AML Report 3120

DM

Wilmington Gravel Pit

The Animal Bones

A total of 1361 animal bones were recovered from a number of pits and ditches. Because the total was so small, and could be closely dated from 100 BC to 20 AD it was decided to treat them as one group.

The following species were identified; horse (*Equus* sp.) ox (*Bos* sp. domestic), sheep (*Ovis* sp.), pig (*Sus* sp.), dog (*Canis* sp.), fox (*Vulpes vulpes*), roe deer (*Capreolus capreolus*), and ? red deer (*Cervus elaphus*).

It should be borne in mind that although no goats were positively identified the term sheep really should be regarded as meaning sheep/goat.

The chart indicates which species were identified and what parts of the anatomy are represented.

Sheep sized and ox sized fragments are categories in which bone is put that is heavily fragmented, but would appear to belong to either a sheep or ox sized animal. Since sheep and ox are the most commonly occuring species it seems reasonable to assume that many of these bones do actually belong to sheep or ox.

Adding ox and ox sized together and sheep and sheep sized together these two species form 64% of the whole.

No joint selection was apparent, most parts of the skeleton were represented suggesting that carcasses were prepared on the site.

Only 33 pig bones were present, over a third of which were loose teeth.

Dog is only represented by three limb bones, unfortunately none of these were complete enough for any shoulder heights to be calculated. The os coxae assigned to fox might also belong to a fox sized dog.

Roe deer was only represented by a cast antler, and a small fragment of tine may belong either to roe deer or a young red deer.

Measurements were taken whenever possible according to Jones (1976), (and ~~are available on request~~), few withers heights could be calculated owing to the fragmentary nature of the material but those that could be made*, (ox metacarpal 106.2 cms, ox metatarsals 109.6 cms and 105.9 cms, and sheep metacarpal 53.7 cms), do fit within the size ranges of the Gussage ox and sheep (Harcourt 1979).

The sheep were small and slender, and Harcourt likens them to Soay in physique, weighing up to 25 kg.

Measurement of the horse radius gave a withers height of 143.5 cms (which is about 13 hands), and is within the limits of what Harcourt defines as the usual Iron Age range (Harcourt 1979).

Butchery

Butchery was observed mainly on ox and sheep, chop marks were seen on most of the long bones of ox frequently chopped across the midshaft. In two cases os coxae were chopped around the acetabulum, and knifecuts were noted

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* (methods as outlined in von den Driesch and Boessneck 1974).

on the astragalus, vertebrae, the distal end of a humerus and several ribs.

Similarly sheep had chop marks on many limb bones, and also on the skull. Knifecuts were observed on the distal end of a femur, a tibia shaft and some ribs.

Unfortunately there is not enough butchery for any comments to be made on the preferred methods, and knifecuts are probably evidence of skinning.

Four examples of burning were present, the midshaft of a sheep tibia, an ox molar, and the distal ends of two ox humeri.

Four unidentifiable long bone fragments were translucent in texture, possibly the result of roasting, similar to the 'ivory' textured bone described by Coy (1975) in her article on Iron Age Cookery.

Ageing

This was based on epiphyseal fusion and tooth eruption using Silver (1969) Part of a calf was represented by the mandibles, a scapula, a metatarsal, and a fragment of os coxae, these indicated an individual of under 18 months old. Three other immature ox bones were present.

Many immature sheep bones (33) were present, including 10 mandibles which indicated varying ages from 3 to 21 months, and long bones in various stages of fusion. Only six immature pig bones were present and one deciduous horse incisor.

The ageing suggests that a small proportion of ox, sheep and pig were killed for meat before they reached maturity, this is to be expected but the

sample is too small for any comment to be made about the ages at which they were slaughtered.

Pathology

Two examples of pathology were indentified, a horse os coxae showed arthritic lipping on the ischiatic spine, and a sheep mandible had osteoporosis around the alveolar cavity of the 1st molar, and malocclusion of PM4 and M2.

Bone working

Five pieces of worked bone were present; two socketed knives were made from sheep tibiae, the socket was bored into the distal end with a hole for a rivet. The shaft is shaved and split longitudinally (see photograph), the function of these is thought to be as skinning knives and many similar examples made from other bones as well as sheep tibiae were found at Gussage All Saints (Wainwright 1979).

A pin or awl was made from a pig fibula, polished on the shaft and point, which is also similar to an example from Gussage.

The shaft and polished point of a bone pin was also present.

The metatarsal of a small horse had been partially split in an axial mediolateral direction and the distal end smoothed, (see photographs), this is very similar to a horse metatarsal found at Rotherley which Pitt-Rivers suggested was used for rubbing skins, (Pitt-Rivers 1888).

Estimation of meat weights

Estimation of the meat weight contribution of the three major species was carried out by three different methods the results of which are outlined below.

	Chaplin		Grant	Harcourt		
		+ ox and sheep sized frags		+ ox and sheep sized frags		+ ox & sheep sized frags
ox	87.9%	90.5%	81.9%	85.4%	86.4%	89.1%
sheep	9.9%	8.2%	15.4%	13.0%	11.7%	9.7%
pig	2.0%	1.1%	2.5%	1.5%	1.8%	1.1%

All three methods are based on giving each species a meat value, Chaplins' is calculated using undressed carcass weight, (Chaplin 1971). Grants' is based on carcass weight, (Grant 1975), and Harcourt gives each species a meat value, (Harcourt 1979). These have been calculated for Wilmington both with and without adding 'ox sized' fragments and 'sheep sized' fragments to ox and sheep respectively. The units were multiplied by the total number of fragments for each species rather than minimum numbers, as minimum numbers are often misleading when calculated on a small animal bone collection such as this. This means that if greater fragmentation of ox occured in order to make managable sized joints then the meat contribution of ox would be over represented. However bearing this in mind, and given the different results from the three different methods, ox still is by far the greatest meat producer of the three species although numerically sheep is the more common.

Harcourt also points out that meat is a 'terminal product whereas a subsistence economy demands a sustained yield'. (Harcourt 1979.) Unfortunately although we have evidence for meat consumption from animal bone with butchery marks, we do not have any evidence of the use of cattle for hides and milk, nor of sheep for hides, wool and milk which must have been at least as important as their role in the economy as meat producers.

There is no evidence from Wilmington that horse or dog were eaten, or that hunting played an important role in the economy, since the roe deer antler is cast and the tine fragment could also have come from a cast antler.

The small number of bones recovered makes any interpretation rather tentative and all that has been done is really to see how this small assemblage ties in with the bone from other larger Iron Age Sites such as Gussage All Saints.

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	horse	ox	sheep	pig	dog	fox	roe deer	red deer	sheep size	ox size	Unident
skull fragment	-	5	6	-	-	-	-	-	2	2	1
horn cores	-	5	1	-	-	-	-	-	-	-	-
antler	-	-	-	-	-	-	1	?1	-	-	-
mandible	1	19	26	2	-	-	-	-	5	5	1
maxilla	-	-	2	3	-	-	-	-	-	1	-
scapula	1	8	8	3	-	-	-	-	-	3	-
humerus	-	7	20	3	-	-	-	-	-	-	-
radius	1	9	30	1?	-	-	-	-	1	-	-
ulna	-	5	9	2	1	-	-	-	1	-	-
metacarpal	1	8	12	-	-	-	-	-	-	-	-
1st phalanx	-	-	3	-	-	-	-	-	-	-	-
3rd phalanx	-	1	-	-	-	-	-	-	-	-	-
os coxae	1	15	6	-	-	1	-	-	-	-	-
femur	2	4	6	-	1	-	-	-	-	1	-
tibia	1	5	30	3	-	-	-	-	3	-	-
fibula	-	-	-	2	-	-	-	-	-	-	-
calcaneum	-	3	3	-	-	-	-	-	-	-	-
astragalus	-	4	-	1	-	-	-	-	-	-	-
metatarsal	2	6	27	-	1	-	-	-	1	-	-
talus	-	4	-	-	-	-	-	-	-	1	-
patella	-	1	-	-	-	-	-	-	-	-	-
accessory mp	2	-	-	1	-	-	-	-	-	-	-
axis	-	4	2	-	-	-	-	-	-	-	-
vertebrae	-	16	7	-	-	-	-	-	1	1	-
sacrum	-	1	-	-	-	-	-	-	-	-	-
ribs	-	37	41	-	-	-	-	-	47	25	6
teeth	8	69	81	12	-	-	-	-	-	-	-
costal cartilage	-	-	1	-	-	-	-	-	-	-	-
Unidentifiable	-	-	-	-	-	-	-	-	77	142	421
Total	19	236	321	33	3	1	1	1	136	181	429
Percentage	1.4	17.3	23.6	2.4	0.2	0.1	0.1	0.1	10.0	13.3	31.5

Total = 1361

Chart showing the bones identified for each species from Wilmington Gravel Pit

WILMINGTON GRAVEL PIT MEASUREMENTS (for abbreviations see Jones 1976)

OX SCAPULA

PB	NB	ND	GB	GD	GL	L
-	-	-	65.2	47.8	50.5	-
-	48.5	19.5	-	-	-	-

OX HUMERUS

L1	L2	PB	PD	DB	DD	Bd	SD
-	-	-	-	71.0	-	74.5	33.0

OX RADIUS

L	PB	PD	MB	MD	DB	DD	PJB	Bfd
-	-	-	39.0	22.0	69.0	36.0	-	66.8
-	70.6	34.0	-	-	-	-	-	-
-	62.0	36.0	-	-	-	-	-	-
-	-	-	34.5	19.4				

OX METACARPAL

L	PB	PD	MB	MD	DB	MDD1	MDD2	LDD1	LDD2	WMC	WLC
-	48.9	29.8	-	-	-	-	-	-	--	-	-
-	46.3	32.5	-	-	-	-	-	-	-	-	-

OX TIBIA

L1	L2	PB	PD	MB	MD	DB	DD
-	-	-	-	38.2	26.8	59.4	43.5
-	-	-	-	-	-	56.0	41.5

OX ASTRAGALUS

A	B	C	D	E
58.5	45.3	53.5	36.3	38.2
58.1	-	-	-	-
61.7	49.0	56.8	42.1.	40.4

SHEEP SCAPULA

PB	NB	ND	GB	GD	GC	L
-	17.7	-	29.7	1g.0	22.3	-
-	16.2	9.3	-	17.7	-	-

SHEEP HUMERUS

L1	L2	PB	PD	DB	DD	BD	SD	GL	LT
-	-	-	-	27.8	-	26.0	13.5	-	-
-	-	-	-	25.8	17.8	27.0	13.5	-	-
-	-	-	-	22.0	17.1	23.5	11.4		
-	-	29.2	34.9	-	-	-	12.0		

SHEEP RADIUS

L	PB	PD	MB	MD	DB	DD	PJB
-	24.5	12.9	13.4	6.8	-	-	22.8
-	-	-	-	-	19.8	13.2	-
-	24.0	12.3	12.8	7.0	-	-	21.9
-	27.5	14.7	13.0	7.5	-	-	24.9
-	-	-	12.3	6.5	-	-	-

SHEEP ULNA

L	PB	PD	MB	MD
-	33.5	16.5	-	19.0

SHEEP METACARPAL

L	PB	PD	MB	MD	DB	MDD1	MDD2	LDD1	LDD2	WMC	WLC
111.0	17.9	12.8	10.2	9.0	21.1	9.0	13.0	9.0	12.8	9.9	9.2
-	-	-	11.0	8.0	20.5	-	-	-	-	-	-
-	21.2	14.8	11.3	8.5	-	-	-	-	-	-	-
-	19.8	14.2	-	-	-	-	-	-	-	-	-
-	17.7	13.2	9.8	8.9	-	-	-	-	-	-	-

SHEEP FEMUR

L1	LZ	DB	LCW	MCW	DD	MB	MD	HQ	HT
--	-	-	-	10.0	-	13.0	13.2	16.8	36.8

SHEEP TIBIA

L1	L2	PB	PD	MB	MD	DB	DD
-	-	-	-	13.2	11.5	22.1	17.8
-	-	-	-	-	-	20.8	15.2
-	-	-	-	12.4	10.2	-	-
-	-	-	-	12.4	10.5	-	-
-	-	-	-	11.0	10.8	-	-
-	-	-	-	-	-	22.9	18.2

SHEEP METATARSAL

L	PB	PD	MB	MD	DB	MDD1	MDD2	LDD1	LDD2	WMC	WLC
-	16.5	17.0	9.2	8.5	-	-	-	-	-	-	-
-	-	-	9.5	9.2	-	-	-	-	-	-	-
-	18.0	18.5	10.9	10.7	-	-	-	-	-	-	-

SHEEP CALANEUM

L1	L2	L3	PB	PD	AB1	AB2	AD1	AD2	AD3
32.7	35.5	48.2	11.5	13.0	18.5	-	-	-	-

WILMINGTON GRAVEL PIT MEASUREMENTS

HORSE SCAPULA

PB	NB	ND	GB	GD	GC	L
-	63.5	-	-	-	-	-

HORSE RADIUS

L	PB	PD	MB	MD	DB	DD	PJB	BFd	L1	SD	GLC
310.0	74.5	41.3	35.2	25.5	67.0	39.5	67.8	53.8	298.0	-	-

HORSE METACARPAL

L	PB	PD	MB	MD	DB	MDD1	MDD2	LDD1	LDD2	WMC	WLC
-	42.8	36.5	25.8	-	-	-	-	-	-	-	-

HORSE FEMUR

L1	L2	DB	LCW	MCW	MB	MD	HQ	HT
-	321.0	86.0	37.5	31.2	33.8	42.8	49.5	105.2
-	-	-	-	-	33.5	42.7	-	-

HORSE TIBIA

L1	L2	PB	PD	MB	MD	DB	DD
-	-	-	-	34.5	-	65.5	41.5
-	-	-	-	37.0	31.5	68.0	45.6

PIG HUMERUS

L1	L2	PB	PD	DB	DD	Bd	SD
-	-	-	-	28.0	27.5	36.5	-
-	-	-	-	-	-	-	14.5

PIG TIBIA

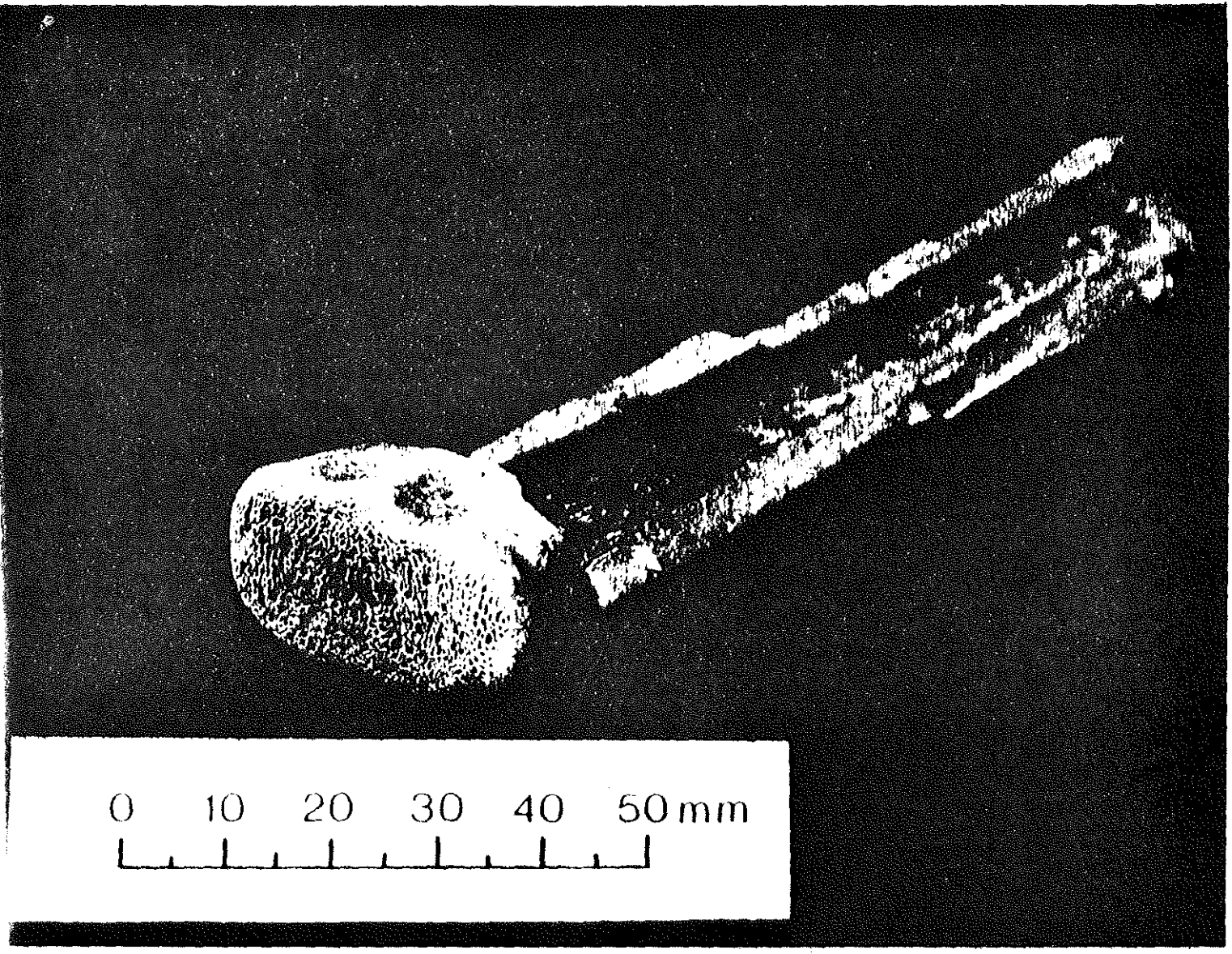
L1	L2	PB	PD	MB	MD	DB	DD
-	-	-	-	15.5	14.0	-	22.2

PIG ASTRAGALUS

A	B	C	D	E
38.0	30.7	35.2	-	-

DOG FEMUR

L1	L2	DB	LCW	MCW	MB	MD	HQ	HT
-	-	33.2	11.5	10.5	38.7	13.6	-	-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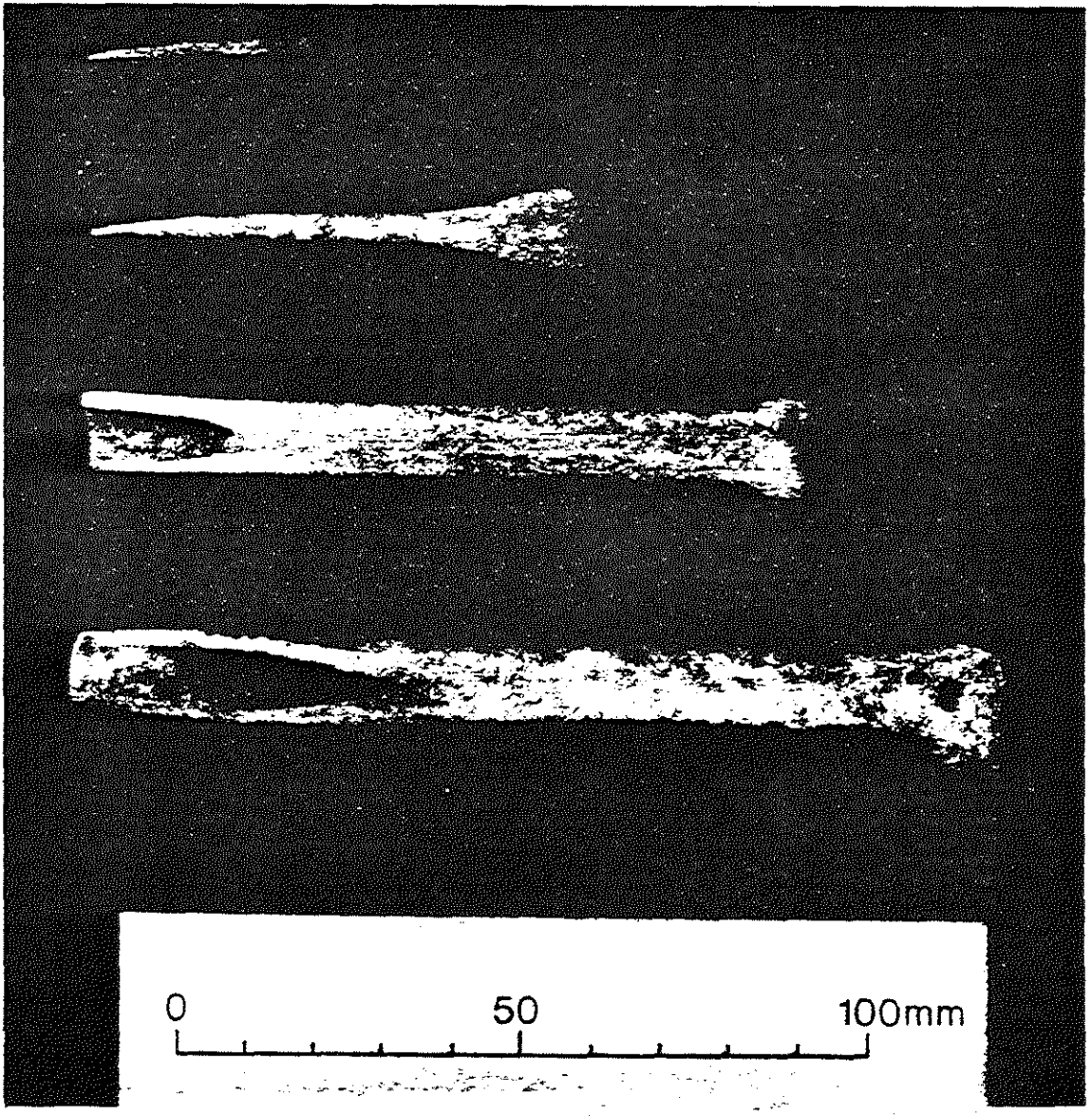
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