KM

1679

Report 3121.

WESTMINSTER: BROAD SANCTUARY

THE ANIMAL BONES

A. The Mammal bones

A total of 1324 mammal bones was recovered from three main ditches dated to the 15th and 16th centuries. In general discussion these three features have been treated as a single unit.

The following species were identified; horse (Equus sp.), ox (Bos sp.), sheep (Ovis sp.), pig (Sus sp.), fallow deer (Dama dama), dog (Canis sp.), cat (Felis sp.), rabbit (Oryctolagus cuniculus) and hare (Lepus sp.).

Measurements were taken whenever possible according to von den Driesch 1976 and are available on request from the author.

The chart below indicates the number of bones for each species in each ditch. The categories ox and sheep include ox and sheep sized fragments respectively, since ox and sheep were the two most frequently occuring species it is very likely that these fragments do indeed belong to these two species. All loose teeth and rib fragments have also been included in the count.

horse	ox	sheep	pig	f. deer	dog	cat	rabbit	hare	unident	
1	348	360	46	3	17	10	14	-	170	Ditch 101
1	82	123	4	1	5	1	2	-	41	Ditch 100
1	38	41	4	-	1	1	1	1	7	Ditch 107
3	468	524	54	4	23	12	17	1	218	Total

OX: Ox comprised 35% of the total, most parts of the skeleton were represented, 7% of which were mandibles. These were heavily chopped through the diastema, around the alveoli of the molars, or under the alveoli. Two partially complete skulls

were chopped around the area of the neurocranium, possibly to facilitate the removal of the brain. Chop marks were also common around the occipital condyles and the homion, which may be evidence of the removal of the head from the rest of the carcase. All the major meat bearing bones were chopped, frequently across the joint surfaces and around the mid shaft area. Rib fragments and vertebrae were heavily chopped, and os coxae were frequently chopped around the acetabulum.

Few of the mandibles were complete enough to apply the Grant method of ageing, but most were mature with all molars in full wear. The epiphyses of most long bones were fully fused.

Withers heights were calculated (using Fock 1966) from seven complete metacarpals giving a range of 113.2 to 123.3 cms, and ten metatarsals giving a range of 120 to 130 cms. Unfortunately there were too few metapodials to separate them into groups by sex.

No horncores were recovered from these ditches, which may suggest that they were being taken elsewhere for horn working, unlike sheep for whom many horn cores were present.

SHEEP: Again a relatively high proportion of mandibles was present, 10%, some of these were also chopped across the diastema and occasionally near the third molar.

On the skull the horncores had all been chopped off individually, and in one case sawn off. One pair of horncores was larger and more robust than the rest and probably belonged to a ram, these had been removed as a pair by chopping through the frontal bones. The occipital condyles were frequently chopped in the same manner as ox.

Butchery was noted on all the major meat bearing bones around the joint surfaces and about the mid shaft. On a few sheep humeri knifecuts were made encircling the midshaft. This has also been observed in other late medieval contexts at

Maison Dieu (Wall in press), Nonsuch Palace (Locker in preparation), and Baynards Castle (Armitage 1977 unpublished). The purpose of this is unclear, but it seems unlikely that this is the result of skinning since the bone bears a lot of flesh at this point, but it could be the preliminary stages of bone working later abandoned on these particular bones. As with ox the os coxae were heavily chopped around the acetabulum and at the proximal end of the femur.

Twenty six mandibles were aged according to Grant, their numerical values ranged from 32 to 42, indicating that the sheep were all fully mature, this is also supported by complete epiphyseal fusion in most of the long bones. This might suggest that the primary function of these individuals was not meat but wool, milk or breeding.

PIG: The pig only forms 4% of the total, and as is usual contains a much higher relative proportion of immature bones than ox or sheep. This is thought to be for two main reasons, firstly the pig has no other important economic function other than as a meat producer and therefore should be slaughtered as soon as it has achieved an optimum meat yield. Secondly it has a high fecundity rate which means fewer individuals need be kept for breeding.

One of the skulls was split saggitally, and on another the neurocranium was chopped away, presumably for the removal of the brain. Many of the long bones were chopped at their joint surfaces and around the mid shaft.

The other mammals that may have contributed to the diet were poorly represented, fallow deer was identified from three broken metapodials and a cast antler. Only a few bones of rabbit and one of hare was present.

On the femur of a dog the greater trochanter was covered in exostosis. Three shoulder heights were calculated using Harcourt (1974) on a humerus, radius and a femur, these gave heights of 49. 1 cms, 50.2 cms, and 49.2 cms respectively.

The cat bones included two skulls, no knifecuts were observed on these or any of the long bones so it seems unlikely that these cats were skinned.

B. The Bird Bones

A total of 60 bird bones was recovered, and included the following species; domestic fowl (Gallus sp.), duck cf mallard (Anas platyrhynchos), goose (Anser sp.), pigeon (Columba sp.), ? swan (Cygnus sp.), crow/rook (Corvus corone/frugilegus.).

The chart below shows the species present in each ditch.

Dom. fowl	duck	goose	pigeon	? swan	crow/rook	immature	unident	
16	3	8	2	1	6	6	5	Ditch 101
8	1	-	-	-	-	-	2	Ditch 100
2	-	-	-	-	-	-	-	Ditch 107
26	4	8	2	1	6	6	7	Total

All the mature bones were measured, and all these species were probably eaten except crow which may have been a scavenger around the site.

C. The Fish Bone

Thirteen fish bones were recovered, the following species were identified; conger eel (Conger conger), cod (Gadus morhua), gurnard (Triglidae), turbot (Scophthalmus maximus), these were all recovered by hand picking on site which may well have reduced the chances of recovering the smaller species.

conger eel	cod	gurnard	turbot	unident	
1	1	-	1	3	Ditch 101
-	3	-	-	1	Ditch 100
-	1	1	-	1	Ditch 107
1	5	1	1	5	Total

All these species are marine and could be caught in the North Sea, conger eel is commonly caught by lines and traps off rocky coasts, cod is a deep water fish, caught on lines and up until the 18th century was probably marketed salted or dried. It was not possible to identify the gurnard to species as the skull bone was similar to Tub, Red and Grey gurnard, all of which have been eaten. The turbot is common in the southern North Sea and has long been prized as a food fish.

The biology notes are all based on Wheeler (1978).

D. The Shellfish (and snails)

A total of 309 fragments of shellfish was recovered, including the following; oyster (Ostrea edulis), cockle (Cardium edule), mussel (Mytilis edulis) and whelk (Buccinum undatum).

oyster	cockle	mussel	whelk	
242	14	8	2	Ditch 101
25	2	4	1	Ditch 100
1	-	-	-	Ditch 107
278	16	12	3	Total

Twenty eight Cepaea and one Planorbid were also present. All the shellfish were probably eaten and oysters are known to have been a very cheap source of food at this time. Each valve of the bivalves was counted separately.

General Conclusions

This faunal assemblage suggests a mixture of debris types, household domestic waste is suggested by chopped bone that probably came from individual joints of meat, and chops. Butchers waste may be represented by the many mandible and skull fragments which are usually removed at source by the butcher during 'primary' butchery. Thirdly the disposal of non dietary waste is suggested by the presence of horse,

dog and cat whose partial corpses were incorporated in these deposits.

Essentially these deposits are dumps of urban organic waste whose sources are varied, the livestock may have been brought some distance to the site specifically for slaughter which would account for the sheep and ox being consistently mature, in comparison with the different age groups one might expect to encounter when dealing with a single population.

These deposits of decomposing material in close proximity with the possible dumps of cess material indicated by the pollen analysis (Scaife 1980) must have been a rank, putrid neighbour for the occupants of the houses indicated on the engravings.

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BROAD SANCTUARY

Measurements
(for abbreviations see von den Driesch)

OX METATARSAL

GL	Bp	Dp	SD	DD	Bd[1] (at fusion of epiphysis)	Bd[2] (at distal end)	Dd
246.0	-	-	33.7	28.5	58.0	61.0	-
-	49.7	45.0	29.8	-	-	-	-
221.7	53.7	46.7	28.7	26.2	55.7	60.0	34.2
222.3	43.5	43.5	24.6	23.7	48.0	51.7	30.4
221.5	49.0	48.3	27.9	26.8	55.0	56.8	32.0
220.0	51.2	49.0	28.2	26.4	55.8	59.3	31.0
251.0	52.5	51.2	29.4	28.2	56.2	58.2	33.7
240.0	53.7	51.5	31.7	27.0	57.9	60.8	33.5
251.0	53.0	51.5	33.0	28.5	58.3	60.9	34.5
-	-	-	27.8	25.0	54.3	60.2	31.5
240.0	51.8	50.0	31.3	27.3	58.7	62.5	33.5
-	47.7	46.0	-	-	-	-	-
-	48.5	46.2	-	-	-	-	-

OX METACARPAL

GL	Bp	Dp	SD	DD	Bd[1]	Bd[2]	Dd
195.0	-	38.7	39.0	21.8	58.5	65.2	31.9
187.0	58.2	36.3	36.5	23.2	59.8	68.3	31.2
201.5	62.6	36.0	38.0	22.8	59.2	64.8	33.6
200.0	58.5	33.8	33.6	23.2	60.3	59.2	30.8
190.0	62.8	40.8	38.0	23.5	61.2	71.2	32.7
190.0	61.9	39.0	36.0	23.8	60.2	65.7	32.5
185.0	55.0	34.0	33.0	22.5	55.5	58.8	29.5

OX MANDIBLE

7	8	9	10L	10B	11	15a	15b	15c
142.0	95.5	52.7	36.9	15.2	-	74.0	49.2	39.8
-	-	54.5	-	-	-	-	50.3	41.4
-	-	44.7	-	-	95.5	-	44.5	36.0
-	-	44.5	-	-	88.5	-	43.5	31.2
-	-	41.0	-	-	-	-	-	38.5
-	-	49.0	-	-	110.2	-	-	39.5
-	-	-	-	-	117.2	-	-	-
-	-	48.0	-	-	114.0	-	-	46.5

BROAD SANCTUARY MEASUREMENTS

OX RADIUS

BP	BFp	Bd	BFd
86.2	79.2	62.0	55.2
87.7	79.2	-	-
80.5	72.2	-	-
72.2	67.2	-	-

OX OS COXA

LA	LAR	LFO
31.2	53.8	36.3
26.7	-	32.3

SHEEP MANDIBLE

7	8	9	10L	10B	12	13	14	15a	15b	15c
73.2	49.5	23.2	19.2	6.8	-	-	-	37.0	23.0	18.5
72.5	50.5	23.0	18.9	7.2	-	-	-	-	23.0	19.5
71.0	47.8	22.2	17.0	6.8	-	-	-	37.0	23.0	19.5
68.0	48.5	20.0	18.5	7.8	-	-	-	34.8	-	-
69.5	47.6	22.5	18.9	7.0	68.5	62.0	95.0	36.2	20.2	17.0
-	53.0	-	22.0	7.8	72.8	67.0	103.5	39.5	21.7	-

SHEEP SCAPULA

SLC	GLP	LG	BG
18.9	29.8	23.2	19.0
20.0	31.8	24.8	21.9
21.2	34.2	26.5	19.7

SHEEP RADIUS

GL	Bp	BFp	SD	Bd	BFd
-	30.5	28.7	17.0	-	-
161.0	30.8	28.2	16.2	18.8	23.2
134.0	28.7	25.8	16.2	27.0	21.4
-	31.2	28.8	18.2	-	-

SHEEP TIBIA

SD	Bd
14.5	28.2

HORSE RADIUS

SD	Bd	BFd
37.0	72.2	60.5

HORSE 3RD PHALANX

GL	GB	LF	BF	Ld	Hp
65.5	69.6	24.0	46.8	48.2	26.0

BROAD SANCTUARY MEASUREMENTS

OX RADIUS

BP	BFp	Bd	BFd
86.2	79.2	62.0	55.2
87.7	79.2	-	-
80.5	72.2	-	-
72.2	67.2	-	-

OX OS COXA

LA	LAR	LFO
31.2	53.8	36.3
26.7	-	32.3

SHEEP MANDIBLE

7	8	9	10L	10B	12	13	14	15a	15b	15c
73.2	49.5	23.2	19.2	6.8	-	-	-	37.0	23.0	18.5
72.5	50.5	23.0	18.9	7.2	-	-	-	-	23.0	19.5
71.0	47.8	22.2	17.0	6.8	-	-	-	37.0	23.0	19.5
68.0	48.5	20.0	18.5	7.8	-	-	-	34.8	-	-
69.5	47.6	22.5	18.9	7.0	68.5	62.0	95.0	36.2	20.2	17.0
-	53.0	-	22.0	7.8	72.8	67.0	103.5	39.5	21.7	-

SHEEP SCAPULA

SLC	GLP	LG	BG
18.9	29.8	23.2	19.0
20.0	31.8	24.8	21.9
21.2	34.2	26.5	19.7

SHEEP RADIUS

GL	Bp	BFp	SD	Bd	BFd
-	30.5	28.7	17.0	-	-
161.0	30.8	28.2	16.2	18.8	23.2
134.0	28.7	25.8	16.2	27.0	21.4
-	31.2	28.8	18.2	-	-

SHEEP TIBIA

SD	Bd
14.5	28.2

HORSE RADIUS

SD	Bd	BFd
37.0	72.2	60.5

HORSE 3RD PHALANX

GL	GB	LF	BF	Ld	Hp
65.5	69.6	24.0	46.8	48.2	26.0

BROAD SANCTUARY MEASUREMENTS

PIG HUMERUS

SD	Bd	BT
21.2	48.8	36.5
11.5	32.2	24.5

DOG MANDIBLE

1	2	3	4	5	6	7	8	9	10
148.0	-	143.0	133.0	125.0	132.2	86.5	78.0	73.5	35.5
-	-	-	116.2	110.5	114.5	78.2	71.5	68.0	33.8
-	-	-	-	-	-	-	-	-	-

11	12	13	14	15	16	17	18	19	20
44.5	39.0	21.2	23.0	L8.2	-	-	55.8	24.0	19.5
38.5	33.9	22.6	20.5	B5.7	-	9.2	51.2	20.3	17.0
-	-	24.2	24.3	-	-	-	-	26.8	-

DOG AXIS

LCDe	LAPa	BFcr	BPacd	BPtr	SBV	BFcd	H
52.2	56.0	31.2	32.7	-	21.0	18.5	39.2

DOG SCAPULA

SLC	GLP	LG	BG
21.5	26.3	23.0	17.2

DOG ULNA

DPA	SDO	BPC
20.9	17.5	15.2

DOG HUMERUS

GL	GLC	Bp	Dp	SD	Bd	BT
151.0	148.0	27.0	36.5	11.2	28.5	20.1
150.0	148.0	27.5	34.5	11.5	30.4	22.2

CAT SKULL

16	17	18	19	20	21	22	25
20.0	12.2	39.5	21.8	13.2	11.8	40.0	17.3

CAT SCAPULA

HS	DHA	Ld	SLC	GLP	LG	BG
70.0	-	-	13.8	14.5	12.2	9.9
63.2	-	-	10.2	14.0	11.5	8.7

CAT RADIUS

GL	Bp	BFp	SD	Bd	BFd
82.5	7.2	-	5.7	11.5	9.0

BROAD SANCTUARY MEASUREMENTS

CAT ULNA

GL	LO	DPA	SDO	BPC
106.9	11.7	10.2	8.5	8.2

CAT FEMUR

GL	GLC	Bp	Btr	DC	SD	Bd
106.1	106.5	21.5	-	10.2	8.9	18.8

CAT TIBIA

GL	Bp	SD	Bd	Dd
113.0	20.2	7.2	13.2	10.5
112.2	19.5	7.2	14.0	10.2
99.5	17.2	6.5	13.0	9.0

RABBIT FEMUR

GL	GLC	Bp	BTr	DC	SD	Bd
80.0	77.8	16.0	15.2	7.0	7.2	13.2
81.3	78.0	14.7	14.5	7.2	6.7	14.0
81.8	78.8	15.8	14.5	6.5	6.5	13.5
82.7	79.8	15.5	15.4	6.8	6.7	13.2
-	-	16.2	14.8	7.0	7.0	-

RABBIT TIBIA

Bp	SD
13.7	6.0
13.7	6.2

RABBIT HUMERUS

GL	Dp	SD	Bd	BT
61.5	12.4	3.5	8.5	7.8
-	-	3.5	8.5	7.5

RABBIT RADIUS

GL	Bp	SD	Bd	BFd
59.5	6.5	3.5	5.7	5.0

RABBIT ULNA

LO	DPA	SDO	BPC
8.2	7.5	7.2	5.9

BROAD SANCTUARY

Bird Measurements
(for abbreviations see von den Driesch)

DOMESTIC FOWL HUMERUS

GL	Bp	Bd	SC
81.9	30.0	17.2	7.2
75.0	21.8	16.0	7.7
84.0	23.2	18.5	9.0
67.5	18.2	14.5	6.8
-	-	19.2	7.7
-	-	15.0	7.2

DOMESTIC FOWL FEMUR

GL	Bp	Bd	SC	LM	Dp	Dd
-	18.0	-	7.2	-	12.0	-
90.0	-	17.9	7.2	-	-	15.0
-	-	15.0	6.5	-	-	12.2
78.5	14.9	15.2	6.2	13.2	10.8	12.5
-	18.5	-	7.8	-	-	-

DOMESTIC FOWL TIBIATARSUS

GL	Dip	Bd	SC	La	Dd	(Bp)
120.2	22.9	12.3	7.0	115.7	13.0	14.7
110.3	19.5	10.8	6.5	106.7	11.5	12.5
-	-	13.3	7.0	-	14.0	-
-	22.5	-	6.5	-	-	15.2
-	-	11.5	6.2	-	12.2	-
-	17.5	-	5.8	-	-	11.0
-	19.0	-	5.5	-	12.8	-
-	19.2	-	-	-	-	13.0

DOMESTIC FOWL CORACOID

GL	LM	Bb
56.5	54.2	15.0
58.2	55.2	-
49.7	47.5	-

DOMESTIC FOWL ULNA

GL	Bp	SC	Did
70.5	8.2	4.2	9.0

DOMESTIC FOWL TARSOMETATARSUS

Bp	SC
13.5	6.5

BROAD SANCTUARY BIRD MEASUREMENTS

DOMESTIC FOWL RADIUS

GL	Bd	SC
71.8	7.5	3.5
71.2	7.2	3.5

CROW/RAVEN RADIUS

GL	Bd	SC
78.5	6.5	2.5

CROW/RAVEN HUMERUS

GL	Bp	Bd	SC
-	20.3	-	6.2
49.2	15.3	12.2	4.8

CROW/RAVEN TIBIATARSUS

GL	Dip	Bd	SC	La	Bd	(Bp)
96.5	10.2	9.3	4.9	94.0	8.7	9.9

CROW/RAVEN FEMUR

Bp	SC
11.2	4.5

CROW/RAVEN SKULL

2	5	7	8
31.5	12.5	-	-

DUCK (CF MALLARD) CORACOID

GL	LM	BF
54.5	51.8	20.5

DUCK (CF MALLARD) ULNA

GL	Bp	SC	Did
80.0	11.0	5.7	11.2

DUCK (CF MALLARD) RADIUS

GL	Bd	SC
75.2	7.5	3.5

BROAD SANCTUARY BIRD MEASUREMENTS

GOOSE HUMERUS

SC
10.7
11.7
11.2
11.0
10.2

GOOSE TIBIATARSUS

GL	Dip	Bd	SC	Dd
-	-	17.0	8.9	17.2

PIGEON RADIUS

GL	Bd	SC
56.0	6.0	2.5

PIGEON FEMUR

GL	Bp	Bd	SC	Lm	Dp	Dd
46.5	11.0	10.0	4.2	44.3	7.8	8.5