SUBSISTENCE PATTERNS IN N.W.F.P: AN ARCHAEOLOGICAL STUDY. THE FAUNAL REMAINS FROM CHARSADDA VI, HUND AND REHMAN DHERI

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1. Introduction

Almost ten years ago Meadow summarised the state of archaeozoological research in Pakistan: "To date, it has been extremely difficult to do more than to generally characterise the situation in the Greater Indus Valley as a whole and to use analogy with modern conditions as a guide to the past" (Meadow 1989, 71). Since then, there have been a number of specialist reports published on different aspects of environmental archaeology, such as Belcher's examination of fishing strategies in the Harappan (1994), Meadow's exploration of the possible correlation between bone measurements and animal husbandry practices (1991a) and Kenoyer's study of shell working (1991). Although there has been an increase in the volume of published work, and a greater awareness of the need to integrate such specialised studies into wider archaeological questions, nevertheless, archaeozoological research can still be used further to address issues of change in this area. The examination and recording of animal bones from three sites in the North West Frontier Province of Pakistan has provided a corpus of material from which to compare and contrast the animal-based subsistence strategies evident from each. Charsadda, an Early Historical urban site; Hund, an urban site spanning Indo-Greek, Scytho-Parthian and Mughal periods; and Rehman Dheri, one of the earliest urban sites in South Asia, are located in different environmental settings, and represent different forms of social organisation. These three sites do not form a chronological or geographical continuum, but rather represent development episodes and periods of urbanism in this region of Pakistan. The faunal assemblages thus provide the means to test the importance of these factors on the shaping of the assemblages of animal bones, and to look at issues of change and continuity at each site. The subsistence base of the occupants of a site can be perceived as the result of two forces; first, the environmental parameters, and human adaptation to and exploitation of them, and second, social changes which may demand different responses both in content and method of providing food resources. A brief discussion of the methodology of general importance in archaeozoology, and its application in the study of these particular sites, will be followed by a summary of each of these sites in

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turn. Their location and particular environment will be outlined, and their faunal assemblages discussed in terms of species present, species dominant, and changes over time. The next section will then be a comparison of the results and conclusions for each site, and will synthesise this material into an overall conclusion about the faunal subsistence base. This paper considers the preliminary results from each assemblage, and it is intended that future work will concentrate on the material from each site separately, in addition to further comparative analysis. However, this initial exploration provides an opportunity to present all three assemblages, and these early results already indicate some interesting trends.

2. Archaeozoology

2.1 Selection

The presence of animal bones in any given context on any site is usually the result of a large number of conscious and unconscious selection processes. Certain taxon may be chosen for use as food, both in the form of meat and also for milk and milk products, while others may be selected for their traction and haulage power (Davis 1987, 24). The provision of hide, horn, ivory or bone, may also be an influential factor. Particular species may be utilised for religious, status or sacrificial purposes, and this may also account for the absence of species known to inhabit a region (Hesse & Wapnish 1985). The remains of what can be considered 'background' animals, such as scavengers or predators are also likely to occur in assemblages of animal bones, and these can give a great deal of indirect information about human activities and practices, as well as environmental information. Their presence also indicates that an assemblage may well have been altered by activities such as dogs dragging bones on and off sites, or burial of single bones (Davis 1987, 24-5). Domesticated and semi-domesticated animals are the primary source of information about herd management and animal husbandry, as well as being a food source. This can be elicited through such analyses as species profiles, investigating age at death, sex, health, evidenced through pathologies, and numbers of individuals estimated in a group. Domestication suggests human control over, and provision for, the particular requirements of each species. Therefore, natural environmental factors are likely to play less of a defining role in deciding whether a species is absent or present. It has been suggested that when pastoralism, nomadism or transhumance is the dominant means of subsistence for a group, the number of species utilised tends to be relatively narrow when compared to hunting groups (Hesse & Wapnish, 1985, 12-13). In contrast, when wild animals provide the main subsistence base, the species profile tends to include a greater diversity of genera and species, both in size and from a variety of habitats. However, there are also many selection factors influencing the capture of wild animals. Availability of suitable animals is of primary importance. Herd ungulates are one of the most common animal types recovered from archaeological sites; they tend to be found in large groups, favouring grassland areas or light cover, they are generally diurnal and are unlikely to be ferocious. They also provide a relatively high yield of meat per animal (ibid., 15). Other species that are readily available and easily caught, though with a much lower meat yield per animal, may contribute just as many individuals to the meat source of a group, and so bones to an archaeological assemblage. For example, in the Wilpattu region of Sri Lanka, the two largest bone counts were attributed to *Axis axis ceylonesis,* the Sri Lankan spotted deer, and *Lepus nigricollis,* the black napped hare. It was suggested that the hare was as numerous as the deer, despite the obvious difference in meat yield, because the hare itself was so plentiful around the site, and relatively easy to catch (Deraniyagala 1992, 375).

Animals are often perceived as having a symbolic as well as a practical role within many societies. For example, following a study of archaeozoological assemblages from a number of eastern and southern African sites, Reid has noted that: "Animal remains from the sites of complex societies are, therefore, not just artefacts of power relations over allocated resources of cattle, but are also manifestations of relations regarding authoritative resources" (Reid, 1996,46). This demonstrates the potential for the use of environmental data for shedding light on social and political activity within archaeological groups. Different parts of an animal may be selected from the whole carcass. This could be influenced by what a particular group considers to be good meat, or suitable for different purposes. Certain parts of an animal may be offered as tribute, or for ritual purposes, or discarded as unfit for consumption, perhaps then being fed to other animals, or attracting scavengers to a site. Different parts of different species may be considered of higher status than others, or suited to a particular purpose. In his study of the Middle Eastern Druze, Grantham noted that: "The Druze make specific meat dishes that have a relative value of desirability from specific parts of the animal" (Grantham, 1995,75). This illustrates how ethnoarchaeological studies can be of great significance in the interpretation of faunal material, often providing an opportunity to observe the ideological and social factors that may influence the selection processes at work. In an ethnoarchaeological study of nomadism in the Cholistan region of Pakistan, it was demonstrated that different animals are kept for different, quite specific purposes, including exchange and trade (Mughal, 1994, 53), and these are the functions that would not be apparent within the archaeological record. Khan further develops this concept whilst discussing the importance of hunting particular species to groups of transhumant nomads in Bannu, who display the "mounted heads of wild goats as trophies in their guest rooms" (1994, 89), indicating a social value placed on animals that may easily be overlooked in an interpretation of the animal remains recovered.

2.2. *Taphonomy*

Taphonomic factors are often related to such cultural activities as slaughtering and butchery practices, selection of carcass parts for different purposes, food preparation, cooking and consumption patterns, rubbish disposal and the re-use of bone, although scavengers can also play a significant role. Where these activities are carried out, whether in a set, well defined area, or in randomly chosen locations, for example the butchering of hunted animals and discard of unwanted portions at the kill site, will affect which bones are likely to be incorporated into the archaeological record. Food preparation and cooking may also influence the deposition of bones, or certain bones. If meat is stripped from the bone prior to cooking, it may be discarded in an area that is spatially separate from the area where cooking or eating waste is dumped. Waste disposal patterns are also likely to play a large part in the deposition of animal bones. They may be dumped in a general rubbish pit or area, and so recovered along with other material, or they may be burnt prior to dumping, after dumping, or even left out to be gnawed and carried off by scavengers. The use or re-use of bone for tools or decorative items could result in a completely different set of depositional factors. Rubbish disposal patterns themselves may change as ideology changes within a group, or even as a result of population increase or change in concentration (Hodder 1986,78; 1982,61). Determining what constitutes waste material has also been the focus of research, as this can influence where and when material is discarded: "Whenever refuse is dropped it is not 'dead' but can be re-used and is actively given meaning and involved in social strategies" (Hodder 1982,198). As Hodder stresses, the perception of an item by the group using it, and the frequency of its use, are amongst the factors that dictate its occurrence, that is discard, within the archaeological record (ibid., 59). Again, the use of ethnoarchaeological studies may help in the understanding of the factors which influence human activities.

2.3. *Preservation*

Bone consists of organic and inorganic material and is relatively durable under stable conditions. This accounts for its presence in large quantities on a wide range of archaeological sites, but there a many factors that affect its preservation (Davis 1987, 47-50). Juvenile bones are less dense and more fragile than mature bones, so are more likely to be broken up and subjected to post-depositional stresses. Certain parts of the skeleton have been demonstrated to have a much better general survival rate than others. Cranial bones, particularly in birds and small mammals, for example, are delicate and easily crushed, whereas teeth and long bones are much tougher. Size can also be important in preservation, where larger shafts tend to have a greater survival, and recovery, rate than small bones (ibid., 29-31). Buried bone can be subjected to a number of chemical and mechanical processes that may affect their preservation. Chemical processes include mineral action from the surrounding soil and water matrix, and often alter over a period of time. Mechanical factors include the effects of soil and water movement, freeze-thaw cycles, surface ploughing and the activities of burrowing animals and insects (Hesse & Wapnish, 1985).

2.4. Excavation

In common with all other archaeological material, decisions about which sites, and which areas within sites, to excavate, will necessarily largely determine the likelihood of animal bone recovery. For example, cooking and midden areas are possible sources of high bone concentrations, whereas the excavation of a pottery kiln or workshop, or elite residential areas are generally less likely to have a large quantity of bone initially deposited there. Excavation and recovery methods will also influence the archaeological bone assemblage. Recovery entirely through excavation has been demonstrated to result in a strong bias towards large bones, hence mainly large animals are represented in the species profile. Small bones, both from parts of large animals and all of small ones, are likely to be overlooked in excavation, but can be successfully recovered through a comprehensive soil sieving process. The size of the sieve mesh will determine the minimum size of the bone retained (Davis 1987, 29-31). All of these above factors, and others not detailed, should be borne in mind when archaeological animal bone assemblages are being analysed and interpreted. The samples recovered and examined are likely to be a very small proportion of the original population utilised at any given site.

3. The sites and faunal assemblages

The faunal material from Charsadda, Hund and Rehman Dheri was examined, recorded and identified, where possible, using modern reference material (Department of Zoology, University of Peshawar) and literature sources (e.g. Hillson, 1982; Hesse & Wapnish, 1985). Identification has been made primarily to genus level, and all identifications have been given as such for the sake of uniformity. Further study of the bones should allow greater distinction between species, particularly for the cattle and deer remains, and also identification of certain bones currently thought to represent wild genera. It is also hoped that further work will establish whether the equid bones noted are from domesticated or wild types. Enlarging the available reference material should assist with this aim. Sheep and goat have been grouped together as Ovi-caprids throughout, due to the difficulties posed in distinguishing between these two types skeletally, especially when the bones are fragmented. In terms of the objectives of this report, separating the two at this stage would serve little practical purpose. Sample size is another area of concern: Meadow acknowledges that there are problems working from a small sample, for example, archaeological interpretations may be altered where it is necessary to group together material from different contexts within a single phase to obtain a numerically significant sample size (1991a, 102). Within the wider field of environmental archaeology, van der Veen and Fieller (1982) recommend a minimum sample size of 500 to allow significant analysis. Although the identified bones from these three sites fall below this figure, this does not, however, negate the importance of studying them. Not only do they provide good illustrative evidence for subsistence activity at each site, there is also the likelihood that future excavations will add further data to each assemblage. Cut marks can be the result of a range of activities, such as slaughtering, butchering and skinning of animals. Bone tool or ornamentation manufacture can also produce a whole range of marks on bone debris (Hesse & Wapnish, 1985,87). Cut marks have been observed and recorded from a range of species from each site. It is intended that by characterising the types of butchery evidence, and plotting the frequency and occurrence on certain bones and parts of bone, that patterns of use may emerge. However, this current work simply indicates whether the major species present at each site show butchery marks, as this is considered to support the probable use of these animals for food purposes. Ageing has been based on tooth wear and bone fusion, but it should be remembered that the very small sample size, in particular for the tooth estimation, means that this is indicative rather than in any way definitive. Tooth wear is based on the Grant Dental Attrition Age Estimation (Hillson, 1986) and has been categorised for convenience into sub-adult, young adult, adult and mature or ageing adult.

3.1 Charsadda VI

The faunal material analysed in this section was recovered from trench Ch. VI at the Bala Hisar of Charsadda. This trench was opened in 1995 during the second season of collaborative fieldwork between the Department of Archaeological Sciences, University of Bradford and the Department of Archaeology, University of Peshawar. The Bala Hisar of Charsadda is situated in centre of the Vale of Peshawar, an elliptical basin, measuring some 86 miles long and 54 miles wide, draining a series of rivers fed by the surrounding mountains (North-West Frontier Province, Imperial Gazetteer of India, 1904,144). The basin has an average annual rainfall of 350mm, mainly falling between July and September, and temperatures which range from the 40s oC between May and September to between 14 and 0 oC between November and April. The Bala Hisar itself is located in a rich clay plain to the north of the confluence of the Kabul and Swat rivers, in an area known as the Hashtnagar tappa or eight town's circle (ibid., 1904,158). The doab between the Kabul and Swat rivers, to the Bala Hisar's west is recorded as being very fertile, highly cultivated and well wooded. (North-West Frontier Province, Imperial Gazetteer of India, 1904,158). Whilst this area is noted as having being prosperous and fertile at the beginning of the century, this was largely due to the opening of the Swat Canal in 1885. Prior to this date Bellew commented that whilst the Hashtnagar plain was densely populated along the courses of the rivers "the greatest portion by far is an extensive stretch of waste land...more or less covered with a stunted brushwood" (Peshawar District Gazetteer, 1898,14). The flora and fauna of the plains (ibid., 35-41) which are some 400m above mean sea level differs dramatically to that of the hills, which are less than 30 miles away, one of the highest peaks surrounding the vale is over 2200m. Certain trees, for example, such as the deodar, walnut, ash and alder are found in the cooler valleys, but not down on the plains, whereas olive, oleander and poplar dominate the plains. Similarly, animals such as the ravine deer, or antelope inhabit the lower hills, valleys and plains, whereas the barking deer is only found in the higher hill country (ibid.). This immense natural wealth, both in terms of wild animals and the means of supporting domesticates, and also for the cultivation of crops and the abundance of wild plant foods would have been a major factor influencing the subsistence base of the inhabitants of Charsadda.

The Bala Hisar of Charsadda is one of the most important archaeological sites within the Vale of Peshawar, representing, as it does, one of the most prominent features in the landscapes. Excavated by both Sir John Marshall and Sir Mortimer Wheeler, it has provided one of the most comprehensive typological sequences for the Early Historic period in this region (Marshall, 1904; Wheeler, 1962). Field investigations at the site were renewed by the Universities of Bradford and Peshawar in 1994 with the aim of providing this important sequence with chronometric dates. Trench Ch. VI was opened in order to test the chronology and course of the defensive ditch excavated by Wheeler in trench Ch. IIIJ & K (ibid., 27). This defensive feature had been identified by Wheeler as part of the complex which defended the site against the troops of Alexander the Great in 326 BC (Wheeler, 1962,34), thus providing an absolute date around which Wheeler created his chronology for the site. A further reason for investigating the Bala Hisar of Charsadda was to ascertain the antiquity of occupation at the site. Wheeler had assumed that the earliest levels, encountered in trench Ch. I in 1958, were no older than Persian or Achaemenid rule in this region in the fifth and sixth centuries BC (ibid., 172). This hypothesis had been reinforced by the presence of iron in the lowest levels, Wheeler assuming that this metal had been part of the imperial package (ibid., 34). Within the last twenty years Wheeler's assumption that the appearance of urban forms within the north-west of the subcontinent was due to the expansion of Persian rule has been refuted by new evidence. This evidence suggests that there were a series of large, pre-Persian incipient urban centres, Kandahar and Hathial Mound at Taxila (Coningham, 1994), for example, established at the beginning of the first millenium BC. We were therefore interested to know whether the Bala Hisar of Charsadda was to provide a similar pattern.

Trench Ch. VI was located some 10m south of Ch. III and measured 15m by 3m. The excavations at Ch. VI revealed three main phases of occupation, I, II and III. Phase I, the most recent, consisted of widely mixed material, being the result of erosional washes and collapse from the tell's summit. Phase II largely consisted of robber pits, the result of soil robbing (ibid., 39), cut into the *'in situ'* deposits below. Phase III, the oldest, contained *'in situ'* archaeological deposits in the form of ditch cuts, foundation cuts, wall foundations and habitation debris. The features of phase III could be sub-dived into two further divisions, IIIa and IIIb following the results of a series of radiocarbon dates. Phase IIIb represents the youngest of the 'in situ' deposits and consists of a ditch which appears to surround part of the mound and has been calibrated to 770 - 410 BC at 95.4% confidence (GRA-5247). This feature corresponds with the defensive ditch excavated by Wheeler in trench Ch. III, the postern feature, also excavated in Ch. III has produced a similar calibrated date range of 770 - 370 BC at 95.4% confidence (GRA-4219). The oldest deposits, found in phase IIIa, consist of a ditch-like feature at the eastern edge of the trench and a wall foundation at the northern edge. Both features appear to be contemporary in date, the former has a calibrated date of 1270 - 930 BC at 95.4% confidence, and the latter, one of 1260 - 900 BC at 95.4% confidence. Thus the sequence at trench Ch. VI has confirmed the course of Wheeler's ditch as well as indicating, for the first time, that occupation at the Bala Hisar of Charsadda began between the beginning of the first millenium BC and the thirteenth century BC, and as such represents one of the oldest Early Historic urban forms in South Asia! For further details of the preliminary results of the first two seasons, please see the report by Ali, Coningham, Durrani & Rehman in this volume.

The faunal material from trench Ch. VI was recovered through a combination of hand excavation and sieving, although the assemblage shows a distinct bias towards larger bones and bone fragments. The bone was generally in good condition. As can be seen in Table 1, animal bones were examined from a wide range of contexts from all three major stratigraphic phases excavated. Phase I, the youngest deposit which contained mixed material, represented a weight of 242gms or 12% of the total bone count. Only three species, Cattle, sheep-goat and dog, were identified from Phase I. Their presence in surface levels should not be surprising as small mixed herds of cattle, sheep and goat are all regularly grazed on the site in the present, frequently with a dog accompanying the herder to help control the animals. Indeed, the skeleton of a recently deceased dog was encountered during the 1997 surface survey at the site. The deposits of phase II consisted of robber pits and associated disturbance, and the faunal material recovered from these contexts accounted for 30% or 1,059gms of the total bone examined. Remains belonging to a total of eight different species were recovered, being a wider range than for either phase I or II. Many of these may be derived from earlier deposits, although this range is largely accounted for by the presence of smaller animals, likely to be scavengers or wild specimens, such as rat, cat, dog and pig, and this may be connected to the nature of the archaeology itself. A single identified sheep-goat bone was recovered from phase IIIb, whilst the majority of bones were recovered from phase IIIb, the earliest identified occupation, with context 71 having the greatest number of any single context.

The most abundant identified animal is cattle (Bos), followed sheep-goat *(Ovi-caprid)*, and buffalo *(Bubalus)*. Together these three account for nearly 90% of all the identified material, suggesting a strong dependence on domesticated rather than wild animals for the meat and related product base of the diet during these periods. This pattern is comparable with the wider perceived trends in urban-based animal husbandry in Asia, as recorded by Meadow as resulting in "the widespread use of domestic animals in different environmental settings, the growth of urban centres requiring provisioning, an increasing focus on secondary products such as milk, wool, and traction, and the possible formation of specialist pastoral groups" (1991b, 93). It is interesting to note that the identified bones from phase IIIa, which account for over 50% of the total bone material, show a very high proportion of both cattle and buffalo. This pattern may be interpreted as indicative of the importance of traction animals. Cattle and buffalo are both sources of efficient traction and haulage power, milk and milk products, in addition to meat, bone, skin and other materials. The numbers of sheep-goat identified from phases II and III remain relatively constant. Both animals are staple resources in this region today, and the consistency with which they are represented in the archaeological record suggests that they were of considerable importance for the periods of occupation at Charsadda (Meadow 1984, 35). Cut marks were found on bones from the sheep-goat, cattle and buffalo samples, suggesting that the carcasses were being utilised after death. While their butchery for food is likely, it is hoped that future detailed work characterising the nature of these cut marks will shed further light on the range of possible uses. A single identified equid bone was also recovered from phase IIIa. Its presence in the record is very interesting bearing in mind Meadow's comment that "horses have tended to be animals of the elite, used for display, warfare, and raiding" (1989, 70), while cattle were used more for transport and traction purposes. It is true to say that the introduction, and development of the role, of horses within the subcontinent is still uncertain, but this find further demonstrates that equids, either domesticated or their wild relatives, were present within this region at the beginning of the first millenium BC. Other identifications of horse, ass and half-ass are recorded from the protohistoric sites of Loebanr III and Aligrama, in the Swat Valley, but unfortunately the bones from each type are recorded and analysed together (Compagnoni 1979, Table 1). Deer bone was only recovered from two contexts, a single bone each from phases II and IIIa. This low proportion suggests that the hunting of larger wild animals for food or other related products was not of great significance. These finds may represent isolated hunting events, or even material brought onto site by other animals, or for other purposes. Pig was also identified in the same context as one of the deer bones in phase IIIa. This recovery of two species (one known to be wild and one probably wild) together may indicate an incident of hunting, or this particular ditch fill may represent an alteration in human activity affecting deposition, such as a variance in rubbish disposal patterns. This distinct trend of overwhelming superiority in number of domesticates over wild species was also noted at Loebanr III and Aligrama (Compagnoni, 1979, 697-8). Indeed an assessment of the proportions of wild and domesticated animals recovered from a range of Indus valley sites shows that domesticates are clearly dominant, but wild animal bones from a number of species are present (Meadow 1991b, 55, 57). A similar pattern has also been noted from Loebanr III and Aligrama (Compagnoni 1979).

On the basis of a study of the available tooth sample, the majority of individuals entering the archaeological record were young adults and adults, with few very young or very old animals recorded (Table 2). The implication of this pattern is that herd strategies were aimed at the utilisation of animals who had matured, thus providing optimal meat, while animals were not being kept beyond their most productive period. The lack of deciduous teeth recovered may be the result of a very low juvenile death rate, the poor preservation of these teeth compared to adult teeth or the differential disposal of young animal remains. As no buffalo teeth were recorded, the only domesticates represented here are cattle and sheep-goat, which again reduces the significance of the information. Further information about the age at death of individuals can be gained from the epiphysial fusion of long bones. The fusion of the diaphysis (shaft) to the epiphysis (articulation) has been observed to take place relatively uniformly within common species, thus allowing the level of fusion to be an indicator of individual age. Once fusion is complete and the metaphysis, or line of fusion, has been fully absorbed into the bone, generally after the age of twenty-four months, age differentiation is no longer possible (Hesse & Wapnish, 1985, 74). However, as already discussed, bones from immature animals are less robust that those of adult animals, and so are less resistant to the mechanical and chemical processes that can act on buried bone. This can result in under-representation of the number of animals entering the archaeological record before reaching full maturity. Of the material examined and identified, six bones were noted as having unfused epiphyses or incomplete fusion, which accounts for 9% of the total identified bones. Within each genus, immature specimens make up 12% of sheep-goat bones; 6% of the cattle bones and 6% of the buffalo bones identified.

Three main species were identified in the faunal material recovered from Ch. VI, cattle, sheep-goat and buffalo. In particular high counts of buffalo and cattle were identified in phase IIIa. The presence of these two species may indicate that they of primary importance, being used for haulage and traction, in addition to being a source of food. This pattern is similar to that recorded from a number of comparable Southern and Western Asian sites (Meadow 1984, 35-6). The presence of small numbers of equid bones is open to a number of interpretations, and may be of some significance in terms of when horses were introduced and in use in this region. Significantly there are very few bones that may be attributed to wild species. This may be due to the function of the contexts excavated, as some areas of a site may be more exposed to the activities of scavengers than others. Another possible explanation may be that specific patterns of rubbish disposal governed the separation of waste from hunted or wild animals from waste from domesticated species. The age at death of the animals recovered from Ch. VI fall mainly into the adult and young adult range. This suggests that the animals may have been used for a variety of purposes, including breeding. The large proportions of buffalo and cattle in the whole assemblage also fits with the idea that these animals were multi-functional. In summary, the faunal material from Ch. VI is consistent from phase III to phase II, in terms of the types and numbers of animals present, and in the approximate proportions of the assemblage that they represent. It is interesting to note that this archaeological pattern is closely paralleled by the tables of agricultural stock of Charsadda Tahsil between 1895 and 1896. It recorded 19,484 plough bulls or bullocks, 1,351 pack bulls or bullocks, 16,573 cows, 891 male buffaloes, 4,590 cow buffaloes, 14,722 calves, 2,504 buffalo-calves, 27,564 sheep, 11,310 goats, 1,004 horses or ponies, 155 mules, 3,463 donkeys and 779 camels (Peshawar District Gazetteer, 1898,194-196).

3.2 Hund

The faunal material analysed in this section was recovered from the 1996 University of Peshawar excavations, directed by Professor Ihsan Ali, at the site of Hund. Hund is located at the eastern edge of the Vale of Peshawar on the northern bank of the Indus river, a few kilometres upstream of its confluence with the Kabul river. Whilst most aspects of its environmental setting are similar to that of the Bala Hisar of Charsadda, its most striking difference is its location actually on the bank of the region's major river. The river at this point does not follow a single channel but consist of a number of minor channels separated by many islands. Some of these islands are submerged during the seasons of flood whilst others are covered in forests of sissu and others with grasses (Peshawar District Gazetteer, 1898,6). Hund's position on the Indus is not just fortunate but also strategic as it is also a traditional crossing point, indeed, Hund was recorded in the 1880s as a place of importance, being the location of one of the Province's three ferries across the Indus (ibid., 6). Of these three ferries, Hund's location was thought to most suitable for travellers going from Swat or Bajur (sic) to Lahore (ibid.). Allegedly the site of Alexander the Great's crossing of the Indus in 326 BC, the site's sequence is almost 10m deep. This sequence appears to suggest that the city was occupied in succession by the Indo-Greeks, Scytho-Parthian and Kushans during the early centuries of the first millenium AD before reaching its zenith as the Winter capital of the Hindu Shahi dynasty in the sixth century AD. Ruling a vast kingdom stretching from the Punjab in the south-east to Afghanistan in the north-west, the Hindu Shahis built scores of fortresses and temples within their domains. The authority of this dynasty was unchecked until the incursions of the Ghaznaian rulers in the eleventh century AD forced them into the inhospitable and inaccessible Salt Range. Although Hund's continued importance can be ascertained by the construction of a fort there by the Mughal emperor Akbar to control the crossing point, the construction of a new fort and boat bridge downstream at Attock undermined its prosperity. The opening of the Attock Bridge in 1883 confirmed the end of Hund as a strategic centre and it is today little more than a village sheltering within the walls of the Mughal fortress.

The faunal remains from the excavations at Hund were recovered from 29 contexts through a combination of hand excavation and sieving. The bone was in generally good condition, although some of the fragmentation was due to fresh breaks. All the faunal material analysed comes from contexts belonging to the later Islamic occupation of the site. Table 1 illustrates the respective numbers and weights of bone fragments for all the species identified at Hund. Sheep-goat remains comprise the greatest number of pieces, followed by cattle, deer, and buffalo. These four genera form the vast majority of the animal bone assemblage (39%, 30%, 19%, 9% respectively), being 97% of all the identified material. The remaining 3% consists of material identified to genera that all have wild species: Sus sp., Canis sp., Felis sp., Gallus sp., Rattus sp., and it its likely that these represent 'background' animals - that is, animals that may be attracted to human settlement to take advantage of it. This may result in such animals as crop pests where agriculture is practised, or scavengers making use of collections of waste material. It is unlikely that these animals were actively pursued or exploited, due to their low numbers, but once on site or in its vicinity they may have been utilised. It is also clear from Table 1 that sheep-goat is the most abundant species at Hund. Not only does it contribute the greatest number of overall bones, it is also found in the most contexts, and rather more evenly spread out than cattle, though still demonstrating areas of peaks and lows. There do not appear to be any apparent major links between the species, either positive or inverse, in terms of their relative occurrence. Deer and sheep-goat perhaps demonstrate some link both in the peaks of their numbers in certain contexts, and in being found in certain contexts together where other species are not present. There is only one context (1012) where deer is the only species recovered, and there is a possibility that this was the animal of choice, or necessity, in the later stages of site occupation (contexts 1006-1003) when the total numbers of parts recovered and identified almost equal that of sheep-goat and cattle combined. It is possible that contexts 1022 and 1010 may be interpreted as representing periods of increased site population on the basis of the increased amounts of animal bone recovered from them, however, they may represent an abandonment of this particular area of the settlement which then became a refuse area. This hypothesis needs to be tested by incorporating other archaeological data with the bone information to see if these relatively sudden increases are reflected in other facets of the site. There are, however, many other possible explanations for the high numbers of bones in these contexts. These include a change in dietary orientation, with a greater emphasis on meat consumption to account for the increase in both bone numbers, or changes in waste disposal patterns may have resulted in this area being used as a bone dump. This in turn may be the result of change in social organisation or ideological change. Alternatively, the increase in cattle and buffalo could indicate an intensification in agriculture, with these animals being used in greater numbers for ploughing or traction purposes. An analysis of any recovered archaeobotanical remains could help shed light on these possibilities. The presence of cut marks from all the major identified genera and species at Hund suggests that these animals were being actively exploited for their body parts. Cut marks on hyoid bones from both cattle (context 1005) and sheep-goat (context 1022) is consistent with slaughtering using a knife or similar implement, and this is recognised as consistent with Islamic slaughter practices. Therefore, these specimens could be considered indicative of the ideological change that is known to have occurred at Hund. There are also two sheep-goat hyoids (contexts 1005 and 1010) that do not have cut marks visible, which may be the result of the natural death of these specimens, slaughter by some other means, or that the recovery of both cut and uncut hyoids from similar contexts indicates a period of incipient change and mixing. This reinforces the problems of both working with very small sample sizes, and trying to elicit ideological change through archaeological data.

Table 2 illustrates estimated age at death of the four main genera based on tooth wear patterns (Hillson, 1986). This shows that overall, there is a range of ages at death, particularly for sheep-goat, deer and cattle. Certainly contexts 1068 to 1012 show a greater concentration of younger animals, and below, whereas the later phases of the site, 1011 to 1003 show more old and very old animals. In general, the highest numbers for sheep-goat, deer and cattle appear in the young adult and adult categories for the majority of the contexts from which teeth that can be aged have been recovered. The tooth wear data for buffalo shows that neither very young nor very old individuals were recovered, which may again be consistent with a traction or breeding function for this genus, and beyond a certain age, their productivity may no longer justify the cost of their maintenance. The number of immature individuals from Hund was also assessed on the basis of recovered bones without fused epiphyses, unfused epiphyses only, or bones with fused epiphyses but with the metaphyses still visible and compared against the total number of recovered bones for each genera. Buffalo had the highest number of immature bones of the four main types, with 10% of the total bones attributed to immature specimens. Bones from immature animals accounted for 7% of the total bones identified as belonging to the sheep/goat, with 2% and 1% for deer and cattle respectively. Estimations of the age at death from tooth wear data for each of the four main animal types shows that the majority of individuals represented by teeth appear to be entering the death assemblage (whether slaughtered, or from natural causes) when they have reached middle adulthood, but not yet reached the old to very old categories. Age at death estimations based on epiphysial fusion suggests that a greater proportion of buffalo than other animal type were dying before adulthood. This may be a result of the relative size of buffalo bones, which even in juveniles are large, and so result in a recovery bias during excavation. It is possible that buffalo, in comparison with, for example, sheep-goat, were required in lesser numbers at any given period, and so slaughtered at an age when meat or other yields were high, and before the animal placed the maximum demand on resources.

In conclusion it seems clear that there are four main genera present at Hund: sheep-goat, cattle, deer, buffalo. Of these, sheep-goat is the most abundant numerically. The species profile and age at death estimates suggest that these were relatively small, mixed herds, with individuals entering the death assemblage after they had reached maturity. Whilst the deer are a wild species, and so their presence in such quantity on the site is almost certainly the result of deliberate hunting, the cattle, buffalo and sheep/goat remains are likely to be representative of managed or domesticated types. The relatively large, stable numbers of cattle and buffalo may indicate their use for traction purposes, possibly in addition to other functions. Cut marks on bones from all four main genera recovered strongly suggests the exploitation of these animals for food and other purposes. Overall, cattle, deer and sheep-goat appear to be relatively evenly distributed throughout the contexts examined, although there is some suggestion that towards the end of the period of occupation (contexts 1006-1003), deer becomes the dominant animal. This may be the result of a move towards hunting, whether by choice, and so perhaps indicative of changing social patterns, or perhaps involuntarily, due to a range of factors, such as the spread of disease among domesticated stock, enforced diet change from outside social pressures, or the failure of fodder crops. The substantial presence of deer within the faunal record at Hund clearly differentiates it from that of Charsadda. Whilst clearly, as noted above, this may be the result of changing subsistence strategies and stresses, it may also be that deer were more available within this area, perhaps attracted to the river or to the good grazing pasture land on the many islands in its bed (Peshawar District Gazetteer, 1898,5).

3.3 Rehman Dheri

The faunal assemblage examined was recovered from two seasons of excavations by the University of Peshawar at Rehman Dheri. The first, in 1979 (Units A and B), was directed by Professor F.A. Durrani, and the second, in 1991 (Areas I and III), was jointly directed by Professor F.A. Durrani, Professor Ihsan Ali and Dr George Erdosy. The site of Rehman Dheri consists of a low mound covering some 20 hectares situated approximately 25km north-west of the town of Dera Ismail Khan and the Indus River in the south-east corner of North West Frontier Province. The area has a very varied annual temperature, ranging from a minimum of 5oC in January to the low 40s in June, and an annual rainfall of 150mm. The site is located on an old terrace of the west bank of the River Indus between the Daman plain which starts at the foot of the hills and the Kaachi plain which leads down to the present course of the river. The former is a desert plain, watered by a series of perennial torrents, whilst the latter is a narrow fertile strip of alluvium overgrown with tamarisk, poplar jungle and tall saccharum grass (North-West Frontier Province, Imperial Gazetteer of India, 1904,195-6). Whilst located some distance today from the river, it has been suggested that during the height of its occupation it would have been no further than 2.5 miles from one of the river's channels (Durrani, 1988,18). This would have offered the inhabitants of the site an additional ecological zone in the wet riverine conditions of the channels and their adjacent swamps. The site was discovered by Professor A.H. Dani in 1971 and quickly its importance was established as one of the earliest urban forms within the South Asia. With an initial occupation dated to the fourth millenium BC, the cardinally planned urban form of 20 hectares represents one of the best preserved urban forms of the Early Harappan period (Durrani, Ihsan & Erdosy, 1991,63). Although excavated in 1976, 1977, 1979, 1980, 1982 and 1991, only faunal material from the 1979 and 1991 seasons was examined. The faunal remains were themselves limited to a total of 132 bones from seven contexts in Unit A and 63 ones from six contexts in Unit B from the 1979 season. In both cases, these contexts are from the upper occupation levels of the mound and can be ascribed to period II, which is dated by the excavator to between c. 2850 - 2500 BC (Durrani, 1988,137). A larger collection was available from the 1991 season, 237 bones from the trench in Area I measured 5m square and reached virgin soil at a depth of 4.2m (Durrani, Ali & Erdosy, 1991,68). The stratigraphy of the trench was divided into five main periods, O, I, II, III and IV and consisted of layers of occupation debris. These five periods have been respectively dated to pre-3300, 3300 - 2850 BC, 2850 - 2500 BC, 2500 - 1900 BC and later than 1900 BC (ibid.).

The bone material from Rehman Dheri was excavated by hand and is very fragmentary. It appears that the extreme saline conditions at the site have had an adverse affect on the preservation of organic material here, and much of the bone is eroded and calcified to such an extent that only a small proportion of the total number of bones recovered could be identified. Although fish bones have been noted as having been recovered (Durrani, 1988, 26ff), these were unavailable for study. As can be seen from Table 5, the animal bones from Rehman Dheri have been divided according to the area of the site from which they were recovered, and the following analysis will deal with each of these areas in turn. Area I, excavated in 1991, contained the greatest number of bones, both identifiable to genus and unidentified total, and also covered the greatest span of occupation periods. The greatest total number of bones come from the earliest (pre-structural) and latest periods respectively. Cattle dominate the identified genera, followed by sheep-goat. Camel, buffalo, deer and equids are all present, with concentrations for buffalo, camel and deer around the end of period II and beginning of IVA. Horse, or a wild relative, occurs in the earliest period, then in the later periods, but is not identified from any of the mid-periods of this area. The high numbers of equids, and the presence of camel at Rehman Dheri may indicate a mobile population, or element of population. Deer is also present in relatively high numbers, which suggests that it was being actively hunted, particularly in the later phases of occupation. No rat or pig bones were identified from this area, although the presence of both cat and dog or wolf bones suggests that scavengers and wild animals were active on and around the site.

In phase 0, dating to before 3300 BC, cattle account for slightly more of the total number of identified types than sheep-goat, however sheep-goat are present in slightly more contexts. This suggests that at this period of the site they were likely to have been of equal importance within the subsistence base. Significant numbers of identified horse bones are also present during this phase, and although one buffalo bone was also identified there was no camel evident. In phase I, dating to between 3300 - 2850 BC, there is a greater range of animals identified to genus level than in any of the other phases, including fox and hare specimens, although these are not listed in Table 5. Deer, possibly more than one species, is also present in the phase, which may indicate either that hunting was gaining in importance during this phase, either through choice or necessity, or that scavengers were taking advantage of settled human activity and the associated increase in food sources. Phase I is also unusual in comparison with other phases at Rehman Dheri, as there were no buffalo, camel or horse bones identified, and sheep-goat numbers were nearly three times as great as the cattle numbers. In the other phases, where bones from these types have been identified, the numbers are more equal, with cattle being slightly higher. Phase II, dating to between 2850 and 2500 BC, has very few bones, either identified or unidentifiable, which is likely to be the result of the extensive construction events occurring during this phase, and the lack of build-up of occupation layers or debris. The bone numbers are so few that no real trends are discernible. During phase III, dating to between 2500 and 1900 BC, there are again a greater range of types recovered and identified, particularly towards the latter part of the phase and the beginning of the later phase IVA. Phase III yielded camel, horse, buffalo and deer in addition to cattle and sheep-goat. As with phase I, this mix of wild and domesticates may indicate the broadening of the subsistence base, or may be the result of changes in social attitudes towards waste disposal or other depositional activities. The two final phases, IVA and IVB, dating to after 1900 BC, have the highest number of bones recovered from the whole site. Again, cattle is the dominant type among the identified bones, although sheep-goat was still significant. Camel, buffalo, horse and deer were all recovered in small amounts from these phases, as were dog or wolf, cat and fowl. The latter three may be representative of semi-domesticated or domesticated types, but without a larger sample size, such distinctions cannot be effectively made.

Area II was also excavated during the 1991 season (Durrani, Ali and Erdosy, 1991), and in contrast to Area I, comprises architectural features rather than occupation layers. In particular, Area II is dominated by a large mud-brick platform. The nature of occupation is reflected in the faunal assemblage - in that there were far fewer bones, either identified or unidentified than recovered from Area I. Again, cattle bones dominate, with sheep-goat also of some importance. Camel, deer and horse are represented by single finds, but buffalo is absent from this area. Interestingly, the only bone identified as pig comes from Area II, but as there is only a single find for the whole site, it is probably representative of a chance, or background activity, rather than deliberate pursuit or exploitation of pig as part of the subsistence base here. The 1979 excavations covered two areas from which animal bones were recovered and studied - Unit A and Unit B, both of which were taken down for limited numbers of layers (contexts 1-7 for Unit A; contexts 1-6 for Unit B) (Durrani, 1988). Although the numbers of bones recovered and identified from each of these areas is not great, the genera present and the proportions of each support the trends noted from the other areas of the site. Table 6 demonstrates that there is a concentration of animals in the younger age at death categories, particularly sheep-goat and deer, from a range of phases (although not all phases are represented by assessable teeth). This suggests that these types were either dying or being slaughtered at a younger age than at the sites of either Charsadda VI or Hund. This may be because the sheep-goat specimens were male, thus not being used for breeding, or milk production, or because the meat from younger individuals was of greater value. Without further material that can be both aged and sexed however, this remains a tentative suggestion. The deer as a hunted animal, may represent particularly desirable individuals at a certain age - optimum meat, or challenge in terms of sport. Overall, Table 6 demonstrates that for all types represented, the majority fall into the young adult and adult categories for age at death estimation, which indicates that they are attaining physical maturity before being slaughtered or dying. There appear to be fewer young cattle represented than any other type, which may indicate that cattle were more use as older individuals, possibly for traction purposes, where strength is important. When the bone fusion data from this assemblage is also considered, it is again apparent that a greater proportion of the bones recovered from Rehman Dheri represent immature individuals in terms of age at death than at either Charsadda VI or Hund. Of the cattle bones identified, 20% are assigned to immature specimens; 17% of the sheep-goat bones and 12% of the buffalo bones. There is also one immature deer bone identified from phase II. The tooth wear information and the bone fusion data strongly suggest that a much greater proportion of the faunal assemblage here is from young animals. The animal bone assemblage from Rehman Dheri shows a great deal of variation in the range of types represented, and in their relative proportions. The assemblage also varies considerably from phase to phase at this site, although the spatial range covered by the different groups within the assemblage are more consistent. The presence of camel and horse bones in a range of contexts and phases is suggestive of a mobility or activity involving travelling over distance that is not apparent at either Charsadda VI or Hund. While both camel and horse can be used as a source of milk and meat, they are less easy to keep solely for these purpose than sheep-goat or cattle, and these types are abundant at Rehman Dheri in all phases. Therefore, it seems reasonable to suggest that the range represented by the domesticates are for different functions. They may even be representative of different elements of the population of the site. On the whole, this assemblage is characterised by its range of animal types, and by the lack of consistency between the phases. There are no strong overall trends apparent, beyond the presence of sheep-goat and cattle in all phases.

4. Conclusion

As noted in the introduction, the three sites analysed do not represent a chronological or ecological continuum. Indeed, in terms of dating they could hardly be more disparate; part of the assemblage from Rehman Dheri dates to the fourth millenium BC, the majority of the assemblage from Charsadda to the beginning of the first millenium BC and the assemblage from Hund to the late mediaeval period. They are equally diverse in terms of environmental setting; Rehman Dheri is located in the arid plains of the lower Indus where nomadism is historically recorded, Charsadda in the agriculturally fertile Vale of Peshawar and Hund in that same plain, but on the banks of the River itself, offering numerous additional riverine zones. In terms of settlement function, they are also similarly differentiated; Rehman Dheri was a small regional centre of authority, Charsadda a provincial capital and Hund a strategic transit point. In the light of these striking differences, it is notable that the subsistence strategies followed are fairly similar. The common shared faunal assemblage at these three sites; sheep, goat and cattle, also comprises some of the most dominant domesticates in a number of sites archaeological sites throughout South and West Asia, as well as being important animals in South Asia today (Meadow, 1984,35). It is interesting to note that it is still common to see small mixed herds together for grazing purposes in the rural areas of the Vale of Peshawar. These herds frequently consist of sheep, goats, young and small cows, and sometimes donkeys, escorted by a dog to help the herder.

This table allows a comparison of the range of species both present and absent on a range of sites from very different periods and cultural affiliations from Pakistan. It shows that both cattle and sheep and goat have been exploited on almost all these sites (Harappa is the only site where the presence of domesticated sheep-goat is uncertain), thus indicating their fundamental importance to subsistence strategies. Obviously, the period and type of occupation dictate to a large degree the research questions being asked of faunal data. For example, on the earlier sites issues of the domestication of species is important, but when later periods are considered, domestication has already occurred, and so exploitation of wild species takes on a different significance.

The relatively narrow faunal resource base evident in the recovered material from Charsadda VI and Hund, certainly, and Rehman Dheri to a lesser degree, may be a direct result of the form of social and economic organisation of the sites. In his examination of the animal bones from 8th-9th century Fishergate in York, England, O'Connor (1994) found that the occupants were exploiting only a very small number of the potential mammals, birds, and fish readily available around the site. O'Connor suggests that this is a likely result of the economic function of the site at this time as a wic, or port-of-trade (see also Hodder, 1979,189), and the associated social organisation. This organisation is postulated as one where the resident population does not own land independently, so has no opportunity for small scale or 'backyard' food production, and subsistence was controlled centrally by the economic and political powers (O'Connor 1994, 141). This makes clear that there are many possible factors influencing the selection and production of food resources, both wild and domesticated. In summary of his argument, O'Connor says "In economic terms, then, it is suggested that the 8th-9th century settlement at Fishergate exhibited a narrow food resource base because prevailing institutional mechanisms inhibited the settlement population's freedom to obtain such other resources as may potentially have been available" (1994,141).

Of the three sites, Hund and Charsadda VI show a fairly high degree of correlation between their respective faunal remains, suggesting that their inhabitants were exploiting the same type of animal subsistence base, which is likely to be not only the result of similar environmental conditions, but also indicative of social organisation of a generally comparable form. In contrast, Rehman Dheri has a greater range of taxa identified at present, perhaps reflecting the factor that Rehman Dheri is located within a more arid region, hence a quite different site environment However, both Hund and Rehman Dheri have a high count of cattle bones within the assemblages, in keeping with other sites where analyses have been carried out: "For sites in well-watered alluvial areas, a high proportion of cattle bones is characteristic" (Meadow, 1991b, 56). There are also significant numbers of buffalo bones that have been identified at Hund and Charsadda VI, and this may be perceived as an indication of the importance of traction and haulage. With the combination of both cattle and buffalo, the faunal assemblages at each site thus have animals with the potential for traction use, the provision of a range of secondary products, and as a source of meat. Very little buffalo has been identified from Rehman, Dheri which may indicate that either cattle were being used for traction purposes, or that there was less overall agricultural activity requiring traction animals. This may be paralleled with the recorded historical deficiency of available pasture in Rehman Dheri's vicinity, although camels and sheep could be easily bred there (North-West Frontier Province, Imperial Gazetteer of India, 1904,201). Analysis of recovered botanical material could help clarify this issue, depending on the type of crops grown, and what conditions and maintenance they required. A further differentiation between Rehman Dheri and the other two sites is found in the results of the analysis of the age of death of animals within the assemblages. Rehman Dheri's assemblage suggests that a greater proportion of animals were dying, or being killed, at a younger age than at Charsadda VI or Hund. There are a number of possible reason for this feature, such as an increased juvenile mortality rate resulting from greater herd movement, perhaps through exposure to harsher conditions and less shelter, or perhaps to keep the herd profile youthful, and to avoid the drain of older, less fit animals. It may also be indicative of different breeding strategies within the different sites, such as extending the reproductive period of the animals at Charsadda VI and Hund. The political or social significance of the age at death of domesticated animals could be of importance in furthering the understanding of this type of organisation. This type of distinction has been discussed in other regions, for example within southern and eastern Africa, where combined archaeological and ethnographic research has presented a fuller picture of the details of animal exploitation in relation to social organisation, in particular through analysis of herd mortality profiles (Reid, 1996, 51).

One of the most striking differences within the faunal bone assemblages is found in the number of deer specimens recovered and identified from the three sites. The total count of deer bone from Rehman Dheri was greater than that of the other two sites combined. However, its presence, and that of other wild species at the early Chalcolithic site offers a useful correlation with assemblages from contemporary sites (Meadow, 1991b,55). This may indicate a broad subsistence strategy in an ecological area of uncertainty; droughts in the area are common and it was recorded of the area that often "Water is so scarce that in the hot season the people often have to desert their villages and camp with their cattle by the Indus" (North-West Frontier Province, Imperial Gazetteer of India, 1904,205). It might also indicate a culling of pests feeding on agricultural land or of a specialist subsistence package which included the hunting of deer attracted to the varied aquatic zones of the Indus banks. The latter model might also help to explain the apparent dependence on deer within the subsistence strategy at Hund, a dependence which is somewhat striking as it occurs in an important urban centre in the late mediaeval period! The general absence of wild herd ungulates from the assemblage from trench Ch. VI at Charsadda is in contrast to those of Hund and Rehman Dheri. Indeed, the identification of two deer bone from a collection of 105 identified bones is a remarkably low count considering that the ecological conditions of the site would support herds of such ungulates in the surrounding brush waste. The domination of cattle, sheep-goat and buffalo in the assemblage, representing a count of 76 identified bones, suggests their pivotal role in the subsistence of the site's inhabitants. In view of the site's strong cultural affinities with the earliest phase of the Gandharan Grave Culture or Swat Period V (Ali, Coningham, Durrani & Rehman, this volume), this pattern presents a somewhat unique character. Hitherto, the only evidence of this period has been restricted to a series of cemetery sites, some associated with horse burials, with a complete absence of settled sites, suggesting to many that their associated populations must have been highly mobile, practising a transhumant way of life. The evidence from trench Ch. VI suggests that during this period some populations were occupying settled sites relying upon a largely sedentary subsistence strategy. Moreover, this evidence also supports Coningham's argument, that this period, far from being a 'dark age' was a period during which there was a substantial agrarian development upon which the new urban or proto-urbansettlements were established (Coningham, 1994,65-9). This new category of urban settlement was not merely imposed from outside as previously represented but represented the gradual development of a number of centuries before it culminated in the creation of powerful city-states

Perhaps evidence of a mobile or transhumant community, or part of one, has been identified, however, within the faunal bone assemblage from Rehman Dheri. At the beginning of the century this area was well known for its transhumant nomads, indeed it was stated in 1904 that "Commercially the District is only of importance as lying across the routes of trade carried on between India and Khorasan by travelling Powinda (sic) merchants. The Powinda caravans for the most part enter it by the Gomal Pass in October, and, passing into India, return in March and April." (North-West Frontier Province, Imperial Gazetteer of India, 1904,202). This is not to suggest that there is a single group of nomads (Durrani, 1988,6-8) or single pattern of nomadism, indeed, Robinson has offered three categories of nomads ranging from 'semi-nomads' to 'true nomads' (Robinson, 1934). As such groups traditionally use camels and horses, it is tempting to follow others by drawing an analogy between such transhumant practises with those suggested by the presence of camel and horse within the archaeological record (Allchin & Allchin, 1982,233). Furthermore, recent ethnoarchaeological studies of nomads in the Cholistan desert have demonstrated that such animals are important not only as a direct food source, but also for trade, and in the case of camels particularly, as an indicator of social wealth and status (Muhgal 1994, 55-60). Whilst such evidence needs to be studied further, it is interesting to note that no evidence of camel was identified from the assemblages of Charsadda or Hund. This absence is somewhat striking as in the case of the former there are many such animals used within the area by settled agricultural groups, as well as by groups of transhumants wintering in the plain (Peshawar

District Gazetteer, 1898,93). This absence needs to be further studied, especially given that such animals are frequently depicted in terracotta figurines from both the Bala Hisar (Wheeler, 1962) and Shaikhan Dheri (Dani, 1966).

The value of this type of broad comparative work is clearly evident. It adds to the existing, albeit somewhat restricted, body of archaeozoological data recovered, recorded, and analysed from other sites in this region. Already similarities between Charsadda VI and Hund, are evident, with Rehman Dheri providing a contrasting species profile. It is very important that this preliminary assessment of the faunal assemblages from Charsadda, Hund and Rehman Dheri, the presentation of species present at each site, and the changes in these species profiles over time, is followed up with more detailed work. This will take the form of further consideration of the material already examined: including publishing bone measurements for the major species; widening the reference material to enable greater differentiation between species of particular genera and identification of wild taxa; and concentrating on butchery and pathological evidence to elicit information about herd management and health. It is hoped that the sample size from each site will be increased, which will allow greater confidence in the significance of the results. To this end, site directors should encourage the on-site sieving of soil for small bones and fragments, and care in hand excavation and conservation of large bones. Such sieving might aid the recovery of fish bones - it is notable that whilst fish bones are known to have been recovered from Rehman Dheri (Durrani 1988, 26ff), although none were available for study, none were recovered from Hund or Charsadda VI. However, although Hund is situated at a major crossing point of the Indus River, this does not necessarily imply that riverine resources were being exploited by the occupants of the site. Indeed Meadow (1991a, 89) has stressed that knowledge and social factors are as important in subsistence species selection as availability, and cites the example of Balakot, a coastal site, where: "Clearly the population had access to and perhaps some knowledge of coastal habitats, but did not exploit them as a major source of food" (Meadow, 1991a, 89). When undertaking the detailed examination of the faunal material, it is also necessary to utilise the data to address specific archaeological questions: to develop hypotheses regarding the nature of urbanism and social organisation, and use the environmental evidence to test them. Similarly it will be important to consider in greater detail the nature of the deposits from which the faunal assemblages are recovered, in order further to understand their representativeness as a sample (Meadow, 1991). Certainly the bones from all three sites studied showed an absence of gnaw marks, which might be considered surprising as Canis sp. bones were also identified among the assemblages. The activities of scavengers, and the effect they may have on bones is discussed above, see also Davis (1987, 26-27). This absence suggests that the areas from which bones were recovered are being quickly covered by sediment, or protected. Integration of archaeobotanical material from these sites (where available) will help shed light on questions such as the role of traction animals in agriculture, and whether the faunal base being exploited changed as crop utilisation altered and developed. In addition to further work on the wild species present, the wild and domesticated plant remains analysed can also give a great deal of information about environmental conditions, particularly around a site, and how these have changed over time.

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TABLE 1
CHARSADDA VI FAUNAL ASSEMBLAGE

	phase	context	bos		ovi-caprid		bubalus		cervus		equus		canis		felis		rattus		sus		unident		total	
			no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt
surface	I	5	1	15																	7	20	8	35
	I	7	1	27	4	10							1	17							126	153	132	207
robbing	II	35	1	6																	19	22	20	28
	II	39																			9	17	9	17
	II	41	3	53	2	6			1	5											4	11	10	75
	II	42	3	60																	10	15	13	75
	II	45	1	21	5	42	1	22											1	22	59	161	67	268
	II	46											1	6									1	6
	II	54																			3	2	3	2
	II	58	2	31	4	19	2	49							1	1	1	1			193	284	203	385
	II	64	2	61			2	77													29	65	33	203
ditch fill	IIIA	57	11	187	2	25	4	133													124	296	141	641
	IIIA	60	1	100	1	2	1	17											2	5	115	266	120	390
ditch	IIIA	71	8	182	6	37	7	33	1	18	1	21							1	54	296	781	320	1126
ditch fill	IIIB	72			1	9															71	127	72	136
	IIIB	73																			4	22	4	22
	IIIB	79																			16	51	16	51
	IIIB	80																			10	28	10	28
	Total		34	743	25	150	17	331	2	23	1	21	2	23	1	1	1	1	4	81	1095	2321	1182	3695

TABLE 2

CHARSADDA VI - AGE AT DEATH BASED ON TOOTH WEAR

phase	context	wear stage a	b	c	d	e	f	g	h	i	j	k	l	m	n
II	35							*							
II	41					*									
II	45					!!				!					
IIIA	57					*	*	**	**						*
II	58		!												
IIIA	60														

* bos ! ovi-caprid ^ sus

TABLE 3
HUND FAUNAL ASSEMBLAGE

context	bos		o-c		cervus		bub		sus		canis		felis		shell		unident	total	
	no	wt(g)	no	wt(g)	no	wt(g)	no	wt(g)	no	wt(g)	no	wt(g)	no	wt(g)	no	wt(g)	wt(g)	no	wt(g)
1003			2	6	5	12											4	7	22
1004			2	12	1	2											5	3	19
1005	7	121	6	40	13	207	5	96					1	2			728	32	1194
1006	4	36	1	6	2	10	2	123									260	9	435
1007			5	22					1	8							121	6	151
1009			1	6													120	1	126
1010	22	302	26	110	13	201	7	309									2459	68	3381
1011	16	670	7	73	5	81	1	66									678	29	1568
1012					2	10											160	2	170
1013							1	23									188	1	211
1014	2	75	16	155	6	32	1	29									457	25	748
1017	1	11	4	13													113	5	137
1021	4	33	10	69					1	12							419	15	533
1022	43	627	19	123	8	100	12	991			1	8	8	17			1746	91	3612
1024	5	108	6	41	10	139			1	7							670	22	965
1030			1	3													124	1	127
1031	1	26															21	1	47
1033	3	62	3	6	4	90	3	54							1	2	189	14	403
1034													1	4				1	4
1035	8	193	12	121	5	36	1	72			1	8	3	9			683	30	1122
1037	7	273	20	134	4	40	1	50	1	8							617	33	1122
1038	4	109			1	9							1	2			240	6	360
1043			15	128	1	33											75	16	236
1044	8	78	12	97	4	45	5	338									960	29	1518
1049																	38		38
1058	1	2	8	34							1	15					285	10	336
1065	5	91	3	42													393	8	526
1067	1	9	5	18	5	10	2	21									211	13	269
1068			3	6													67	3	73
Total	142	2826	187	1265	89	1057	41	2172	3	28	4	38	14	34	1	2	12031	481	19453

TABLE 4

HUND - AGE AT DEATH BASED ON TOOTH WEAR

		wear stage												
	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1003														
1004														
1005						**	*		*					
1006				!			*			*^				
1007		!				!			!					
1009				!										
1010				*!	!	*			*					
1011				*	!	*				*				
1012														
1014			!!	!!!			!							
1021							!!	*		*				
1022			*	**	****!	*****	**	^^*!						
1024				!					*	*				
1033				!*										
1035			*				*							
1037		!!!	!!	*!!	!!^	!!								
1043			!!	!!!	!	!!	!	!						
1044			!	!!!	**	*	**							
1058		!			!	!!				!				
1067					*	*!!!!		*						
1068		!	!											

*bos ! ovi-caprid ^bubalus

TABLE 5

REHMAN DHERI FAUNAL ASSEMBLAGE

AREA I 1991

phase	context	bos		ovi-caprid		bubalus		camel		cervus		equus		canis		felis		gallus		sus		unident	total	
		no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	wt	no	wt
O	1038	1	16							1	4											120	2	140
O	1037	2	35	1	24											1	1	1	2			360	5	422
O	1034	5	70	1	1	1	200					4	227			1	1	1	4			770	12	1273
O	1033	5	160	5	19									2	5							890	12	1074
O	1032			1	13													1	1			100	2	114
O	1031			1	8																	60	1	68
I	1029	3	23	11	54																	381	14	458
I	1028	1	13											2	14							212	3	239
I	1026	1	8	2	5									1	2			1	1			220	5	236
I	1025	1	29	4	13					1	43											352	6	437
II	1024	1	9																			140	1	149
II	1022			1	1	2	80							1	2							166	4	249
II	1021									1	17											90	1	107
II	1020	1	39																			308	1	347
III	1019	2	42	2	21									1	15							75	5	153
III	1017			1	1																	95	1	96
III	1015	1	48	4	9																	140	5	197
III	1012	3	128	6	82																	208	9	418
III	1011	7	478	2	47																	385	9	910
III	1016	2	98	3	35																		5	133
III	1010	10	30	3	40	2	90	3	146	2	17	1	49			1	6					585	22	963
III	1009	12	313	16	112	1	48	3	176	2	12			1	4	2	5					913	37	1583
IVA	1008	9	242	3	19	4	212	3	378	2	42											1233	21	2126
IVA	1005	6	262	2	29					1	8							1	3			364	10	666
IVA	1003	1	20	11	28																	240	12	288
IVB	1004	20	329	4	8			1	84			3	387	1	1	2	8	1	1			771	32	1589
Total		94	2392	84	569	10	630	10	784	10	143	8	663	9	43	7	21	6	12			9178	237	14435

(Continued)

phase	context	bos		ovi-caprid		bubalus		camel		cervus		equus		canis		felis		gallus		sus		unident	total	
		no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	no	wt	wt	no	wt
AREA II 1991																								
	2001	1	20	2	8																	400	3	428
II	2003	7	185	4	19									1	1					1	23	1372	13	1600
II	2004	1	19																			240	1	259
II	2006	1	22																			37	1	59
IB	2007	10	274	10	41			1	43	1	17			3	8			1	5			460	26	848
IB	2009	1	19	1	3																	30	2	52
IA	2011	2	78															1	2			175	3	255
IA	2012	8	275	4	49									1	3							490	13	817
IA	2013	10	180	5	37							1	25	3	7							271	19	520
Total		41	1072	26	157			1	43	1	17	1	25	8	19			2	7	1	23	3475	81	4838
UNIT A 1979																								
	1	6	165	5	16					3	43							1	1			1418	15	1643
IIIB	2	13	147	12	30	4	144			5	88			1	2	1	2					1430	36	1843
IIIB	3	6	166	5	13	1	28											3	7			439	15	653
IIIB	4	9	187	7	41					1	25					2	4	1	3			885	20	1145
IIIB	5	7	210							1	14							1	2			410	9	636
IIIB	6	19	502	5	71	1	44	1	47	4	92											1585	30	2341
IIIA	7	1	8	2	7					3	77			1	3							352	7	447
Total		61	1385	36	178	6	216	1	47	17	339			2	5	3	6	6	13			6519	132	8708
UNIT B 1979																								
	1	3	28							2	19			2	1							1033	7	1081
IIIB	2	10	247	1	5	1	12			1	17							1	5			1390	14	1676
IIIB	3	9	98	5	16			1	59	4	100			1	1							1478	20	1752
IIIB	4	11	289	4	35	1	120			1	2			2	3			1	4			1238	20	1691
IIIB	5	1	23																			54	1	77
IIIB	6							1	95													205	1	300
Total		34	685	10	56	2	132	2	154	8	138			5	5			2	9			5398	63	6577

TABLE 6

REHMAN DHERI - AGE AT DEATH BASED ON TOOTH WEAR

AREA 1														
Context	a	b	c	d	e	f	g	h	i	j	k	l	m	n
1004	!					!								
1009		!		!!	!			!						
1012			!											
1015	!													
1019				!	!									
UNIT A														
1							*							
2	!	*		!!		!	*							
3						*								
4			*			*								
5														
6						***								
7														
UNIT B														
1														
2				*										
3							***	*						
4			**	**										
5														
6														

* bos ! ovi-caprid

TABLE 7

	Species presence/absence from a range of sites in Pakistan						(after Compagnoni, 1979 & Meadow, 1991)						
domestic	Loebanr I	Aligrama	Charsadda VI	Hund	Rehman Dheri	Mehrgarh	Balakot	Jalilpur	Nausharo	Harappa	Mohenjo Daro	Sibri	Pirak
Bos	+	+	+	+	+	+	+	+	+	+	+	+	+
Ovi-capri	+	+	+	+	+	+	+	+	+	?	+	+	+
Camelus	-	+	-	-	+	-	-	-	-	?	?	-	+
wild													
Sus	+	+	+	+	+	+	+	-	+	+	+	+	?
Axis/Cerv	+	+	+	+	+	+	-	-	-	+	+	-	-
Bos	?	?	-	?	?	+	+	-	-	-	-	-	-
Ovi-capri	?	?	-	?	?	+	?	-	+	-	-	-	+
unknown													
Equus	+	+	+	-	+	+	+	-	+	?	?	+	+
Bubalus	-	+	+	+	+	+	?	-	?	?	?	-	-