

A CATTLE SKELETON FROM GOR KHUTTREE

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1. Introduction

The *in situ* remains of an almost complete *Bos* sp. (cattle) skeleton were recovered during the 1995/6 excavations at the site of Gor Khuttree, Peshawar, capital of the North West Frontier Province of Pakistan. The excavations were directed by Professor F.A. Durrani of the University of Peshawar, and he requested the author to record and study the cattle skeleton whilst she was in Peshawar. The current report presents the outcome of this study. The area known as Gor Khuttree occupies one of the highest points in the ancient walled city of Peshawar, and has a tradition of being one of the most important sites since the city was first founded in the 2nd century BC. Indeed, Dani has suggested that Gor Khuttree was first occupied in the Kushan period, and can be identified as the location of the 'tower of the Buddha's bowl' as described by the Chinese pilgrim Fa-hsien (Dani, 1952,52-3). At the time of the Mughal emperor, Babar's visit in the sixteenth century, the site had become a place of Hindu pilgrimage, owing to the concentration of jogis, although he commented on the diminutive nature of the hermitage (*ibid.*, 97). The site was then cleared for the construction of the Serai Jahanabad, complete with Jamia mosque and hammam, built in 1640 by Jahan Ara Begum, daughter of Shah Jahan (*ibid.*, 204). The serai measured over 230m square and still survives today, although both the mosque and hammam were demolished during the Sikh occupation in the nineteenth century. Housing the headquarters of the Sikh government in the region, a temple of Gorakhnath and a nandi shrine were constructed on the foundations of the former structure and further stories built above the two gateways (*ibid.*). When the British took over Peshawar in the 1850s, they recognised the site's strategic importance and built a line of barracks in the quadrangle's western side. Even now the site remains in official use, being a station of both the Frontier Police and the Peshawar Fire Brigade. It is sad to note that severe neglect of the monument has resulted in the collapse of the eastern gate and, more recently, the site's environment has been badly damaged by the construction of a cement marriage hall.

The skeleton was recovered during the 1995/6 season of excavations from a trench to the east of the marriage hall. It was found within a mudbrick structure, dating to the later Islamic levels, and the excavators have suggested that, due to the nature of the layers above the skeleton, the roof of this building had collapsed (F.A. Durrani, pers.comm.). This roof

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collapse was thought by the excavators to be the likely cause of death of the animal, however, there are no fracture points visible on the bones studied. This absence may be because of bone fractures, being weak areas, were further broken and so lost, during excavation. The bones, consisting of the identified fragments listed in the catalogue section below, were all attributed to *Bos* sp., with any obvious size and morphological differences in comparison with modern reference material were noted (Hillson, 1992; Department of Zoology, University of Peshawar). Examining, recording and interpreting these bones contributes to the known data about the use of traction animals, and the presence of a range of cattle species in this region (Meadow 1984, 37; 1991a, 93). That cattle have been an important at many sites in this region is shown by their dominance in herd profiles (Meadow 1991b, 56). The presence of cattle within a major urban site also highlights the importance of livestock to even urban dwellers, a factor often overlooked.

2. Discussion

On the basis of the examined and identified bones, it seems that the Gor Khuttree cattle skeleton belonged to a young individual, which had small abnormalities in at least two vertebrae. The archaeological context indicates that this animal died within a mudbrick structure, and the presence of layers of debris sealing the skeleton have given rise to the suggestion that the cause of death was directly related to the collapse of the roof, and possibly the upper walls of the structure. As noted above, although there is no evidence for fracture, or other skeletal trauma to suggest cause of death, this may be the result of the loss of weak or shattered areas of bone during excavation. Therefore, it seems reasonable to conclude that this animal was not slaughtered for food purposes, and this is reinforced by the absence of cut or butchery marks on the skeletal remains. Cuts noted on two of the thoracic vertebrae were first thought to be butchery marks, however, closer examination strongly suggested that they were of modern origin, perhaps sustained through the process the of excavation. Sexing of the individual has not been possible, as no pelvic or cranial fragments were recovered. An alternative, and less reliable possibility of sexing based on size variation, i.e. sexual dimorphism, is not possible due to the sample size, and the variable sexual dimorphism among the *Bos* genus. When compared with modern species, the skeleton's 'y' shape, or bifid, distal end of the neural spine noted in three thoracic vertebrae, suggested affinities with *Bos indicus* or zebu cattle (Hesse & Wapnish 1985; Meadow 1991, 37). However, the division is somewhat less deep than in the reference material, which may be due to the estimated age of the animal, but is nevertheless clearly present. Age at death has been estimated entirely on bone fusion data, as no teeth were recovered which might have provided tooth wear information. The incomplete fusion of the ulna-radius, visible in both the recovered parts of the bone is the main source for the age at death. This is supported by the visible metaphysis on other bones. As bone fusion tends to follow an established age pattern

for most species, it is possible to give an estimation of between 18 and 24 months, probably towards the latter part of this age range. However, it should be remembered that many factors such as diet and environment can affect the skeletal growth and development of animals (Hesse & Wapnish 1985, 75). Two of the skeleton's lumbar vertebra showed asymmetries of the neural arch, perhaps suggesting that one side might have been subject to compression, thus altering the bone development. These abnormalities may be, perhaps, compatible with pressure on the spine from an early age due to the use of the animal for traction purposes.

3. Summary/Conclusion

In conclusion, it appears that the Gor Khuttree animal bones listed above represent one individual, attributed to *Bos indicus*. Bone fusion data indicates that the age at death for this specimen was likely to be less than 24 months. The skeletal abnormalities evident in two of the lumbar vertebrae are thought to be consistent with the type of continuous spinal pressure that could be the result of use of the animal from a young age for traction purposes. If traction was one of its primary functions, this would be in keeping with the animal's presence within a building, possibly a stable. Indeed as Gor Khuttree functioned for part of its occupation as a caravanserai, it is likely that much of the material recovered from those levels will represent transitory occupation - associated with the keeping of animals for transportation purposes. The study of a single, incomplete skeleton alone is of limited use, but does contribute to the overall corpus of knowledge relating to the exploitation and importance of cattle in this region. Further analysis of the archaeological sequence, and additional faunal remains from the site would be of great use in understanding subsistence strategies here within the city, and allow comparison with other sites and archaeozoological material.

4. Catalogue

1.1. *humerus (left) 375g*

The distal articulation and shaft are intact, but the proximal articulation is missing. The width of the ventral distal articulation is approximately 5% greater than the reference example. Epiphysial fusion is complete.

1.2. *humerus (left) 12.4g*

This is a fragment of the distal articulation of the humerus.

2.1. *radius-ulna (left) 240g*

The proximal articulation and shaft are almost intact, but the distal articulation is missing. The most proximal dorsal section of the olecranon is broken. The ulna is not

completely fused with the radius, particularly towards the proximal end of the shaft. The proximal metaphysis is still faintly visible, and the bones are not completely fused around the trochlear notch area.

2.2. *radius-ulna (left) 31g*

This distal fragment of the radius-ulna joins onto the proximal and shaft section above, however, the bone is incomplete. The most distal area of ulna to radius fusion is evident.

3.1. *femur (left) 400g*

The shaft and part of the femur head are present, but the greater trochanter and the trochantric crest are missing. The distal articulation is missing. The femur head itself is larger than the modern example, by some 10% (proximal-distal length, dorsal view), but not quite as rounded. The overall length of the shaft is approximately the same as the modern reference examples.

3.2. *femur (right) 205g*

Only the shaft remains of the right femur, both the proximal and distal articulations are missing. In size and shape this shaft mirrors the left femur.

3.3. *femur fragments 47g*

There are five fragments of femur head, one with fovea intact. This resembles the modern reference example.

4.1. *tibia-fibula (right) 405g*

The distal articulation and shaft are present, the proximal articulation has been broken off. The distal metaphysis is faintly visible, but the epiphysis is fully fused.

5.1. *metacarpal (left) 160g*

The proximal end and shaft are intact, but only the most lateral segment of one facet of articulation remains. The third and fourth metapodials are fully fused together, however on the ventral, proximal end of the fourth metapodial there is an area of unfused bone, again possibly the result of the age of the animal. The overall length of the metacarpal is slightly smaller, approximately 5%, than the modern reference example.

6.1. *scapula (left) 200g*

Consisting of the glenoid cavity, acromion, neck, and part of the blade. Measurements of the neck, glenoid cavity and acromion indicate the archaeological specimen is approximately 10% larger than the modern reference example.

6.2. *scapula (right) 110g*

This right scapula fragment is more fragmentary than the left, with part of the glenoid cavity remaining, and part of the medial blade section only. The right scapula is slightly larger (approximately 2mm on average) than the left.

6.3. *scapula fragment (right) 63g*

This fragment consists of a section of the right blade, both medial and lateral surfaces, and part of the spine.

6.4. *scapula fragments 54g*

There are eight identifiable scapula fragments, the majority consisting of blade, and some areas of spine.

7. *vertebrae*

The Bos genus has a total of 49-51 vertebrae. At Gor Khuttree, 15 identifiable vertebrae were recovered, plus neural spine and other fragments. These vertebrae consist of:

7.1. *thoracic vertebra 953g*

The thoracic vertebra recovered consist of eleven nearly complete elements and eight fragments of neural spine. Two of the bones have cut marks evident on the vertebra body. Three of the neural spines show a 'y' shape at the distal end, which is indicated in modern reference material as characteristic of Bos indicus or zebu cattle (Hesse & Wapnish, 1985,73).

7.2. *lumbar vertebra 311g*

There are four lumbar vertebra consisting of body, and at least one other element, and one neural spine fragment. Two of the lumbar vertebrae show asymmetries of the neural arch, where it appears that one side may have been subject to compression, altering the bone development.

7.3. *vertebra (fragment) 13g*

One vertebra body fragment was recovered, which cannot be assigned to a specific vertebral area.

8.1. *rib fragments (left) 327g*

There are eight rib fragments that have head, neck, tubercle and part of the shaft intact. One rib fragment has head, neck and part of the shaft present, but no tubercle. One rib

fragment has the lateral edge missing. One rib fragment has the head, neck and tubercle present, but there is no shaft attached.

8.2. rib fragments (right) 334g

There are five rib fragments that have head, neck, tubercle and part of the shaft intact. One rib fragment has the tubercle, part of the neck and shaft present, but the head is missing. One rib fragment has the neck and shaft present, but the head and part of the tubercle are missing. One fragment consists of the proximal end of the shaft only.

8.3. rib shaft fragments 738g

A total of 95 rib shaft fragments were identified, but not attributed to left or right side, as the majority were too small to allow this.

9.1. phalanx 3 16g

The 3rd phalanx is the only one recovered, and is missing the most distal tip. When compared to the modern reference specimen, the archaeological phalanx is smaller along the longest ventral-dorsal axis, but larger along the widest volar-plantar axis. Again, these size differences are in the approximate order of 5-10%.

10.1. carpals (right) 54g

Bos has twelve carpals (and tarsals), six per side, and six of these have been recovered intact for the Gor Khuttree cow. They are:

radial	14g
intermediate	15g
first	10g
second/third	18g
accessory	7g

11.1. patella (left) 34g

One complete left patella has been recovered.

12.1. unidentified fragments 180g

There are 71 unidentified fragments larger than 10mm², weighing in total 180g. These appear mainly long bone fragments, but further identification is not possible.

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6. References

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