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KILLING CATS IN THE MEDIEVAL PERIOD. AN UNUSUAL EPISODE IN THE HISTORY OF CAMBRIDGE, ENGLAND

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ABSTRACT: The partial skeletons of 79 medieval cats were recovered from a well in Cambridge, England. The animals had been killed by having their throats cut and were subsequently skinned and dismembered for consumption by the inhabitants of the town. A metrical study revealed the small stature of the cats in comparison with those from medieval Colchester and late medieval and early post medieval Norwich, while an allometric analysis showed that the build of the animals was different from those excavated at the early medieval town of Haithabu, Germany, where even the female cats were much larger than the Cambridge males. Both the Haithabu and Cambridge cat assemblages are composed of almost equal proportions of males and females, and this, certainly in the case of the Cambridge sample argues against the slaughtered animals having been held in captivity.

KEYWORDS: CATS, KILLING, SKINNING, BUTCHERY, AGEING METHOD (M.E.S.), SEXING, SIZE

RESUMEN: Setenta y nueve esqueletos incompletos de gatos de época medieval se recuperaron de un pozo en Cambridge, Inglaterra. En primer lugar, los animales fueron degollados, luego desollados y por último descuartizados para consumo de los habitantes de la ciudad. El estudio métrico reveló el tamaño pequeño de estos gatos en comparación con los de la ciudad medieval de Colchester y los gatos tardo- y post-medievales de Norwich. A su vez, un análisis alométrico mostró que la constitución de los animales era diferente de aquellos excavados en la ciudad alto-medieval de Haithabu, Alemania, donde incluso las hembras eran mucho más grandes que los machos de Cambridge. Tanto el conjunto de Haithabu como el de Cambridge están formados por machos y hembras casi en igual proporción. Esto último, en el caso de la muestra de Cambridge, desde luego, sugiere que los animales sacrificados no se encontrarían en cautividad.

PALABRAS CLAVE: GATOS, SACRIFICIO, DESUELLO, DESPIECE, METODO PARA DETERMINAR EDAD (M.E.S.), SEXO, TAMAÑO

INTRODUCTION

The treatment of domestic cats in the medieval period (late 11th-15th-centuries AD) of England has not been determined satisfactorily. There is little documentary evidence available (Dr Mark Bailey, pers. comm.) and few sizeable bone assemblages have been recovered from archaeological sites (see section 5.1). Were they viewed mainly as pets or pests?. How important were they in the extermination of vermin?. How much value was put on their skins?. And were they ever eaten?

The few cat bones that occur on Romano-British sites (mid 1st-4th-centuries AD) are generally interpreted as being domestic (Luff, 1982: 265), and while numbers remain low in the Anglo-Saxon period (5th-mid 11th-centuries AD) (Appendix A), they do increase substantially on *some* sites in the post-conquest period of medieval England (O'Connor, 1982 and see section 5.1).

Clearly, the use of cats must have varied from one medieval town to the other, each town representing a specific ecosystem defined by a number of constraints including local topography, drainage, climate, density of settlement and systems of rubbish disposal. These variables may have had a considerable effect on the survival of rodents such as mice and black rats, which in turn might have had some influence on the incidence of cats. By the later medieval period, faunal evidence has demonstrated that there were sizeable populations of black rats (*Rattus rattus*) and house mice (*Mus musculus*) in towns across England (Armitage, West & Steedman, 1984).

It would be most interesting to know if cats increase on sites where there is an increased occurrence of the black rat, but currently this is open to speculation since not enough sieved material has been processed on urban sites.

QUALITY AND QUANTITY OF MATERIAL

This paper is based on the skeletal remains of 79 cats recovered from a 13th-century AD well in Cambridge, England.

The bones are in an excellent condition. Twenty-seven almost intact skulls were gathered, in addition to post-cranial material. The material was well-retrieved; all the deposits had been wet-sieved through a mesh of 0.5 mm and dried in natural conditions.

AIMS AND METHODS

The Bene't Court cranial material is important since it allows distinctions between wild and domestic felids, and this is very difficult to do with post cranial bones. Therefore, the first aim of this study is to determine whether the remains are wild and/or domestic using the methods of Kratochvil (1973) and Kratochvil & Kratochvil (1976).

A detailed analysis of the skeletal element composition and butchery marks will inform on the following: methods of slaughter and skinning and whether the animals were prepared for human consumption.

Although it is known that skins from cats of native origin were used by medieval English skinners, it is not known *how* the beasts were procured or in *what quantity* (Veale, 1966: 58).

Methods of ageing (Smith, 1969; Berman, 1974) and also sexing the bones through metrical analysis will determine whether the cats had been selectively bred and culled.

A metrical analysis of the material, in particular the adult mandibles, using the measurements of von den Driesch (1976), will enable the size of the cats to be determined and permit a comparison with other cats of similar date, both in Britain and abroad. In addition, an allometric analysis concerning the shape of the mandibles might describe the 'breeds' or 'types' of cat that inhabited medieval towns.

THE CAT REMAINS FROM BENE'T COURT, CAMBRIDGE, ENGLAND

THE ARCHAEOLOGICAL SITE

The skeletal remains were excavated from a well (373) at the back of a medieval tenement, which is located by the Eagle Public House on Bene't Street, Cambridge. The excavation, which took place in the summer of 1993, was prompted by development of the area adjacent to the Eagle Public House and was directed by Dr G. Wait on behalf of the Cambridge Archaeological Unit, University of Cambridge.

The well contained some of the original wattle lining at its base, and in association with the cat skeletons was found highly distinctive, good quality pottery dated to the 13th-century AD.

The collection of cats appears to have been dumped in one episode. This was suggested by the state of bone preservation and its recovery from one layer within the well.

THE CAT BONES

Table 1 shows the representation of skeletal elements by both the number of bone fragments (NISP) and minimum number of individuals per skeletal element (MNI). Clearly, cranial remains predominate over post-cranial elements. Seventy nine cats are represented by skull fragments and of these, there are 27 almost complete skulls, while 75 individuals are represented by the mandible.

BONE	NISP	MNI
Skull	874 + 27 skulls	79
Mandible	142	75
Atlas	7	7
Axis	6	6
Cervical vertebra	14	-
Thorathic vertebra	25	-
Lumbar vertebra	41	-
Caudal vertebra	73	-
Vertebra indet.	32	-
Sacrum	-	-
Scapula	22	6
Humerus	32	14
Radius	54	25
Ulna	64	30
Carpal	10	-
Pelvis	18	4
Femur	29	7
Tibia	45	20
Fibula	27	-
Calcaneus	11	6
Astragalus	11	7
Tarsal	6	-
Metapodials	144	-
Ribs	90	-
Phalanges	130	-
Long bone fragments	9	-
TOTAL	1943	

TABLE 1. Skeletal element representation of cats from Bene't Court, Cambridge. **NISP:** number of identified bone fragments. **MNI:** minimum number of individuals per skeletal element.

There are discrepancies in the number of bones between the upper and lower limbs of the fore and hind legs, with more individuals being identified from the lower limbs. Indeed, few animals were distinguished by the shoulder and hip bones, and this information taken with the low occurrence of ribs, suggests that the meat-bearing parts of the cats are absent from the deposit. The ribs that were identified are not whole and constitute very small pieces of bone.

It would appear that whole crania and mandibles were dumped together since the MNI figures for both are very similar.

THE DETECTION OF WILD *(Felis silvestris)* VERSUS DOMESTIC CAT *(Felis domesticus)*

In 1127 Archbishop Corbyl decreed that abbesses and nuns could only wear fur of lamb or wild cat, and not anything of more value, and this suggests that the wild cat was fairly common. Later, in the 14th-century, Richard II granted a charter to the Abbot of Peterborough so that he might hunt and kill foxes and wild cats (Freethy, 1983: 165).

The wild cat is larger than the domestic cat although there is an overlap in size. Criteria for distinguishing wild from domestic cat were based on the research of Kratochvil (1973), Kratochvil & Kratochvil (1976) using cranial material. In comparison with Kratochvil's measurements for wild cat, the Bene't Court cats were much smaller and indeed were considerably smaller than the modern domestic sample (Kratochvil, 1973).

AGE AT DEATH

1. Mandibular ageing

Berman's data for tooth eruption was used to age the 75 mandibles (Berman, 1974). In his statistical study of 31 male and female domestic cats, the following points stand out:

1. teeth of both male and female cats erupt at similar ages
2. contra lateral teeth erupt at similar ages
3. the pattern of eruption is from the anterior to the posterior of the jaws, except for the lower molar.

The second and third premolars erupted at approximately 174 days (6 months) of age and the lower molar at 130 days (4.5 mths).

Approximately half the Bene't Court assemblage sports deciduous dentition (less than 6 mths) while the other half shows permanent dentition (greater than 6 mths) (Figure 1).

Following the methods of Ewbank and Grant, where the mandibles of domestic farm stock are aged by tooth eruption and wear (Ewbank, 1964; Grant, 1975, 1982), the deciduous lower third and fourth premolars (p3-p4) and lower molar (M1) were assigned numerical values from 1 to 6 as follows:

p3/p4: 1: deciduous tooth present

2: deciduous tooth present and perforation in crypt for permanent tooth visible

3: deciduous tooth present and permanent tooth below head of bone

4: permanent tooth erupting through bone

5: permanent tooth half erupted

6: permanent tooth at full height

M1: 1: perforation in crypt visible
2: tooth visible in crypt but below head of bone
3: tooth erupting through bone
4: tooth half erupted
5: tooth at full height

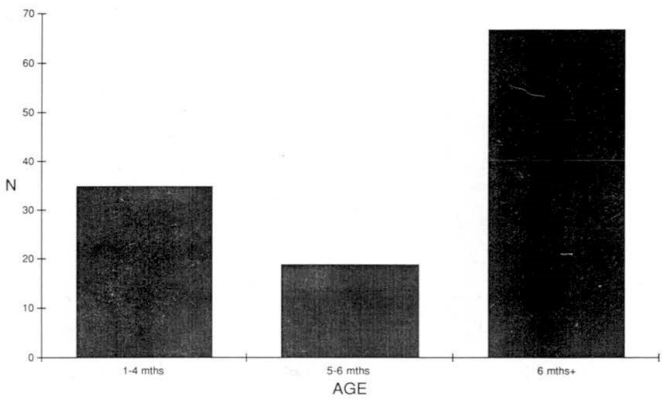

FIGURE 1. Age profile of mandibles. Bene't Court cats, Cambridge.

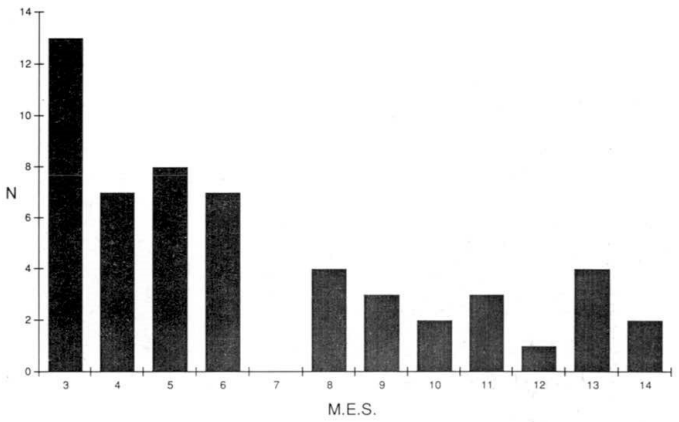

FIGURE 3. Mandibular eruption stages (M.E.S.) of immature mandibles. Bene't Court cats, Cambridge. M.E.S. of 3-6 correspond to 1 to 4 mths while M.E.S. of 8-14 correspond to 5-6 mths.

The sequence of tooth eruption can be seen in Figure 2. Once the eruption state was recorded, the numerical values of all the teeth in the jaw were added up and a sequence of mandibular eruption stages (M.E.S.) was obtained. For example, a mandible with p3 at 4, p4 at 2 and M1 at 5 (4+2+5) will have a M.E.S. of 11. It is assumed that the higher the M.E.S., the older the animal will have been at death. In such a way, an overview of the relative age structure of the immature mandibles is provided.

Mandibles of M.E.S. between 3 and 6 were assigned a relative age of 1 to 4 months since deciduous p3 and p4 were present and M1 was starting to erupt or had half erupted. By M.E.S. 8, M1 was at full height and permanent P3 and P4 had began to erupt, reaching full height by M.E.S. 17. This second group could be aged from the end of 4 months up to 6 months approximately, at which time the full adult dentition would have been present. Figure 3 shows how the kill-off pattern among immature individuals is biased towards very young animals of less than four months of age.

2. Long-bone epiphysial fusion

Long-bone epiphysial fusion data emphasises the presence of juvenile and very young adult animals (Table 2). For example, the ratio of unfused to fused proximal tibiae is 15:4. Most of these bones would have belonged to cats that died at less than 50-76 weeks (Smith, 1969: 526), which also was noted by O'Connor for medieval Lincoln (O'Connor, 1982).

THE DETECTION OF SEXES

1. The skulls

Although a minimum number of 79 skulls was estimated on the basis of the occurrence of the right frontal bone, only 27 almost complete skulls were recovered from the well. The less intact

specimens generally lacked the maxillary, premaxillary, and nasal bones, which, although present in the deposit, had fallen apart due to their unfused nature. Only 5 skulls were intact enough such that the total length from the Akrokranion to the Prosthion [after von den Driesch (1976), measurement 1] and the condylobasal length [after von den Driesch (1976), measurement 2] could be measured (Table 3).

EARLY FUSION (up to 7 months)	**UNFUSED**	**FUSED**	**% FUSED**
Distal Humerus	8	16	67
Proximal Radius	18	21	54
TOTAL	**26**	**37**	**59**
MIDDLE FUSION (7 months - 1 year)	**UNFUSED**	**FUSED**	**% FUSED**
Proximal Femur	5	-	-
Proximal Ulna	26	14	35
Distal Tibia	25	5	17
TOTAL	**56**	**19**	**25**
LATE FUSION (1 year - 2 years)	**UNFUSED**	**FUSED**	**% FUSED**
Proximal Tibia	15	4	21
Distal Femur	7	-	-
Distal Radius	27	7	20
Distal Ulna	33	2	6
Proximal Humerus	1	-	-
TOTAL	**83**	**13**	**13**

TABLE 2. Long bone epiphysial fusion of cats from Bene't Court, Cambridge (after Smith, 1969).

CRANIUM	**n**	**r**	**x**	**s**	**v**
Total length (1)	5	73.2 - 77.8	76.04	1.81	2.38
Condylobasal length (2)	5	71.6 - 74.5	72.98	1.22	1.67
Basal length (3)	5	63.4 - 65.2	64.08	.76	1.18
Facial length (9)	5	25.1 - 27.8	26.94	1.18	4.38
Greatest mastoid breadth (18)	24	31.6 - 37.3	34.38	1.56	4.53
Greatest breadth of the occipital condyles (19)	57	16.6 - 21.1	18.70	.95	5.08
Greatest breadth of the foramen magnum (20)	59	10.8 - 13.5	12.32	.58	4.70
Height of the foramen magnum (21)	54	9.6 - 12.8	11.36	.82	7.21
Zygomatic breadth (23)	16	50.7 - 57.0	53.30	1.63	3.05
Frontal breadth (24)	18	35.5 - 44.6	41.42	2.30	5.55

TABLE 3. Skull measurements of cats from Bene't Court, Cambridge in mm. **n:** number; **r:** range; **x:** mean; **s:** standard deviation; **v:** coefficient of variation. Numbers in parentheses refer to measurement definitions of von den Driesch (1976).

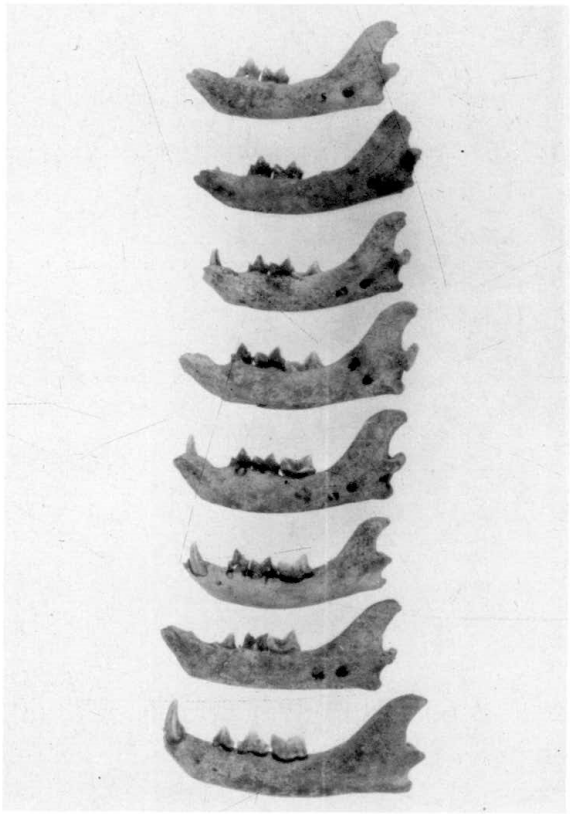

FIGURE 2. Eruption sequence of permanent premolars (P3/P4) and molar (M1). Bene't Court cats, Cambridge. From top to bottom: 1) deciduous p3 & p4 present; perforation in crypt for M1 visible. 2) p3 & p4 present; M1 visible in crypt but below head of bone. 3) p3 & p4 present; M1 erupting through bone. 4) p3 & p4 present; M1 half erupted. 5) perforation in crypt for P3 visible; p4 present; M1 at full height. 6) P3 & P4 below head of bone; M1 at full height. 7) P3 half erupted; P4 erupting through bone; M1 at full height. 8) P3, P4 & M1 at full height. Scale 1:1.

In contrast to the facial part of the skulls, the cranial region is very well preserved. Measurements of the greatest breadth of the occipital condyles (19), greatest mastoid breadth (18) and breadth and height of the foramen magnum (20, 21) were taken on 25 of the skulls [after von den Driesch (1976)]. In addition, 38 loose occipital bones were identified and measured (Table 3).

If histograms of the height and breadth of the foramen magnum are considered, as in Figures 4 and 5, a bimodality is apparent. Whether this is due to sexual variation or to the presence of different 'breeds' is difficult to answer. Jayne, in his vast study on the cat skeleton, observed how the shape of the foramen magnum varied from round to transversely oval and that there was much variation in size, but he did not account for the cause of this (Jayne, 1898: 173). It is worth noting that a non-metrical trait of this nature was observed in 24 of the occipital bones in the sample. A small indentation on the upper margin of the foramen magnum (Figure 6) could be responsible for most of the higher values observed in Figure 4, and perhaps this, in part, caused the bimodality.

A histogram of the greatest mastoid breadth (Figure 7) again shows bimodality, although the sample has now been reduced to 24 individuals.

The fact that we are dealing with very young adults and juveniles make it difficult to distinguish sexes according to size. One would expect males to be bigger than females, but it is likely that young males are confused with more mature females. As a consequence of this, the pattern emerging is not easy to interpret.

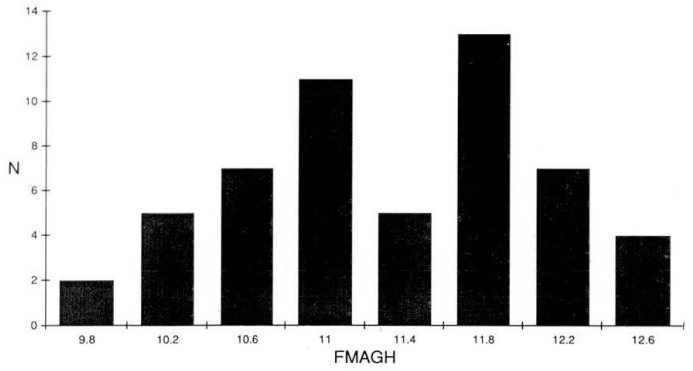

FIGURE 4. Histogram of foramen magnum height in mm (21, after von den Driesch 1976). Bene't Courtcats, Cambridge.

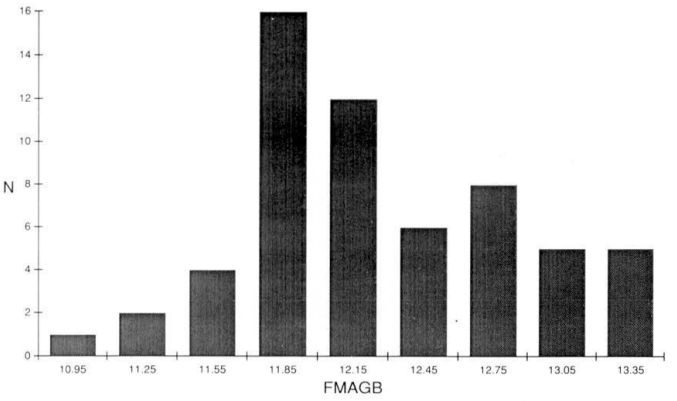

FIGURE 5. Histogram of foramen magnum breadth in mm (20, after von den Driesch 1976). Bene't Court cats, Cambridge.

2. The mandibles

The mandibular metrical data comprises 67 specimens with full adult dentition, 36 right and 31 left (Table 4). Juvenile mandibles (54 specimens) were not measured and consequently are not included in the following discussion.

Excellent preservation allowed the following measurements to be taken: the total length of the mandible and the height of the vertical ramus (measurements 1 and 8 after von den Driesch, 1976). A histogram of the total length demonstrates a definite bimodal distribution (Figure 8) while a scattergram of vertical ramus height against total length shows two clusters, a smaller group at the bottom left with a larger more disperse group to upper right (Figure 9). It is proposed that the smaller group in the histogram and scattergram represents females and the larger one males.

MANDIBLE	n	r	x	s	v
Total length (1)	59	44.9 - 54.1	49.48	2.11	4.26
Length of the cheektooth row, P3-M1 (5)	67	16.2 - 19.6	17.90	.73	4.07
Height of the vertical ramus (8)	57	17.3 - 21.7	19.48	1.15	5.90
Height of the mandible behind M1 (9)	67	7.09 - 9.49	8.38	.57	6.80
Height of the mandible in front of P3 (10)	66	6.8 - 9.1	7.78	.49	6.29

TABLE 4. Mandibular measurements of cats from Bene't Court, Cambridge in mm. **n:** number; **r:** range; **x:** mean; **s:** standard deviation; **v:** coefficient of variation. Numbers in parentheses refer to measurement definitions of von den Driesch (1976).

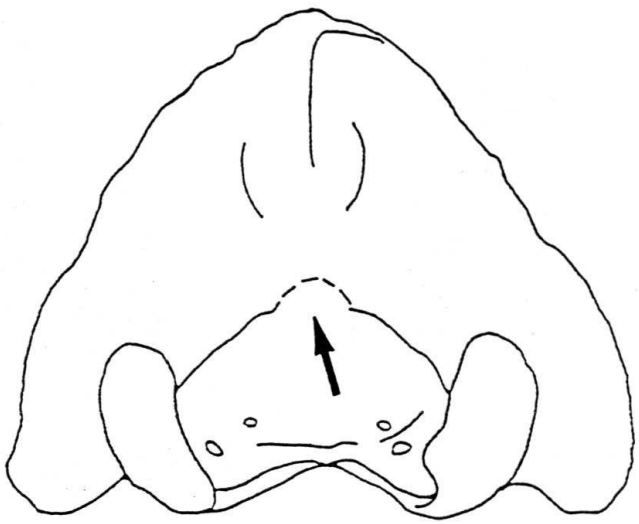

FIGURE 6. The occipital area of cat skull showing indentation (arrow). Bene't Court cats, Cambridge.

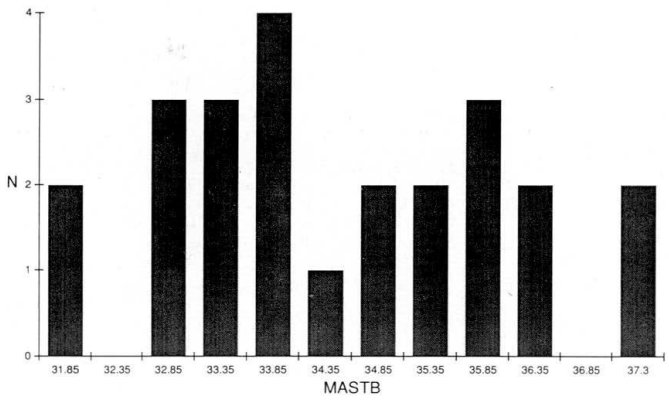

FIGURE 7. Histogram of mastoid breadth in mm (18, after von den Driesch 1976). Bene't Court cats, Cambridge.

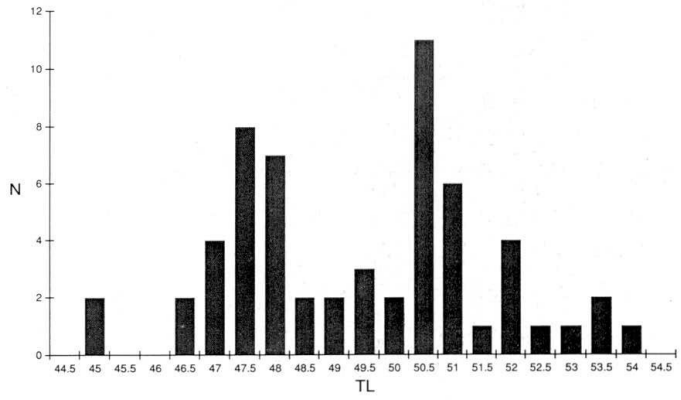

FIGURE 8. Histogram of total length of mandible in mm (1, after von den Driesch 1976). Bene't Court cats, Cambridge.

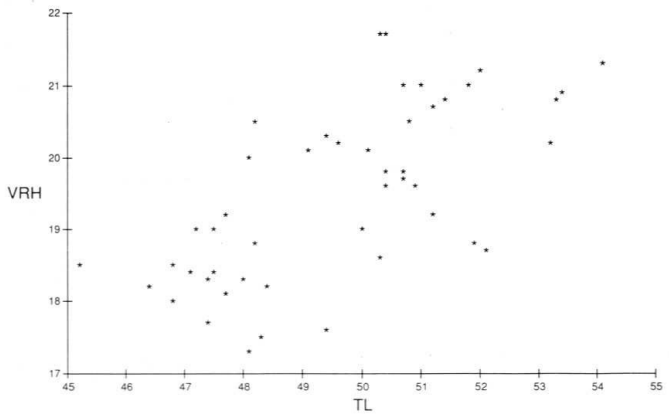

FIGURE 9. Scattergram of the vertical ramus height against total length of the cat mandible in mm (8, 1 after von den Driesch 1976). Bene't Court cats, Cambridge.

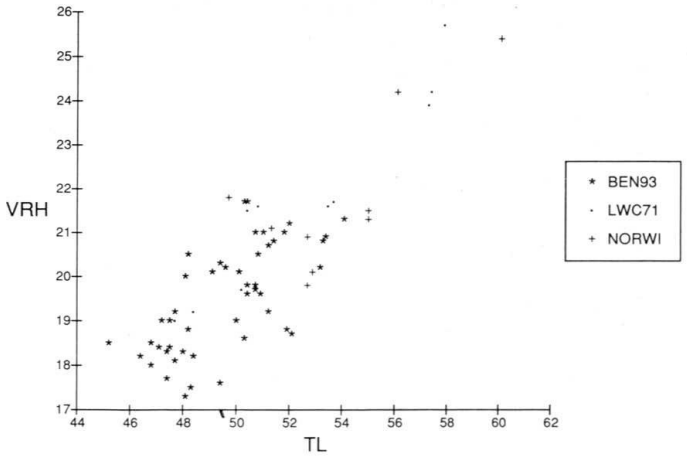

FIGURE 10. Scattergram of the vertical ramus height against the total length of the mandible in mm. A comparison of the Bene't Court cats with those from Lion Walk, Colchester and Norwich.

THE SIZE AND BUILD OF THE BENE'T COURT CATS

1. Mandibular data

The Bene't Court cat mandibles were compared with those from Lion Walk, Colchester (1150-1300 AD) and Castle Mall, Norwich (the Flint Shaft, late 15th/early 16th-century AD; Moreno García, unpublished) (Table 5 & Figure 10). The late medieval/early post-medieval mandibles from Norwich are clearly much larger than those from Bene't Court and fall into two groups, male (upper) and female (lower). The Lion Walk sample, which is of similar date to Bene't Court, also splits into two groups interpreted as females (the larger lower group) and males (the smaller upper group); again the Lion Walk females are much larger than those from Bene't Court and some individuals are even larger than the Bene't Court males. A significant difference in size was found using the Student's t-test at .05 level of probability.

The small size of the Cambridge cats is also emphasised when the mandibles are compared with those from Germany (Table 5) and there is an appreciable difference in size, using total length, between Bene't Court and Höxter (13th-century AD) which is significant at .01 level of probability using the Student's t-test.

A very large assemblage of cat bones was recovered from the early medieval town of Haithabu (9th-11th-centuries AD), Schleswig-Holstein, Germany including 79 mandibles (Johansson & Hüster, 1987). Figure 11 compares the Bene't Court mandibles with those from Haithabu and it is immediately apparent that the former are much smaller than the latter. Both samples fall into two groups, males and females but the Haithabu females are, in general, much larger than the Bene't Court males. The Student's t-test was performed on the total length of mandibles and a significant difference in size was found at .01 level of probability.

The striking difference in size between the Bene't Court cats and those from Haithabu was investigated further via an allometric analysis. The data was logarithmically transformed and regression lines calculated for both sites which are plotted in Figure 12. The statistics calculated for the allometric analysis are tabulated in Table 6. The important points to notice in Figure 12 are as follows. While the values of the slopes are similar, Haithabu has a slightly steeper slope and its regression line is transposed above that of Bene't Court. The average value of vertical ramus height to total length are such that Haithabu (.427), in comparison to Bene't Court (.394) demonstrates a greater depth of jaw. This could indicate a genetic difference in the sense of different 'breeds' but great care is needed in this interpretation, because of the values of the coefficient of determination (R^2), which is the square of the correlation coefficient. The coefficient of determination indicates the strength of the relationship between the vertical ramus height and total length of mandible. The values shown in Table 6 mean that there is a much greater variation in the dispersion of data points around the regression line for the Bene't Court cats (58%) than the Haithabu ones (36%). A more in depth analysis will be performed at a later date with more data.

2. Cranial data

Cranial measurements from both Odense, Denmark and Höxter, Germany indicated the smaller size of the Bene't Court cats (Table 5).

MANDIBLE	Total length (1)					Height of the vertical ramus (8)				
	n	r	x	s	v	n	r	x	s	v
Haithabu C9th - C11th	56	48.9 - 61.6	55.0	2.6	4.7	56	20.0 - 26.6	23.5	1.7	7.2
Höxter C13th	13	50.6 - 56.7	53.9	1.9	3.5	12	19.2 - 23.2	21.3	1.2	5.6
Bene't Court C13th	59	44.9 - 54.1	49.5	2.1	4.2	57	17.3 - 21.7	19.5	1.1	5.6
Colchester	11	47.7 - 57.9	52.7	3.6	6.8	10	19.0 - 25.7	21.8	2.2	10.0
Castle Mall (Norwich) C15th - C16th	9	49.7 - 60.1	53.9	3.0	5.5	10	19.8 - 25.4	21.7	1.7	7.8

CRANIUM	Condylobasal length (2)					Greatest mastoid breadth (18)					Greatest breadth of the occipital condyles (19)				
	n	r	x	s	v	n	r	x	s	v	n	r	x	s	v
Odense (C11th)	4	71.0-79.2	75.6	3.4	4.4	8	34.8-38.6	36.9	1.3	3.5	8	17.9-21.5	19.5	1.2	6.2
Höxter (C13th)	7	70.2-78.8	75.6	2.7	3.5	7	36.1-38.0	36.8	.8	2.1	7	17.2-20.7	19.3	1.2	6.1
Bene't Court (C13th)	5	71.6-74.5	72.9	1.2	1.6	24	31.6-37.3	34.3	1.5	4.5	50	16.7-21.1	18.7	.9	4.8

TABLE 5. A comparison of mandibular and cranial measurements of medieval cats in mm.

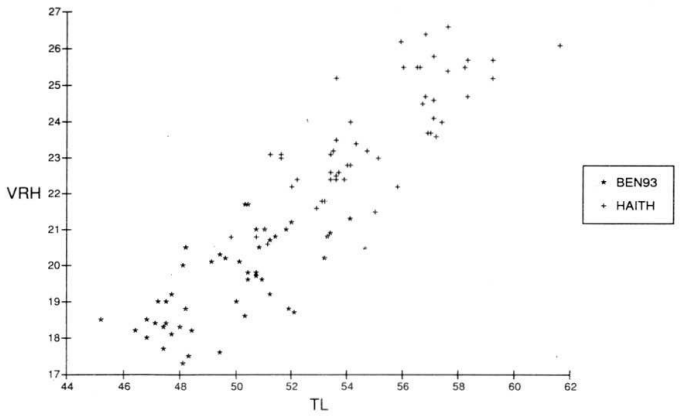

FIGURE 11. A scattergram of vertical ramus height against total length of the mandible in mm. A comparison of the Bene't Court cats with those from Haithabu.

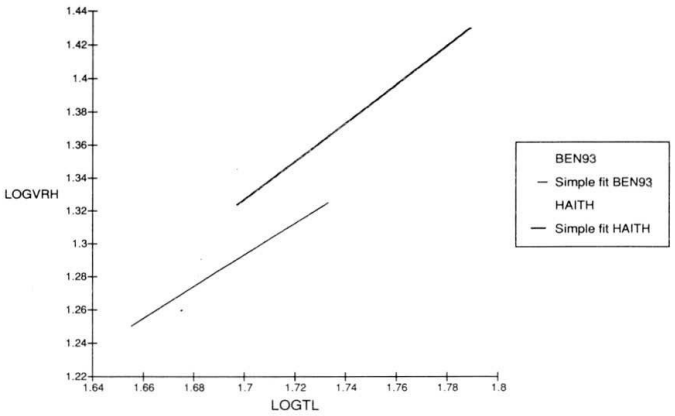

FIGURE 12. Plot of logged vertical ramus height against total length of the mandible showing regression lines for medieval

	BENE'T COURT	HAITHABU
Coefficient of determination (R^2)	0.422	0.640
Correlation coefficient	0.649	0.796
Coefficient AO (intercept)	-0.337	-0.640
Coefficient A1 (slope)	0.959	1.157

TABLE 6. Summary statistics used in allometric analysis.

SIGNS OF BUTCHERY

1. Methods of killing

The Viking cats from Odense, Denmark were killed by wrenching their heads off the top of the spine so that much of the occipital area was removed (Hatting, 1990: 184). This was not observed with the Bene't Court cats and almost all the skull remains demonstrated intact occipital regions.

One of the methods used to dispatch the Bene't Court cats was to slit the throat as evidenced by knife-cuts on the ventral portion of 5 out of 7 of the atlas bones (Figure 13). Cats were killed in similar fashion at the Anglo Saxon site of West Stow, Suffolk (Crabtree, 1990: 104-105).

2. Skinning

Twenty-four of the semi-complete cat skulls sported knife-cuts on both sides of the cranium behind the orbits, and across the frontal/maxillary/nasal bones (Figures 14 and 15). In addition, 60% (n=48) of the separate frontal bones and 49% (n=38) of the parietal bones show *very fine* knife cuts. Similar marks were also observed on the labial surface of 24% (n=67) of the adult mandibles and 13% (n=54) of the juvenile mandibles (Figure 16). The marks occur in areas where there is little flesh, thus it is relatively easy to nick the bone as the skin is being removed. The same cut-marks were recorded by Hatting on cat bones from Odense, Denmark (Hatting, 1990), Anglo-Scandinavian cats from York (O'Connor, 1989: 186) and also early medieval Lion Walk, Colchester where a cess pit contained the remains of several cats dated to 1150-1300 AD.

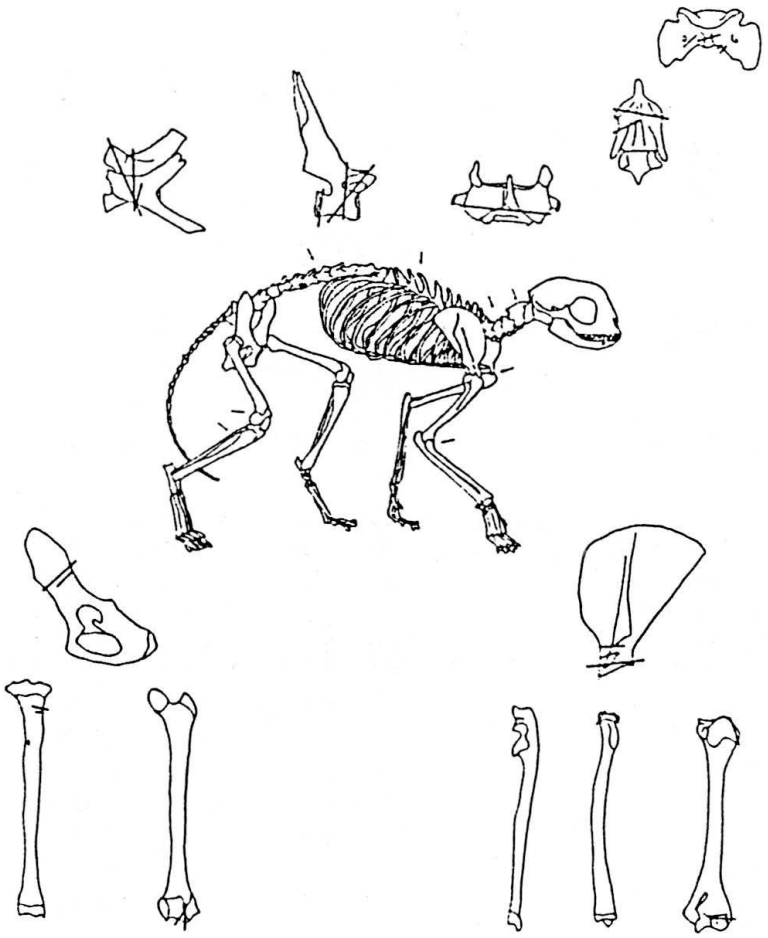

FIGURE 13. Butchery marks on the post-cranial skeleton. Bene't Court cats, Cambridge. Lines going across bone outlines are chop-marks while those inside bone outlines are knife-cuts.

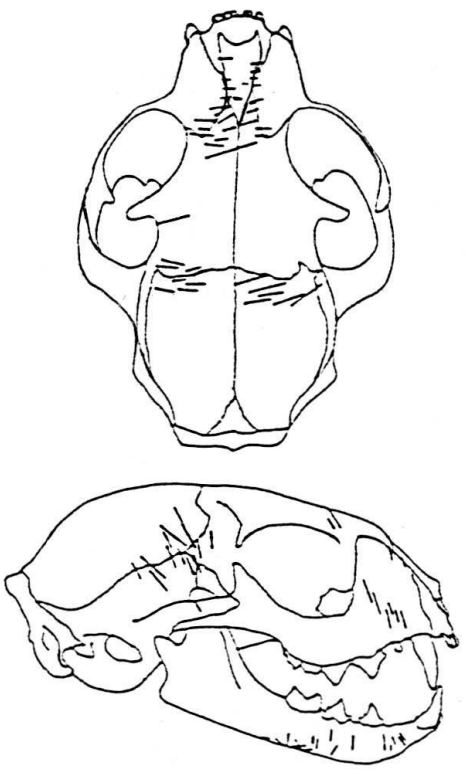

FIGURE 14. Knife-cuts on skull, dorsal view (above) and lateral view (below). Bene't Court cats, Cambridge.

FIGURE 15. Knife-cuts on frontal/maxillary/nasal bones. Bene't Court cats, Cambridge.

FIGURE 16. Knife-cuts on the labial side of adult mandible. Bene't Court cats, Cambridge. Scale 1:2.5.

An English law was laid down in 1363 stating that the common people should not wear any fur except lambskin, coney, cat and fox (Ewing, 1981: 30).

There is a lack of references to skinners in the literature until the end of the 12th-century. London became the centre for the manufacture of furs from the 13th-century onwards, however, as well as this, there would have been trade at a lower scale organised by small traders (Veale, 1966).

Veale mentions that the small pedlar was often a useful intermediary between village and town, and the pedlar of whom Langland wrote was even ready to kill cats, if he could catch them, for the sake of their skins (Veale, 1966).

A duty of 1d per dozen skins of *catti silvestres* (wild cat) was levied at Ipswich in 1303, compared with 4d per thousand skins of *catti igni* (domestic cat) (Veale, 1966: 218). Cat skins are mentioned in export licenses granted to a group of London fellmongers, to export coney, cat, hare and fox skins to Flanders during the late 14th-century (Veale, 1966).

At Fishamble St, Dublin, the high incidence of juvenile animals was interpreted as indirect evidence for the culling of cats for their fur (McCormick, 1988). The age profile of the Bene't Court cats is composed of immature and very young adults and is supportive of this notion.

The small size of cat skins would have rendered them suitable for making gloves or hats.

3. Famine or fare - cats as food

Chop-marks were observed through the odontoid process of the axis (3 specimens), atlas (1), cervical vertebrae (3), thoracic vertebrae (3), lumbar vertebrae (11, Figure 17), scapula neck (3, Figure 18), the ilium of the pelvis (2), the proximal (2) and distal epiphysis (2) of the humerus, the distal epiphysis (2) of the femur and proximal posterior part of the tibia shaft (1) (Figure 13). Knife-cuts were recorded on the proximal radius (2), ulna (4) and a caudal vertebra (1) (Figures 13 & 17). All these chop and knife-cuts are indicative of the dismemberment of the carcasses, most likely for food. This latter observation is supported by the low occurrence of bones reflecting high meat-yield, for example, humeri/scapulae, femora/pelves and ribs/vertebrae.

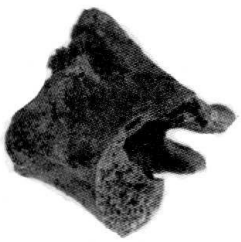

FIGURE 17. Chop-mark through lumbar vertebrae. Lateral caudal view. Bene't Court cats, Cambridge. Scale 1:3.

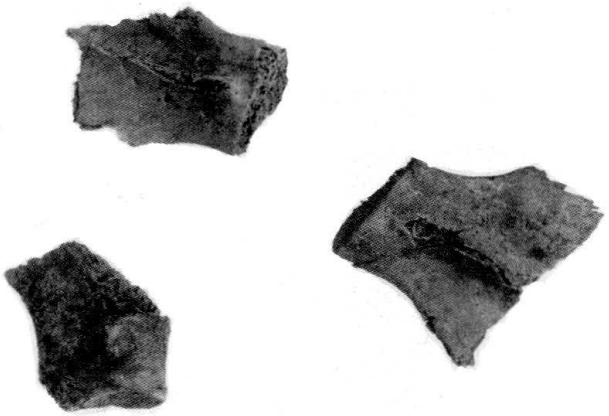

FIGURE 18. Chop-marks through scapulae necks. Lateral view. Bene't Court cats, Cambridge. Scale 1:2.5.

After the animals were skinned and butchered, heads and the less meaty parts were discarded. The lack of gnaw marks and the good bone preservation indicate that these carcasses were dumped quickly into the well.

A few cut marks were found on both cat and dog bones from Bedford (St John's Street site) and Grant has suggested that these animals may have provided an occasional meal (Grant, 1979: 107).

The sparse archaeological evidence of the consumption of cats seems to be associated with starvation periods. At the Kent Blaxill site on the High St of Colchester, abundant cat bones were

interpreted as belonging to the starvation conditions of the 1648 siege of Colchester (Hull, 1955: 59), a harrowing episode in the English Civil War.

Many of the cat bones from Odense, Denmark exhibit dog gnawing and dogs were cited as the culprits in removal of the more meaty parts (Hatting, 1990). With regard to the Bene't Court assemblage, none of the bones demonstrate dog gnawing, although, curiously, one proximal humerus has marks of cat gnawing. However, in McCormick's wide Irish survey he makes no mention of cats being used for food (McCormick, 1988).

Conclusive evidence of the consumption of cat flesh has not yet been published on other comparable sites and is of considerable interest in the Bene't Court context, because it opens up wider questions concerning the adequacies of the town's food supply and possibly the reliability of its butchers. Cat strongly resembles the meat of hare and some unscrupulous individuals may have tried to deceive unsuspecting customers. Schmid, in her description of Roman bones from Augst in Switzerland describes a practice still existing in the present day, 'as is the case today, already in Roman times hares were sold without fur but with the fur on the paws. This was done to avoid deception with cats (in Germany and Switzerland known as 'roof hares'). Before roasting, the paws were cut off and thrown away' (Schmid, 1972: 36).

THE WIDER IMPLICATIONS OF THE BENE'T COURT CATS

The quality of the Bene't Court bone is complemented by its abundance. This is the largest collection of cat bones ever to have been excavated in England.

A COMPARISON WITH OTHER BRITISH SITES

Collections of cat bones were excavated from Middleton Stoney, Oxfordshire (Levitan, 1984a) and Southampton (Bourdillon, 1979), dated to the 12th and 13th -centuries AD (Grant, 1988: 184), but none of these assemblages approach the size of the Bene't Court one. For example, the Middleton Stoney assemblage is comprised of only 12 partially complete skeletons.

Cat remains are usually present in small numbers on British medieval sites (Table 7). Most of these remains belong to partially-complete skeletons. No bias towards any particular skeletal element is mentioned in any of the reports. The ageing information available indicates that a high proportion of the cats were immature and/or young animals, which is the case with Bene't Court and Irish urban sites of the same period (McCormick, 1988).

Different hypotheses have been put forward in the literature to explain the presence of high numbers of juvenile cats on medieval urban sites: 1. they could have been killed because they were in excess of requirements (Noddle, 1974: 333), 2. they were not looked after with any degree of care (O'Connor, 1982: 38 and 1989: 186) and may have been unhealthy (Noddle, 1977: 398) 3. the archaeological evidence may simply be representing the natural mortality rates of the animals (Maltby, 1979a: 65) and 4. they could have been killed for their skins (Noddle, 1974: 333; Noddle, 1977: 389; Maltby, 1979a: 65).

The first hypothesis is unlikely since large numbers of immature/juvenile dogs are not generally recovered from sites, and these animals would surely have been more of a nuisance factor in medieval towns than scavenging cats, the latter being valuable as rodent exterminators. Further there is no documentary evidence to support this.

SITE	PERIOD	%
Exeter (Maltby, 1979a)	1000 - 1500	3.0
Flaxengate, Lincoln (O'Connor, 1982)	c. 870 - 1500	2.0
Southampton (Bourdillon, 1979)	pre - C13th C13th	.2 1.0
King's Lynn (Noddle, 1977)	1050 - 1250 1250 - 1350 1350 - 1500	.6 .5 .4
Aylesbury (Jones, 1981)	Medieval	2.0
Middleton Stoney, Oxfordshire (Levitan, 1984a)	C12th - C13th	1.0
St Martin-at-Palace Plain, Norwich (Cartledge, 1987)	C12th - C15th	.8
Alms Lane, Norwich (Cartledge, 1985)	C13th - C15th	.7
North Elmham (Noddle, 1980)	Medieval	2.0
St John's St, Bedford (Grant, 1979)	C11th - C13th	.5
Bramber Castle, Sussex, (Westley, 1977)	Medieval	.1
Portchester Castle, Outer Bailey (Grant, 1977)	Saxo - Norman Early medieval Late medieval	3.0 .4 .8
Portchester Castle, Inner Bailey (Grant, 1985)	Pre 1320 C14/15th	.1 .1
Bishop's Palace, Lincoln, (Ellison, 1975)	C15th	7.0
Baile Hill, York (Rackham, 1977)	C12 - 13th	.7
Westgate, Gloucester, (Maltby, 1979b)	C10th - C13th	.6
East and North Gates of Gloucester (Maltby, 1983)	C10th - C15th	.2
Priory Barn, Taunton (Levitan, 1984b) Benham's Garage, Taunton (Levitan, 1984b)	C12th - 13th C15th C10th - 11th C12th - 13th	.2 3.0 .3 .5
Silver St, Glastonbury (Levitan, 1982b)	C10th - C12th C13th - C15th	.1 1.0
Lion Walk, Colchester (Luff, 1993)	C11th - 14th	1.0

TABLE 7. Medieval cat bones (England).

Cats were not kept widely as pets in medieval times (Thomas, 1983) and thus the animals most likely led a feral existence. Nowadays, most urban establishments house a large number of feral cats. In 1898 Hudson claimed that of an estimated total of some 400,000 domestic cats in London, no fewer than 80,000 to 100,000, that is approximately one quarter of the population, led a feral existence and in 1944 Matheson estimated that there were approximately 6,600 feral cats in Cardiff, out of a total population of 23,500, that is just over a quarter of the population (Lever, 1979: 143).

Little is known of the mortality of feral cats but feline panleucopaenia (also known as feline distemper, feline infectious enteritis or cat flu) is widespread nowadays (Macdonald, 1991: 440) and cats living in the wild may live only for two years or more (Alderton, 1983). In the absence of neutering, the exhausting nature of tomcats' sexual activities rapidly affects the animals' condition (Bradshaw, 1993), leaving somewhat shattered hulks. Therefore, feral cats in medieval Cambridge or elsewhere would not be expected to live for lengthy periods.

Although the Bene't Court cats were very small, none of the bones exhibited any pathologies and the mandibles appeared in a healthy condition, showing no evidence of tooth overcrowding or alveolar resorption. The age profile of the Bene't Court cats does not include neonatal or extremely young kittens which would be indicative of fatalities at, or around birth.

The fourth hypothesis that cats were exploited for their skins would appear the most likely explanation for the high incidence of juvenile cats on archaeological sites, and indeed absence of butchery marks might well indicate a highly skilled skinner. Certainly there is no doubt that the Bene't Court cats were skinned.

FARMING CATS IN THE MEDIEVAL PERIOD, FACT OR FICTION?

Hatting has proposed that the Odense cats were kept in captivity, since there was a predominance of animals less than one year old, and also a number of bones had been identified as mature females for breeding stock (Hatting, 1990). However, the sexual separation of the Bene't Court cats favours slightly more male animals, and this, taken with the age structure of the sample and the low life expectancy of feral cats is more akin to a random culling pattern.

It is highly likely that most of the cats were feral beasts and not pets since it was not until the Stuart period that pets were held in high esteem (Thomas, 1983). At Lincoln, slightly more female than male cats occurred. O'Connor has pointed out that there is no archaeological or documentary evidence of the neutering of tomcats, and if they were feral, there would be neither opportunity nor reason to carry out this practice (O'Connor, 1982: 38). He has intimated that cats in medieval Lincoln were in the main neglected and were most likely scavengers (O'Connor, 1982) but this still needs to be proved.

HUNTING/STALKING CATS IN THE MEDIEVAL PERIOD

For medieval hunters, beasts of the warren included foxes, hares and cats and Oliver Rackham has stated, most intriguingly, that there is no evidence to support the contention that the cats were wild cats, and indeed the usual word for the cat as a huntable beast was *murilegus* meaning 'mouse-taker', thus signifying the ex-domestic cat (Rackham, 1986: 40).

If food was scarce in medieval times, perhaps it would have been quite natural for the town-dwelling cat to adjourn to the countryside in search of prey. In the wild, descendants of domestic cats often increase considerably in size and frequently become as fierce as the wild cat.

CONCLUSIONS

Research on the Bene't Court cats has shown that the animals were killed by slitting their throats, and then they were skinned and dismembered for human consumption. The cats consist mainly of juveniles and young adults and are significantly smaller in stature compared with individuals from Colchester of similar date, and Haithabu, where the specimens date much earlier. It is not known whether the build of the cats is reflecting the stunted nature of other domestic stock, which is so widespread across Europe in the early medieval period (Bökönyi, 1974; Armitage, 1982). This is worthy of further investigation.

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SITE	PERIOD	%
Walton, Aylesbury	Saxon	.2
(Noddle, 1976)	Saxo-Norman	.5
Portchester Castle, Hants.	Early-Mid Saxon (C5th-C8th)	-
(Grant, 1976)	Mid- Late Saxon (C8th-C10th)	.1
	Late Saxon (C10th-C11th)	1.4
North Elham Park, Norfolk	Mid-Saxon	.4
(Noddle, 1980)	Late C9th-C10th	.4
	Late Saxon-early medieval	.5
Melbourne St, Southampton		
(Bourdillon & Coy, 1980)	Mid-Saxon	.3
Flaxengate, Lincoln	Anglo-Scandinavian	.4
(O'Connor, 1982)	TI-II (c.870-930/40)	.1
	TIII (c.930/40-970)	.2
	TIV-V (c.970-1040)	.4
Thetford, Norfolk		
(Jones, 1984)		
- Knocker's Excavations	Late Saxon	1.2
- Site 1092		.1
West Stow, Suffolk	Phase 1 (C5th)	.1
(Crabtree, 1989)	Phase 2 (C6th)	.8
	Phase 3 (Late C6th-C7th)	-
Coppergate, York	Anglo-Scandinavian	.2
(O'Connor, 1989)	Period 3 (mid C9th-early C10th)	.2
	Period 4 (C10th)	.1
	Period 5A (c. 975)	.2
	Period 5B (975 -early-mid C11th)	.2
	Period 5C (mid-late C11th)	.1

APPENDIX A. Saxon cat bones.