-	-	-	-	2	-	-	-	-	-	-	11
vertebra	-	3	2	-	6	3	-	-	-	-	-	-	-	-	-	-	-	14
rib	-	4	1	-	12	7	-	-	-	-	-	-	-	-	-	-	-	24
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
humerus	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	-	2
radius	-	3	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	6
ulna	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
pelvis	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
femur	-	-	-	-	-	-	-	-	-	-	2	-	2	-	-	-	-	4
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	3	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	7
fibula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
carpal/tarsal	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
metapodial	-	1	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	5
phalanx	-	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
loose teeth	-	9	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15
l.b.fragment	-	-	-	-	59	56	-	-	-	-	-	-	-	-	1	-	-	116
fragment	-	-	-	-	25	9	-	-	-	-	-	230	-	-	-	-	-	264
TOTALS	0	42	24	4	107	76	0	0	0	0	5	230	4	0	1	0	0	493

TABLE A9 DISTRIBUTION OF FRAGMENTS GRU 7698

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
skull	-	1	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	3
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
mandible	-	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
vertebra	-	2	1	1	1	2	-	-	-	-	-	-	-	-	-	-	-	7
rib	-	1	-	-	4	15	-	-	-	-	-	-	-	-	-	-	-	20
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
humerus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
radius	-	-	2	-	-	-	-	-	-	-	-	-	1	-	-	-	-	3
ulna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
pelvis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
femur	-	1	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	3
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	1	2	2	-	-	-	-	-	-	-	-	-	-	-	-	-	5
fibula	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
carpal/tarsal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
metapodial	-	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-	-	6
phalanx	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
loose teeth	-	1	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
l.b.fragment	-	-	-	-	4	14	-	-	-	-	-	-	-	-	-	-	-	18
fragment	-	-	-	-	10	4	-	-	-	-	-	-	-	-	-	-	-	14
TOTALS	0	12	14	12	19	36	0	0	0	0	0	0	1	0	0	0	0	94

TABLE A10 DISTRIBUTION OF FRAGMENTS PIT 7341

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
skull	-	2	3	-	-	-	-	-	-	-	-	1	-	-	-	-	-	6
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
mandible	-	4	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
vertebra	-	2	1	-	1	-	-	-	-	-	-	-	-	-	-	3	5	12
rib	-	-	-	-	2	7	-	-	-	-	-	-	-	-	-	-	-	9
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	1	-	1	1	-	-	1	-	-	-	-	-	-	-	3	-	7
humerus	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	5	-	9
radius	-	1	3	-	-	1	-	-	-	-	-	-	-	-	-	-	-	5
ulna	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
pelvis	-	1	2	-	-	-	-	-	-	1	-	-	-	-	-	6	-	10
femur	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	9	-	11
patella	-	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	2
tibia	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	6	-	12
fibula	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
carpal/tarsal	-	3	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
metapodial	-	4	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7
phalanx	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
loose teeth	-	4	15	-	-	-	-	-	-	-	1	-	-	-	-	-	-	20
l.b.fragment	-	-	-	-	21	26	-	-	-	-	-	-	-	-	-	2	-	49
fragment	-	-	-	-	7	-	-	-	-	-	-	-	-	-	-	-	-	7
TOTALS	1	32	44	2	32	34	0	1	0	2	1	1	0	0	0	34	5	189

TABLE A11 DISTRIBUTION OF FRAGMENTS PIT 7345

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	1
skull	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	4
hyoid	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
maxilla	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
mandible	-	1	4	2	-	-	-	-	-	-	-	-	-	-	-	-	-	7
vertebra	-	4	1	-	-	1	-	-	-	-	-	-	-	-	-	2	10	18
rib	-	5	-	-	-	4	-	-	-	-	1	-	-	-	-	-	-	10
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	1
scapula	-	-	-	1	1	1	-	-	-	-	-	-	-	-	-	-	-	3
humerus	-	2	3	1	1	1	-	-	-	-	-	-	-	-	-	1	-	9
radius	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	2	-	6
ulna	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
pelvis	-	2	2	-	-	-	-	-	-	-	-	-	-	-	-	3	-	7
femur	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2	-	2
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	3	7	1	1	-	-	-	-	-	-	-	-	-	-	2	-	14
fibula	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
carpal/tarsal	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
metapodial	-	1	2	-	-	-	-	-	-	-	-	-	3	-	-	-	-	6
phalanx	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1
loose teeth	-	3	2	2	-	-	-	-	-	-	1	-	-	-	-	-	-	8
l.b.fragment	-	-	-	-	22	16	-	-	-	-	-	-	-	-	-	23	-	61
fragment	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	2
TOTALS	0	24	25	8	28	24	1	0	1	0	2	0	3	0	1	35	10	162

TABLE A12 DISTRIBUTION OF FRAGMENTS PIT 7483

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
skull	-	1	3	4	6	-	-	-	-	-	-	-	-	-	-	-	-	14
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
mandible	-	3	5	3	1	-	-	-	-	-	-	-	-	-	-	-	-	12
vertebra	-	1	-	1	5	-	-	-	-	-	-	-	-	-	-	-	-	7
rib	-	2	-	-	7	6	-	-	-	-	-	-	-	-	-	-	-	15
sternum	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	1	7	1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	12
humerus	-	4	2	1	2	-	-	-	-	1	-	-	-	-	-	-	-	10
radius	-	1	-	1	-	-	-	-	-	1	-	-	-	-	-	-	-	3
ulna	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
pelvis	-	4	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	6
femur	-	5	2	-	1	-	-	-	-	-	-	-	-	-	-	-	-	8
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	3	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	7
fibula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
carpal/tarsal	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
metapodial	-	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
phalanx	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
loose teeth	5	3	6	6	-	-	-	-	-	-	-	-	-	-	-	-	-	20
l.b.fragment	-	-	-	-	44	29	-	-	-	-	-	1	-	-	0	-	-	74
fragment	-	-	-	-	18	-	-	-	-	-	-	-	-	-	-	-	-	18
TOTALS	7	40	29	20	87	36	0	0	0	2	0	1	1	0	0	0	0	223

TABLE A13 DISTRIBUTION OF FRAGMENTS PIT 7623

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
skull	-	1	-	3	3	-	-	-	-	-	-	-	-	-	-	-	-	7
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
mandible	-	1	5	-	2	-	-	-	-	-	-	-	-	-	-	-	-	8
vertebra	-	2	2	3	2	-	-	-	-	-	-	-	1	4	-	-	-	14
rib	-	-	1	-	3	9	-	-	-	-	-	-	-	3	3	-	-	19
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	1
scapula	-	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	4
humerus	-	2	1	1	-	-	-	-	-	-	-	-	-	2	-	-	-	6
radius	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
ulna	-	1	2	-	-	-	-	-	-	-	-	-	2	-	-	-	-	5
pelvis	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	4
femur	-	1	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	2
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	2	5	-	-	-	-	-	-	-	-	-	1	1	-	1	-	10
fibula	-	-	-	-	-	-	-	-	-	-	-	-	1	1	-	-	-	2
carpal/tarsal	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
metapodial	-	3	5	1	-	-	-	-	-	-	-	-	2	-	-	-	-	11
phalanx	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
loose teeth	-	1	15	1	-	-	-	-	-	-	-	-	-	-	-	-	-	17
l.b.fragment	-	-	-	-	36	29	-	-	-	-	-	-	-	-	-	-	-	65
fragment	-	-	-	-	9	-	-	-	-	-	-	-	-	-	-	-	-	9
TOTALS	0	22	38	11	57	39	0	0	0	0	0	0	7	13	3	1	0	191

TABLE A14 DISTRIBUTION OF FRAGMENTS PIT 7627

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
skull	-	4	1	2	5	-	-	-	-	-	-	-	-	-	-	-	-	12
hyoid	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
maxilla	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
mandible	-	4	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	8
vertebra	-	2	1	-	1	-	-	-	-	-	-	-	-	-	-	-	1	5
rib	-	2	-	1	7	3	-	-	-	-	-	-	-	-	-	-	-	13
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
scapula	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
humerus	-	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4
radius	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
ulna	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
pelvis	-	-	2	-	1	1	-	-	-	-	-	-	-	-	-	-	-	4
femur	-	1	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	2
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
fibula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
carpal/tarsal	-	3	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
metapodial	-	1	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	5
phalanx	-	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
loose teeth	-	2	4	3	-	-	-	-	-	-	1	-	-	-	-	-	-	10
l.b.fragment	-	-	-	-	19	24	-	-	-	-	-	-	-	-	1	-	-	44
fragment	-	-	-	-	4	-	-	-	-	-	-	-	-	-	-	-	-	4
TOTALS	0	23	25	12	37	28	0	0	0	0	1	0	1	0	1	0	1	129

TABLE A15 DISTRIBUTION OF FRAGMENTS PIT 7809

	hor	cow	she	pig	lar	sar	red	rab	dog	cat	smm	mam	fow	goo	bir	amp	fis	TOTAL
antler/hc	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
skull	-	-	4	-	1	-	-	-	-	-	-	-	-	-	-	-	-	5
hyoid	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
maxilla	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
mandible	-	1	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	4
vertebra	-	4	3	-	2	2	-	-	-	-	-	-	-	-	-	-	-	11
rib	-	1	4	1	2	27	-	-	-	-	-	-	-	-	1	-	-	36
sternum	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
coracoid	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1
scapula	-	-	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-	2
humerus	-	-	3	1	1	-	-	-	-	-	-	-	-	-	-	-	-	5
radius	-	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
ulna	-	-	3	-	-	-	-	-	-	-	-	-	1	-	-	-	-	4
pelvis	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	1
femur	-	-	2	-	-	1	-	-	-	-	-	-	-	-	-	-	-	3
patella	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
tibia	-	2	2	-	2	-	-	-	-	-	-	-	-	-	-	-	-	6
fibula	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0
carpal/tarsal	-	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
metapodial	-	3	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	8
phalanx	-	-	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
loose teeth	-	1	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	5
l.b.fragment	-	-	-	-	24	12	-	-	-	-	-	-	-	-	-	3	-	39
fragment	-	-	-	-	8	-	-	-	-	-	-	-	-	-	-	-	-	8
TOTALS	0	16	41	3	41	42	0	0	0	0	0	0	2	1	1	3	0	149

TABLE A16 Bones given specimen numbers

Specimen no.	Description	Location if removed
1	Offcut from Layer 7512	TWA
2	Bone blank Layer 7480	TWA
3	13 shavings red deer antler L7417	TWA
4	Rough for working red deer antler L7511	TWA
5	Pig fibula slight working L7511	TWA
6	antler shaving L7497 cf 3	
7	ditto L7522	
8	shaped frag red deer antler tine L7349	TWA
9	LAR longbone frag worn by use? L7484	TWA
10	Pig fibula worked L7699	TWA

TABLE A17 ARCHIVAL MATERIAL AND ITS LOCATION

Key to locations:
TWA - Trust for Wessex Archaeology
FRU - Faunal Remains Project
JPC - Stored by the writer

Printout Available

Full listing by species	FRU
Full listing by context	FRU
CONMET catalogue whole site	FRU & TWA
CONLIS " "	FRU & TWA
TABLE 1 " "	FRU & TWA
all above by major feature	FRU
MET catalogue whole site	FRU

Computer Files		Convention
Original data files *	FRU & JPC	IAR1.JPC, IAR2.JPC etc
Total computerised data	FRU, TWA, JPC	IAR.TOT,IAR.CON,IAR.SPE
Context lists	FRU, TWA, JPC	IARGRU.LIS,IARPIT.LIS by number for major contexts

Paper Archive

All correspondence, notebooks, analysis notes, rough drafts	FRU