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THE ANIMAL BONES FROM LUCY TOWER STREET, LINCOLN.

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The Animal Bones from Lucy Tower Street, Lincoln

By

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Introduction

The site lay to the north east of the junction of the present Lucy Tower Street, and Brayford Wharf North. In 1972, excavation began on the area previously occupied by an old peoples day centre, which was about to be developed into a multi-storey car park.

The features of the site consisted of the Roman ditches and ramparts of the lower town, which were extended down to the edge of Brayford Pool during the medieval period, and fortified with defensive towers (Lucy Tower being one such, constructed in the mid thirteenth century). The initial excavation measured only 7 metres square, but was extended to 11 by 18 metres. With the site being so close to the edge of Brayford Pool, the site had to be pumped continuously to keep it clear of water.

Because 754 of the total of 959 identified animal bone fragments from this site predate the towers construction, this report is largely a discussion of this body of pre-13th century data. There was a small amount of material of post medieval date from ditch fills containing 17th and 18th century pottery, and this will be discussed in brief at

Methods and Techniques

As there were no very large contexts from the site, it was possible to record all of the bones on small index cards. Apart from identifying skeletal elements and assigning them to species, a number of other features were recorded and they are listed out below.

1. Features of preservation (gnawing and abrasion)

2. Dental attrition and eruption state (Grant, 1982: Payne, 1984)

3. Disease and injury

4. The fusion of long bone epiphyses (Silver, 1969)

5. Discontinuous genetic traits

6. Any evidence of butchery

In addition, the most complete long bones were measured with vernier calipers using the bioretrical system devised by von den Driesch (1976), and these form an archive at the end of the report.

The index cards are stored in the Environmental Archaeology Unit at the University of York, and the bones themselves are the property of the Trust for Lincolnshire Archaeology.

Results

Of the 946 fragments excavated from pre-Tower-construction deposits, it was possible to identify 754 fragments (79.7%) to species. In rank order of abundance, cattle sheep and pig were the most common species, accounting for 93.4% of all identified fragments.

The majority of cattle long bone epiphyses were fused, but the single mandible with recorded dental attrition is from a very immature individual. With regards the distribution of cattle bones, they were present in over 80% of all contexts. In terms of the actual carcass components represented, there was a fairly random scatter of skeletal elements, although skull and jaws were disproportionally over-represented. The paucity of data precluded a detailed examination of carcass distribution.

Sheep bones accounted for 30.8% of all identified fragments, spread evenly throughout three quarters of all contexts from this phase. All recorded sheep dentition was that of adult individuals i.e. with the third molar in wear, suggesting an age at death of at least three years. Similarly there were no very immature individuals represented by unfused long bone epiphyses. The most abundant sheep skeletal elements were skull, scapulae and pelvis, accounting for nearly 60% of all sheep bone fragments.

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Pig, the third most abundant species was represented in nearly half of all contexts from the site. A study of the dentition revealed that in general pigs were being killed, or were dying, before reaching adulthood i.e. less than two years old. In seven out of ten cases where it was possible to sex the pig jaws, they appeared to have belonged to female animals. In one context (PC) of mid 13th. century date, there was a complete frontal half of a very immature piglet skeleton including the complete upper vertebral column. In general however, fragments of pig bones were usually fragments of skull or mandible.

Of the recorded cattle and sheep mandibles, there were no examples with an absent second premolar or a reduced third column on the third molar. Both of these features are discontinuous recessive genetic traits which are usually present at a very low frequency in modern cattle and sheep populations. However bearing in mind the small size of this assemblage, the absence of these features is not too surprising.

The only other species represented, and then only in very small numbers, were horse, goat, cat, dog, domestic fowl, goose, mallard, buzzard and cod, and their bones were spread randomly throughout the deposits.

The majority of measured bone included in the Biometry Archive (see below) was of the pre-Tower construction phase, and the range of measurements falls well within that of other roughly contemporaneous

[illegible] within the city [illegible]. Comparatively few of the bones show [illegible] the distribution of cut marks is a random scatter, [illegible] on any one bone or group of bones.

There were no examples of diseased or injured bone.

There were only 205 identified bone fragments of medieval and post medieval date overlying the pre-Tower construction phase. There was nothing to distinguish it from the earlier phase in terms of the species represented and their relative abundances (see Table 1).

Although at the time of writing the dating and significance of these pre-Tower deposits remains unclear, the bones have evidently derived from the deposition of generalised urban waste. There is no concentration of any particular category of bones, such as horn cores or hooves, nor any other evidence that the bones are waste from some particular industrial activity. It seems likely, therefore, that the pre-Tower deposits represent accumulations of refuse from the town being dumped at the edge of the lower town, on the margins of Brayford Pool.

Table 2 - The frequency of species represented on the site

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	Total contexts (n)
I+II	6	44	10	5	0	0	0	25	0	2	10	0	0	0	0	0	7	3	8	2	53
III	4	13	11	1	0	0	0	4	0	5	3	0	0	0	0	0	1	1	1	1	14

Key
1.Horse
2.Cattle
3.Sheep
4.Goat
5.Red deer
6.Fallow deer
7.Roe deer
8.Domestic pig
9.Wild pig
10.Cat
11.Dog
12.Brown hare
13.Rabbit
14.Human
15.Other mammal
16.Amphibian
17.Fish
18.Domestic fowl
19.Domestic goose
20.Other bird

Table 3 - The dentition of the major domesticates

(The table gives numerical Tooth Wear Scores as defined in Grant, 1982)

Cattle Mandibles

Context	R/L	Dp4	P4	M1	M2	M3	Phase
CS	R	7	-	3	-	-	I+II
CW	L	7	-	3	-	-	III

Sheep Mandibles

Context	R/L	Dp4	P4	M1	M2	M3	Phase
DW	R	-	15	-	16	13	I+II
"	R	-	-	12	11	-	"
"	L	-	13	17	14	-	"
"	L	-	11	12	11	10	"
"	L	-	12	13	-	-	"
DZ	R	-	12	15	13	12	"
DX	L	-	13	-	14	13	"
BG	R	-	12	15	13	12	"
DS	L	-	-	17	11	13	"
DW	R	-	10	13	12	11	"
DX	R	-	10	13	12	11	"
DD	L	-	13	14	13	12	"
DF	L	-	10	-	-	-	"
"	R	-	14	17	13	12	"
"	R	-	-	17	14	-	"
"	R	-	11	12	11	9	"
AX	L	-	-	12	10	3	III
CS	R	-	9	-	-	R	"
"	L	11	-	4	-	-	"
CS	L	-	-	17	14	13	"
CW	L	-	11	13	12	10	"
"	L	-	14	17	14	12	"

Pig Mandibles

Context	R/L	FF	Dp4	P4	M1	M2	M3	Phase
DW	R	F	-	5	9	6	-	I+II
DX	L	R	-	4	R	-	-	"
"	R	F	16	-	10	6	-	"
BG	R	-	9	-	6	-	-	"
								"

Context	R/L	MF	Dp4	P4	I1	M2	M3	Phase
DB	R	F	-	5	9	6	-	I+II
DX	L	F	-	4	8	-	-	"
"	L	F	16	-	10	6	-	"
DG	R	F	9	-	6	-	-	"
"	L	F	9	-	6	-	-	"
DO	L	F	-	10	11	14	6	"
DA	L	F	-	8	-	-	-	"
"	L	F	-	-	5	-	-	"
DK	L	F	-	13	18	17	15	"
"	L	F	-	-	-	9	6	"
DL	R	F	-	8	11	7	3	"
DE	R	F	-	9	15	12	8	"
CA	L	F	-	-	-	8	6	III
"	L	F	-	-	11	8	6	"
CC	R	F	16	-	7	6	-	

Table 4 = Epiphyseal fusion in the Pre-Tower Phase

	1		2		3		4		5		6		7		8		9		10		11		12		13		14	
	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF	F	UF
n.	28	1	25	9	6	3	1	9	20	0	9	0	14	6	6	6	0	4	2	0	2	2	0	0	1	3	0	1

Cattle
1.Early fusing = Distal humerus, proximal radius, phalanges 1+2
2.Intermediate fusing = Distal metacarpal, distal metatarsal, distal tibia, tuber calcis
3.Late fusing = Proximal humerus, distal radius, olecranon tuberosity, proximal and distal femur, proximal tibia
4.Vertebrae

Sheep
5.Early fusing = Proximal radius, distal humerus
6.Intermediate fusing I = Phalanges 1+2, distal metacarpal
7.Intermediate fusing II = Distal tibia, distal metatarsal, olecranon tuberosity, proximal femur, tuber calcis
8. Late fusing = Distal radius, proximal humerus, distal femur, proximal tibia
9.Vertebrae

Pig
10.Early fusing = Distal humerus, proximal radius
11.Intermediate fusing I = Distal metacarpal, distal tibia
12.Intermediate fusing II = Distal metatarsal, tuber calcis
13.Late fusing = Olecranon tuberosity, proximal humerus, distal radius, proximal femur, distal femur, proximal tibia
14.Vertebrae

Table 5 = The distribution of the carcass components of the major domesticates.

Cattle Horn cores

Context	R/L	Length	Bas circ	Gr Lr	Le Lr
AK	P	-	157.0	52.3	44.1
"	R	(160)	124.0	40.3	33.1
"	R	128.0	118.0	36.8	29.7
DJ	L	-	151.0	50.5	42.5

Cattle scapula

Context	R/L	GLP	LG
AE	R	55.1	44.0

Cattle metatarsal

Context	R/L	Gl	Dp	Pf	Sd	Bd	Td
AJ	R	205.0	41.3	46.9	23.7	49.9	27.4

Cattle metacarpal

Context	R/L	Gl	Bp	Df	Sd	Bd	Fd
AA	L	205.1	55.6	33.7	30.3	-	-

Sheep horn cores

Context	R/L	Length	Bas circ	Gr Lr	Le Lr
CT	L	(204)	111.0	40.9	33.9

Sheep radius

Context	R/L	Gl	Bp	Dfd	Dp	Sd	Bd	BFd	Dd
DP	L	155.6	30.3	27.0	15.6	17.4	29.9	24.2	-
DZ	L	142.5	30.6	28.9	15.4	16.5	27.7	-	16.1
CS	L	163.0	32.4	29.0	17.1	17.7	31.6	-	21.4
"	L	149.6	32.4	30.2	-	17.9	30.1	-	18.9
CK	R	155.4	36.2	30.1	-	15.6	29.4	-	19.2
"	R	148.7	30.8	21.3	-	17.1	29.2	-	18.7
"	L	149.5	31.3	28.7	-	16.9	30.2	-	20.5

Sheep metatarsal

Context	R/L	Gl	Bp	Df	Sd	Bd	Td
BX	L	126.1	21.1	20.3	22.1	24.3	14.8
DG	L	117.7	17.3	18.3	18.4	21.6	14.3
CY	R	131.8	18.6	18.7	20.9	23.7	15.7

Sheep humerus

Context	R/L	Gll	Glc	Li	Sd	Bd	Dd
AB	L	126.6	111.0	33.7	13.8	27.1	23.4
CH	P	146.4	129.6	41.7	15.8	29.8	27.8

Context	S/L	Length	Bas circ	Gr br	Sm br
CT	L	(204)	111.6	40.9	33.9

Sheep radius

Context	S/L	GL	Bp	BFd	Dp	Sd	Bd	BFd	Dd
DF	L	155.6	32.3	27.0	15.6	17.4	29.9	24.2	-
DZ	L	142.6	30.6	26.9	15.4	16.5	27.7	-	16.1
CS	L	163.6	32.4	29.9	17.1	17.7	31.6	-	21.4
"	L	149.6	32.1	30.2	-	17.9	30.1	-	18.9
CK	R	155.4	36.2	29.1	-	15.6	29.4	-	19.2
"	R	148.7	33.8	28.3	-	17.1	29.2	-	18.7
"	L	149.5	31.3	28.7	-	16.9	30.2	-	20.5

Sheep metatarsal

Context	S/L	GL	Bp	Dp	Sd	Bd	Dd
BX	L	126.1	21.1	20.3	22.1	24.3	14.8
CD	L	117.7	17.3	18.3	19.4	21.6	14.3
CY	R	131.8	18.6	18.7	18.9	23.7	15.7

Sheep humerus

Context	S/L	GLl	Glm	Bp	Sd	Bd	Dd
AB	L	126.6	111.8	33.7	13.8	27.1	23.4
CH	R	146.4	129.6	41.7	15.8	29.8	27.8

Sheep metacarpal

Context	S/L	GL	Bp	Dp	Sd	Bd	Dd
DQ	L	135.2	21.1	27.3	14.7	27.9	16.9
CS	L	122.4	21.7	15.8	12.9	23.9	15.8

Dog femur

Context	S/L	GLl	Glm	Dj	Dc	Sd	Bd	Dd
BP	L	137.7	133.4	26.3	13.2	9.5	24.6	23.3
AS	L	122.1	119.4	25.2	12.6	8.5	21.2	22.4
CX	L	118.6	119.5	25.6	12.5	8.8	22.2	22.3
CJ	R	158.8	160.9	29.7	14.9	11.1	26.8	26.1

Dog humerus

Context	S/L	GLl	Glm	Bp	Dp	Sd	Bd	Dd
AY	R	159.9	154.5	31.5	45.2	13.6	33.9	26.2

Dog tibia

Context	S/L	GL	Bp	Sd	Bd
CA	L	174.3	31.7	12.3	19.1
"	L	246.6	39.2	15.2	26.1

Horse metacarpal

Context	F/L	Gl	Bp	Sd	Bd
AX	L	216.1	42.1	31.2	46.9

Cat humerus

Context	F/L	Gll	Glm	Bp	Dp	Sd	Bd	Dd
AA	L	89.4	86.2	13.9	18.5	6.6	16.6	9.7
"	L	87.9	87.3	13.9	16.7	5.7	15.6	8.8

Cat radius

Context	F/L	Gl	Bp	Sd	Bd
AA	L	94.5	6.8	4.4	10.1

Goose radius

Context	F/L	Gl	Bp	SD	Bd
CY	L	1494.	7.9	4.6	10.7

Goose tarsometatarsal

Context	F.L	Gl	Bp	Sd	Bd
DB	P	-	-	8.4	20.6

Domestic fowl humerus

Context	R/L	Gl	Bp	Sd	Bd
CY	R	66.7	13.4	6.4	13.6

Mallard tibia

Context	R/L	Gl	Bp	Sd	Bd
AE	L	83.1	12.7	4.5	8.6