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Hunting, herding, feasting: animal use at Neolithic Çatalhöyük, Turkey

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The Neolithic site of Çatalhöyük became world famous in the 1960s when it was excavated by James Mellaart, who was then on the staff of the Institute of Archaeology. He obtained detailed evidence of the daily and ritual lives of the people who lived there, including wall paintings and other elaborate decoration of buildings, with frequent representations of animals. Since 1993, Çatalhöyük has become the focus of a major new research project,[1] which is leading to new interpretations of how animals were used, and regarded, by its inhabitants some 8000 years ago.

The site of Çatalhöyük is a large mound, some 13.5 ha in extent, on the Konya Plain in south-central Anatolia (Fig. 1). James Mellaart's excavations in the 1960s showed that the Neolithic settlement consisted of tightly nested mudbrick houses, entered through the roof, some of which contained human burials under platforms in the floors. There were elaborate wall paintings, and some buildings, which Mellaart interpreted as shrines, also contained installations of cattle skulls and horns. The symbolic importance of animals – in particular cattle – could not be doubted (Fig. 2).

Mellaart described and interpreted the finds from the site in his book *Çatal Hüyük: a Neolithic town in Anatolia*,[2] and specialists reported on the evidence for craft and subsistence activities. The animal-bone study, for example, described an economy focused primarily on cattle, which constituted over 70 per cent of the bone remains found – an unusual finding for a Neolithic site in Southwest Asia, where such assemblages are usually dominated by sheep and goat bones.[3] It was also argued that Çatalhöyük was a centre of cattle domestication, a claim that was later refuted.[4]

The new excavations undertaken in the 1990s have concentrated on three parts of the mound and one offsite area close to it (Fig. 3). On the southwest edge of the mound, termed the South area, excavations have continued down from the trenches dug by Mellaart in the 1960s and have exposed the earliest occupation levels known at Çatalhöyük; in the North and Summit areas, middle and later parts of the sequence respectively have been exposed; and the offsite Kopal area, which is currently being dated by the radiocarbon method, probably relates to the earliest part of the sequence. New (uncalibrated) radiocarbon dates confirm that the site was inhabited 8500–7500 years ago, and people appear to have lived there throughout that period.

One of the aims of the new project is to gain a better understanding of how the inhabitants used, treated and perceived animals, by analyzing and interpreting the large quantities of well preserved animal bones and teeth that have been retrieved from the new excavations – research being undertaken by Nerissa Russell and myself.[5] The important question of animal domestication is being reconsidered, particularly because evidence from other Neolithic sites in Southwest Asia increasingly suggests that forms of animal management were under way by the time people first settled at Çatalhöyük. However, our objective is to understand the full range of human–animal interaction. As well as investigating hunting and prac-

Figure 1 *Central Anatolia, showing the location of the two Neolithic sites mentioned in the text: Çatalhöyük and Aşikli.*

Figure 3 *Plan of the east mound at Çatalhöyük showing the location of the excavation areas mentioned in the text. (1) South, (2) Summit, (3) North, (4) Kopal.*

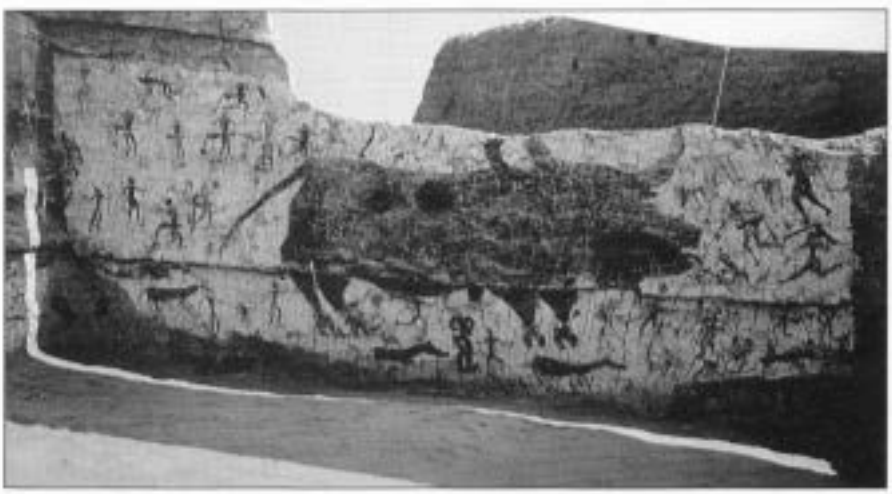

Figure 2 *A wall painting from Çatalhöyük level III discovered in the 1960s; it shows a bull surrounded by human figures.*

Figure 4 *Sieving archaeological deposits on site to retrieve small objects.*

tices of livestock management, we are also interested in how people organized food preparation and consumption. For example, were different animals prepared and eaten in different ways? Does food preparation and consumption relate to how the animals were procured? And how does their consumption relate to their symbolic roles? Work is still in progress, but interesting patterns are beginning to emerge.

The cattle question revisited

Our new results challenge the conclusions from the excavations of the 1960s that most of the animal bones found at Çatalhöyük were from cattle. In each of the new excavation areas on site, cattle constitute less than 25 per cent of the animal remains

Figure 5 *A large cattle horn core (73 cm in length to the broken tip) that has fallen onto a house floor in the South area at Çatalhöyük.*

Table 1 *The relative proportions (%) of the main food animals represented in the four excavation areas at Çatalhöyük discussed in the text: Summit, North, South (middle and lowest levels), Kopal.*

Area	Cattle	Asses, horses	Sheep, goats	Pigs	Deer
Summit	24	1	72	3	0
North	15	2	82	1	0
South (middle)	23	14	59	3	1
South (lowest)	9	5	81	4	1
Kopal	60	2	18	10	10

(Table 1), whereas sheep and goat tend to be far more numerous (although the offsite Kopal area shows the opposite trend). A preponderance of sheep and goat is consistent with many other Neolithic sites in Southwest Asia, but begs the question as to why the new results differ so greatly from those of the earlier excavations. A probable explanation of this anomaly is that in the new project we retrieve objects by sieving all deposits through a 4 mm mesh (Fig. 4), which increases the visibility and collection of smaller finds, including some sheep and goat bones and those of smaller animals. In the earlier excavations, finds were collected by hand directly from the trenches, which favoured the recovery of larger objects, including cattle bones. The new results are thus likely to be more accurate.

The question of whether the cattle were domestic or wild remains unresolved. Wild cattle would have inhabited the grassy plains and woodland edges near the site, and would certainly have been available to hunters. However, it is puzzling that there are two sizes of cattle present throughout the sequence. We hope that further analysis will determine whether these two sizes represent larger wild animals and smaller domesticates, or whether they are males and females of the same breeding population with a high degree of sexual dimorphism (i.e. the males much larger than the females). Whatever the result, we have found that all carcass parts of cattle were brought onto the site, which suggests that they were butchered (and maybe slaughtered) either on site or nearby.

Despite being less abundant than previously thought, cattle are still seen to be symbolically important at Çatalhöyük. The new excavations have discovered horncores and skulls commonly installed in, or fallen from, architectural features (Fig. 5). The morphology of these horns suggests that they are from the wild ancestor of domestic cattle, *Bos primigenius*, which may imply that the rest of the cattle bones are too, but it is possible that the horns and skulls were specially selected from wild animals for symbolic purposes and may not be representative of the whole assemblage of cattle bones, many of which are too fragmented to provide clear evidence of the size and morphology of the animals.

Sheep and goats: the main meat supply

Sheep and goats were the most common food animals at Çatalhöyük (Table 1) and, where the bones can be differentiated, sheep outnumber goats. Early domestic mammals are frequently observed to be smaller than their wild counterparts, and the relatively small size of the sheep bones indicates that they are from domestic animals that were managed in some way. The goats were also probably domesticated, but, because there are fewer securely identified bones of goat than sheep, this remains uncertain.

Support for this interpretation comes from the identification, between houses in the South area, of a space in which animals were evidently penned. Microscopic examination of deposits from this open space showed the layers to be rich in organic material, probably herbivore dung.[6] The remains of three newborn lambs or kids that probably died at birth were also found here, as were several lamb or kid milk teeth. These teeth are shed from the jaw at the age of approximately 18 months, suggesting that animals of this age were penned in this space.

Such onsite pens may have held a few animals (Fig. 6), perhaps during lambing time, and the larger flocks that were required to provide a staple source of meat must have been herded farther afield. Much of the land close to the site would have been cultivated and some of it seems also to have been subject to winter floods, so the need for grazing areas probably led to seasonal pasturing of flocks away from the site.

Wild horses on the Konya Plain

Wild asses are represented in small numbers in the Çatalhöyük bone assemblage. More unusual, however, is the identification of a large horse, apparently *Equus caballus ferus*, the wild ancestor of the domestic horse. Wild horses were thought to be locally extinct in Anatolia in the Neolithic period, and domesticates introduced later, but the secure identification of wild horse at Çatalhöyük, as well as at the nearby Neolithic site of Aşikli (Fig. 1),[7] requires a revision of accepted ideas about its former geographical distribution. Both wild asses and horses were probably hunted on the steppe grasslands near the site, and the large numbers of older

Figure 6 *An artist's computer-aided reconstruction, by John-Gordon Swogger, of the area thought to have been used for penning young sheep or goats (or both) at Çatalhöyük; the dress of the women is based on figurines and wall paintings found at the site.*

animals represented suggests that they made easier prey than younger ones.

Woodland and mountain animals

Deer bones show a pattern of decreasing representation through the sequence of occupation, which suggests that deer were hunted less through time. All three of the species present – red (*Cervus elaphus*), fallow (*Dama dama*) and roe (*Capreolus capreolus*) – occupy woodland habitats, and it is possible that their decline reflects the progressive clearance of trees locally, as the need for timber for building on site increased. As a result, it may have been necessary to hunt deer at greater distances from the settlement. In the later occupation levels, antler pieces rather than deer bones are found, and it is likely that antler would have been collected at considerable distance from the site and imported for the manufacture of tools and ornaments, for which there is plenty of evidence. The representation of wild boar (*Sus scrofa*) also decreases slightly through the period of occupation, which may likewise be attributable to reduction of their wooded habitats, particularly because they require both shade and ready access to water.

An unexpected discovery was an almost complete articulated paw of the brown bear (*Ursus arctos*) (Fig. 7). It was probably an import – whether traded in, or brought back by a hunter – because the brown bear mainly inhabits mountain areas. The paw was clearly not used for food, and no other body parts of bear have been found at Çatalhöyük, so what was its function? Perhaps it had ritual significance. It may have been attached to a bear skin, which could have had various functions, including a ritual one. This suggestion is supported by the finding of small pieces of wall plaster pressed between the toe bones, which may indicate that the paw (with skin attached?) was pressed into wet plaster as a means of hanging it.

Animals closer to home

The people of Çatalhöyük also caught wolf, badger, fox, hare and small wild cats, probably for their skins and furs rather than for their meat. Domestic dogs would have served as hunting or herding companions, or as pets, but the distribution of dog-gnawed and digested bones suggests that they were kept in external areas, rather than in houses. Fish and birds were also exploited, and new evidence from fine-mesh sieving has shown that bird eggshell is also common on the site.

Uses and representation of the animals

The combined evidence shows that a broad array of animals was used at Çatalhöyük, and it is reasonable to infer that diverse hunting, trapping and collecting activities took place around the site, as well as carcass preparation and the processing of animal products. But despite the wide range of animals represented, the people of Çatalhöyük appear to have focused on raising sheep and goats as their main source of meat.

The animal-bone evidence offers one way of trying to understand human–animal interactions, but at Çatalhöyük the art – wall paintings, plaster reliefs of animals, and animal parts displayed in buildings – provides an additional one that may reflect how people perceived the animal world around them. The large cattle and deer depicted in the so-called hunting scenes may commemorate particular occasions, or they may be part of ritual preparation for hunts. The art tends to

Figure 7 *Bones of a bear paw, found in articulation in the South area at Çatalhöyük.*

Figure 8 *Cattle bones (a radius and an ulna of the forelimb) from the Kopal area at Çatalhöyük; the radius (left) has probably been smashed to enable the marrow to be extracted.*

focus on certain animals (cattle, deer, boar) rather than others (sheep and goats), which suggests that the former had greater symbolic importance. It is also possible that the scenes represent a mythical world, rather than one grounded in everyday life.

Modes of consumption: eating and feasting

How people consume animal products is an important part of human–animal interaction. The social context of eating involves varied treatments of animals and their products, some of which can be inferred from what was discarded and became part of the archaeological animal-bone assemblages. At Çatalhöyük we have tentatively identified two patterns of consumption, which, although not entirely distinct, are evident in two patterns of carcass processing, preparation and discard.

The first pattern relates to sheep and goat bones, most of which have been highly processed. After the meat was removed from the joints, bones were often cracked open to extract the marrow, and then further smashed, and probably boiled, to obtain bone grease. Actual cooking practices are difficult to determine because they leave no clear signatures on the bones, but small piles of discarded and smashed sheep and goat bones, sometimes found in houses near fireplaces or ovens, point to this intensive extraction of nutrients being a domestic activity, with the resulting food being a domestic resource.

The second pattern contrasts with the first in that some deposits (but by no means all) show cattle bones to have been discarded as relatively large intact joints, which indicates a very different kind of processing and preparation (Fig. 8). For example, on the floor of one abandoned building there were many cattle bones that yield large quantities of meat (neck and longbone pieces). Some were articulated, suggesting that they belonged to one animal and had been cooked in large pieces. Another abandoned house had a rack of ribs and vertebrae on the floor. External dumping areas and spaces between walls also contained cattle bones that probably derived from single animals, and the off-site Kopal area shows a similar pattern. In each of these cases, the marrow had been removed from the cattle bones, but they had not been smashed for grease. They were also probably too large to have been stewed. Instead, they are more likely to have been roasted in outside areas rather than over small household hearths. We believe that this evidence indicates large-scale feasting, which would have had a particular social function. Cooking a complete carcass would have provided huge quantities of meat, and large numbers of people – maybe whole communities – are likely to have taken part in the feast. Perhaps feasting served to commemorate certain events, such as the abandonment of a house or the building of a new one, or stages in life such as birth, initiation and death. The cattle represented in the wall paintings and the horn cores and skulls might be linked to these feasts, and, if the beasts were wild, these representations may also relate to hunting rituals. In the light of these speculations, it will be fascinating to find out whether the cattle, which were the focus of the feasts, were domestic or wild. The danger and excitement of hunting wild cattle may well have added to the special role of these animals, whether in feasting or in art.

Work on the animal bones from Çatalhöyük continues. The plentiful well preserved remains, careful excavations and archaeological richness of the site itself combine to produce an ideal situation in which to explore complex questions about human–animal interactions in an early Neolithic Southwest Asian village.

Notes

1. The project is led by Ian Hodder (now at Stanford University) and its aim is to apply up-to-date methods of excavation and analysis, and to develop new interpretations of the site. See I. Hodder (ed.), *On the surface: Çatalhöyük 1993–95* (Research Monograph, McDonald Institute for Archaeological Research, Cambridge, and British Institute of Archaeology at Ankara, 1996) and I. Hodder (ed.), *Towards reflexive method in archaeology: the example of Çatalhöyük* (Research Monograph, McDonald Institute for Archaeological Research, Cambridge, and British Institute of Archaeology at Ankara, 2000). The Çatalhöyük website can be accessed at: http://www.catalhoyuk.com/.

2. J. Mellaart, *Çatal Hüyük: a Neolithic town in Anatolia* (London: Thames & Hudson, 1967)
3. D. Perkins, "Fauna of Çatal Hüyük: evidence for early cattle domestication in Anatolia", *Science* **164**, 177–9, 1969.
4. C. Grigson, "Size and sex: evidence for the domestication of cattle in the Near East". In *The beginnings of agriculture*, A. Milles, D. Williams, N. Gardner (eds), 77–109 (Oxford: British Archaeological Reports International Series 496, 1989).
5. A field laboratory with a comparative reference collection of animal bones was established in the site dig-house to facilitate study of the animal remains, and for the past five years an international team of zooarchaeologists led by Nerissa Russell of Cornell University and myself has been identifying and recording the material. The data and ideas discussed in this article result from our collaboration.
6. W. Matthews, "Micromorphology archive report (§4.4)", *Çatalhöyük archive report 1999*: http://www.catalhoyuk.com/.
7. J-D. Vigne, H. Buitenhuis, S. Davis, "Les premiers pas de la domestication animale à l'ouest de l'Euphrate: Chypre et l'Anatolie centrale", *Paléorient* **25**(2), 49–62, 1999.