# FAUNAL EVIDENCE FOR PASTORALIST SETTLEMENT AT JAKKALSBERG, RICHTERSVELD, NORTHERN CAPE PROVINCE\*

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### ABSTRACT

Bone samples from the open sites of Jakkalsberg A and B are dominated entirely by remains of domestic caprines with almost no evidence for the hunting of wild game. These sites are situated on the edge of the Richtersveld National Park and the bone remains are radiocarbon dated to ca. 1300 years ago. In spite of the fragmentary state of the bones it is likely that all caprine remains in these assemblages belong to sheep, since there is no positive evidence for goats. In this study we publish measurements on sheep remains, which provide information on the body size of local breeds of sheep. Although there is a lack of suitable southern African comparisons, it appears that the Jakkalsberg sheep were quite large and long-limbed. It seems that almost all age classes of sheep are represented from new born to fully adult, but no old individuals. Some of the bones were stained with red ochre suggesting that the domestic stock may have been of some significance in the rituals of the inhabitants of the sites.

### INTRODUCTION

Archaeological work in the Richtersveld, an arid region enclosed by the bend of the Orange River in the extreme north-western portion of the Northern Cape (Fig. 1), was initiated in 1990 in order to establish a time depth for the occupation of the region by the Nama-speaking descendants of the Namaqua Khoekhoen. The project was of more than academic interest. During the period 1989-1990 the South African National Parks Board was involved in negotiations with the inhabitants of the Richtersveld with the view to establishing a national park in the region (Boonzaier 1991). During initial negotiations it seemed as if the local inhabitants would lose access to a large portion of their traditional grazing area if they were not able to prove that they had "utilised the area for many centuries without the supposed degradation to the environment claimed by some" (ibid.:159-160).

Archaeological work at /Ai tomas (Webley 1992) and at Die Toon (Webley et al. 1993) was unable to support the claim for long term occupation of the area, because the faunal sample from the former site contained very

few sheep fragments while the latter site predated pastoralism. The site of Jakkalsberg, first reported to the warden of the Park in April 1992, when a local herdsmen noticed that his goats and the wind had opened up a human burial, has provided the necessary evidence for early pastoralism in the area. The human remains were extremely fragmentary, consisting of parts of the skull, teeth, an upper arm and scapula, and have for this reason not been submitted for analysis. The milk dentition suggested that the individual was a juvenile of four or five years of age. The skull was stained with red ochre and a high concentration of ostrich eggshell beads around the skeleton suggest that they were associated. It is not possible, however, to link the burial with the occupation of the site.

Since this site was discovered only after the completion of the project mentioned above, its results had no impact on the signing of the contract for the park, which took place in November 1990. Nevertheless, the results of the June and November 1992 excavations at Jakkalsberg do support the claims to the land made by the local inhabitants.

Jakkalsberg A and B (28.10.50S; 16.53.15E) consist

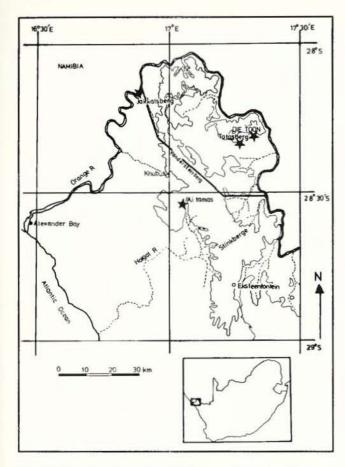


Fig. 1. The situation of the Richtersveld in the Northern Cape Region and the position of Jakkalsberg, /Ai tomas, Die Toon and other towns mentioned in the text.

of two sites some 40 m apart on the banks of a dry river course some 300 m to the south of the Orange River. The sites are less than 5 kilometres from the gates to the Richtersveld National Park and since the occupants of the site would, in prehistoric times, have travelled extensively along the river the second author of this paper approached the National Parks Board (NPB) for financial assistance in the excavation of these sites. The site was first investigated in June 1992 and the human remains collected. The burial is situated on the edge of a large open site (termed Jakkalsberg A) while a further concentration of material some 40 m to the southwest (Jakkalsberg B), partially buried under a small hill, was also recorded (Fig. 2). The sites consist of dense concentrations of pottery, stone, ostrich eggshell beads and bone. The bone (which included fish vertebrae), as well as several surface hearths, was in danger of rapid disintegration and a preliminary collection was undertaken. A more thorough investigation was undertaken in November 1992.

### THE SETTING

The western portion of the Richtersveld is known as the Sandveld as it consists of a hilly dune landscape (100 - 400 m high) while the northern, central and eastern areas

are very mountainous (some of the highest peaks reaching heights of 1300 m). The region is extremely arid and contains some of the only true desert in South Africa. Rainfall occurs mostly in the winter months and varies between 15 and 300 mm per year with an average of 125 mm. Daily temperatures in the summer months may reach 46 C (Kröhne & Steyn 1990). Droughts occur frequently and result in great stock losses among the small stock herders in the area. Nevertheless, the presence of the Orange River, which flows along the western, northern and eastern borders of the Richtersveld, means that the inhabitants have a constant source of water, particularly during the dry summer months.

The vegetation on the coastal plain is termed Strandveld (Acocks 1975) and is dominated by Mesembryanthemacae. Succulent Karoo occurs on the more hilly and stony eastern edge of the Sandveld. Namaqualand Broken Veld is found to the east of the central Stinkberge mountain range, while the highest mountains in the southern and central Richtersveld are covered in Western Mountain Karoo (Acocks 1975). The vegetation along the Orange River and around the permanent springs in the area consists of thick bands of trees and reeds. The trees include Euclea pseudebenus, Tamarix usneoides, Rhus viminalis, Salix mucronata, Ziziphus mucronata and Acacia karoo.

Historically, Hoernlé (Carstens et al. 1987) observed that the Little Namaqua Khoikhoi grazed their livestock on the Sandveld in winter and in the mountains around Khubus in summer. More recently, however, Mussgnug (1995) and Moolman (1981) have documented a variety of patterns of seasonal movement which would include utilising the vegetation along the Orange River during the summer months and particularly during drought conditions. Since the topographically diverse areas of the Richtersveld would have provided pastoralists with a variety of options in terms of seasonal mobility in the past, it is difficult to predict these movements with any degree of accuracy.

# HISTORICAL OBSERVATIONS ON THE FAUNA OF THE AREA

Historical accounts attest to a rich diversity of game species in the riverine area. Eighteenth century travellers such as Wikar (Mossop 1935), Gordon (Raper & Boucher 1988) and Paterson (Forbes & Rourke 1980) did not travel along the Richtersveld section of the Orange River and their observations on the game along the coast and further down the river may not be as pertinent as those of Alexander (1967), Cornell (1992) or Hoernlé (Carstens et al. 1987) who travelled extensively in the Richtersveld proper in the 19th and early part of the 20th century respectively.

Alexander (1967) encountered a Namaqua group living on the banks of the river at Arriesdrif or Arris Drift (from the Nama //aris), some 40 km downstream from Jakkalsberg, in 1836. This settlement consisted of some twenty huts occupied by about one hundred people

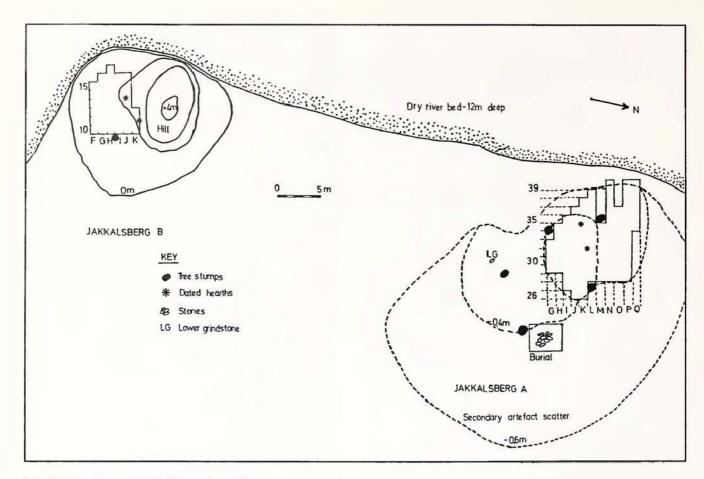


Fig. 2. Site plans of Jakkalsberg A and B.

"with flocks and herds" (Alexander 1967:111). According to Hoernlé (Carstens et al. 1987) this was the outpost of the people of Khubus during their summer migration along the Orange River. Alexander reported that apart from hippopotamus (Hippopotamus amphibius) and fish in the river, there were water fowl, ostriches (Struthio camelus) and eland (Taurotragus oryx) in the area. Cornell (1992) who prospected extensively in the region between 1910 and 1920 noted klipbok (Oreotragus oreotragus), dassie (Procavia capensis), zebra (Equus sp.), leopard (Panthera pardus), wild cat (Felis sp.) and jackal (Canis sp.) in the mountains, while along the densely wooded river area around Sendeling's Drift he remarked on the bush doves, hare (Lepus sp.), monkeys (Cercopithecus aethiops) and baboons (Papio ursinus). Hoernlé (Carstens et al. 1987) referred to the moorhen (Gallinula chloropus) along the river.

With regard to the fish species present in the river, Gordon noted the harder or springer (Mugil cephalus) but the identification of the moggel (or mud mullet) as Labeo umbratus by Boucher & Raper (1988) has been disputed (P. Skelton, JLB Smith Institute of Ichthyology pers comm.). The catfish, (Clarius gariepinus) and yellowfish (Barbus aeneus and B. kimberliensis) also occur in the river but were not specifically described by these historical writers. Historical sources are divided on the consumption of fish by the Namaqua Khoekhoen inhabitants of the region. Alexander (1967:153) caught

some fish, including a 'moekul' and a large carp but when he gave some to the Namaquas, "they declined eating them, saying that they might be poisonous". Backhouse (1842:31), on the other hand, found some Khoekhoen women and children at a settlement on the coast near the present town of Port Nolloth, "frying and eating fish all day", suggesting that taboos relating to the consumption of fish varied considerably.

# THE EXCAVATIONS

During the initial rescue operation at Jakkalsberg A the material from 81 square metres was collected and analysed at the Albany Museum. Subsequently, a further 18 square metres was collected from the surface of site A and a further 26 square metres was excavated to archaeologically sterile soils. There is no evidence for stratigraphic layering at site A and it appears that one is not dealing with successive occupations. With regard to the B site, the concentration of material is bounded to the north by a small hill and to the south and west by a dry river course (Fig. 2). Material from 38 square metres was collected and excavations were concentrated on those squares which abutted the hill and contained the greatest concentration of material. Hearths in these squares were superimposed one above the other, suggesting that re-occupation of the site occurred in the past.

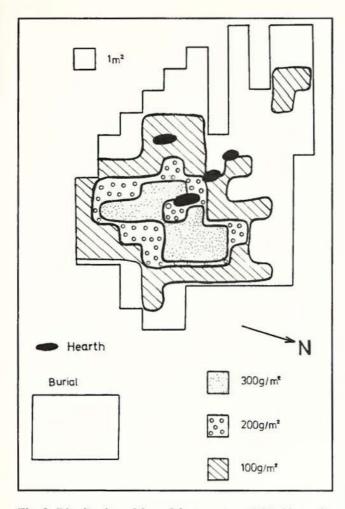


Fig. 3. Distribution of faunal fragments at Jakkalsberg A.

#### DATING OF THE SITES

A total of four hearths was uncovered at site A; Hearth 1 dating to  $1330 \pm 60$  BP (Pta-5958), which calibrates to AD 664(691)783, and Hearth 2 to  $1300 \pm 25$  BP (Pta-6100), which calibrates to AD 691(762)777 (J. Vogel pers. comm.). Both are from hearths only 4 m apart suggesting an 8th century AD occupation. Hearth 1 in K11 at Jakkalsberg B, partially wedged into the side of the hill is dated to  $1420 \pm 25$  BP (Pta-6122), which calibrates to AD 640(652)660. Hearth 2, situated in the first occupation unit (MOU), dated to  $1380 \pm 50$  BP (Pta-6101), which calibrates to AD 648(668)691 (J. Vogel pers. comm.). Sites A and B are separated by some 40 m but the radiocarbon dates confirm that they are contemporary.

### ANIMAL REMAINS

The present analysis do not include non-mammalian remains. Although this study focuses on the exploitation of domestic mammals by the inhabitants of the two sites, it should be borne in mind that no final interpretation of the economy of the people can be made without the inclusion of all food resources.

Table 1. Jakkalsberg A: Taxonomic list of mammal remains in terms of mininimum number of individuals (MNI) and number of identified specimens (NISP).

	Surface	Sub-surface	Surface/Sub.
Leporidae indet. (hare)	1/3	-	1/1
*Hyaenidae indet. (hyaena)	X	-	-
Ovis aries (sheep)	2/22	1/8	4/24
Ovis/Capra (sheep/goat)	8/326	4/114	2/6
Bovidae indet.:			
Small-medium	3/464	3/106	1/120
Large	1/3	-	8

#### \* Coprolite

Note: In all three excavated units fish and tortoise remains occur. However, these remains were not submitted for analysis.

Table 2. Jakkalsberg B: Taxonomic list of mammal remains in terms of mininimum number of individuals (MNI) and number of identified specimens (NISP).

	Surface	MOU	MOU2	MOU3	MOU4
Leporidae indet. (hare)	1/1		-	-	
cf. Equus quagga (plains ze	ebra) 1/1	-	-	~	*
*Hyaenidae indet.(hyaena)	X	-	-	-	
Ovis aries (sheep)	3/16	1/1	1/2	1/1	1/1
Ovis/Capra (sheep/goat)	8/177	4/29	2/23	4/15	2/9
Bovidae indet.:					
Small	-	1/6	-	-	-
Small-medium	2/119	3/18	2/18	2/14	1/4

#### \* Coprolite

Note: In all excavated units fish and tortoise remains occur. However, these remains were not submitted for analysis.

# Method of analysis

The mammal bone samples from the two sites were identified and individual specimens were noted on bodypart lists according to stratigraphic unit and area. In the analysis of Jakkalsberg A a distinction between surface and sub-surface material is made (Table 1), which reflects the method in which the material was excavated. It is not a chronological distinction, as discussed above. In Jakkalsberg B the sub-samples shown in Table 2 reflect true chronological distinction, as it is clear from the excavation that there were successive occupation events of the site.

Where the specimens were complete enough, measurements were taken according to the standard method of Von den Driesch (1976) with additional measurements taken according to Peters (1986) (Table 4a & 4b). In the context of southern African archaeozoology it is not yet a common procedure to publish measurements, especially not measurements on postcranial elements. However, we include these measurements as part of the basic documentation of the material. We also do this in the hope that it will become standard procedure. The publication of measurements not only increases the value of archaeozoological reports as secondary sources, but also provides the opportunity of

Table 3. Jakkalsberg B: Age profile of domestic caprines (sheep/goat) based on teeth and given in terms of MNI.

Surface	MOU	MOU <sub>2</sub>	MOU3	MOU <sub>4</sub>	TOTAL

New born	1	1		1		3
Young	1	1	1	1	-	4
Young-adult	1	: <del>-</del>	-	1	1	3
Adult	3	2	1	1	1	8
Old		-	187	-	·*	0
Total	6	4	2	4	2	18

<sup>\*</sup> Since it is seldom possible to distinguish sheep from goat on individual teeth or even toothrows (Boessneck et al. 1964), the age profile does not make a distinction beteen sheep and goat. However, it is likely that all remains listed in this table are those of sheep.

Table 4a. Standard measurements on sheep remains from Jakkalsberg A.

Ovis aries

Scapula Surface L34	GLP	LG	BG		
Surface L34	30 29	24.8 24.7	(19.7) 18		
Surface M28	32.3	28.1	7276		
Sub-surface M23	31.4	26.5	(21) 19.4		
Sub-surface M23	31.4	20.3	19.4		
Humerus	BT	Bd	Dmd		
Surface H31	29.3	32.4	27.8		
Surface H32	31.4	33.5	29.4		
Surface O29	28.6	31.9	2		
Sub-surface G32	30.7	34.6	29.6		
Sub-surface/Surf.	30.7	32.7	14		
Radius	BFp	Bp	Dp	Bd	
Surface	(30.3)	32.9	17	-	
Surface	31.5	33.2	17.4	-	
Sub-surface P34	S <del>#</del> 8	-		33.4	
Sub-surface/Surf.	29.1	30.5	-	-	
Metacarpal	Bp	$D_{p}$	SD	DD	
7	25.6	17	15.2	9.5	
Tibia	Bp	Dp	Bd	Dd	
Surface K35	41.5	39.3	-	-	
Surface O33	-	-	28.6	21.5	
Sub-surface Block	1 -	-	28.7	21.9	
Talus	<u>GL1</u>	GLm	DI	Bd	
Surface	29.5	29	16.8	18.8	
Surface L28	33	32.1	19.2	21.2	
Sub-surface	30.2	28.7	17.3	19.7	
Calcaneus	GL	GB	Bp	DS	Dd
Sub-surface	60.8	-	14	17.9	23.9
Sub-surface	§ <b>€</b>	19.5	-	19.4	23.9
Distal phalanx	HP	BFp			
Surface K33	15	8.1			

Table 4b. Standard measurements on sheep remains from Jakkalsberg B.

Ovis aries

Scapula	GLP	LG	BG	
MOU II5	32.3	26.4	22.2	
Humerus	BT	Bd		
Surface I15	30.8	32.7		
Surface	30.9	33.3		
Radius	BFp	<u>Bp</u>		
Surface J15	33.6	36.3		
Pelvis	LA			
Surface J14	30			
Talus	GLI	GLm	DI	Bd
Surface	30.1	28.9	16.8	19.4
Centroquartale	GB	GD		
Surface J12	22.9	20		

bodysize estimation in animals. This in particular allows the possibility to diagnose breeds and to establish spatial and temporal trends in domestic animals. The need topublish metric data is underlined by the lack of information on the identity of various breeds of "indigenous" southern African domestic mammals from archaeological sites.

#### Faunal concentrations

Bone concentrations at the A site (Fig. 3) relate to the mass of fragmented bone recovered from each square. The densest concentration of bone (in excess of 300 grammes per square metre) occurs to the south and east of the four hearths plotted at site A and overlaps, only partially, with potsherd and stone artefact concentrations. Bone concentrations at the B site are less meaningful as the area sampled is much smaller and the bone is spread through several occupation units.

# Taxonomic composition of the fauna

Tables 1 and 2 give an overview of the mammal remains from the two sites. The subsistence pattern, as reflected by the taxonomic list, is entirely focused on the exploitation of domestic caprines. The extreme fragmentation of material resulted in a very high proportion of specimens that cannot be identified as either sheep or goat. However, it is highly unlikely that any goats are represented in the assemblage, since no goat remains were positively identified. It appears that hunted animals played almost no part in the diet of the inhabitants of the site, except for the rare remains of leporids, which could be either Lepus saxatilis or L. capensis. The hyaena coprolites are not unexpected, since scavengers are known to visit human habitation sites after they are abandoned. It is noteworthy that hyaena coprolites are found on the surface of both sites, suggesting that the burial of the underlying units in

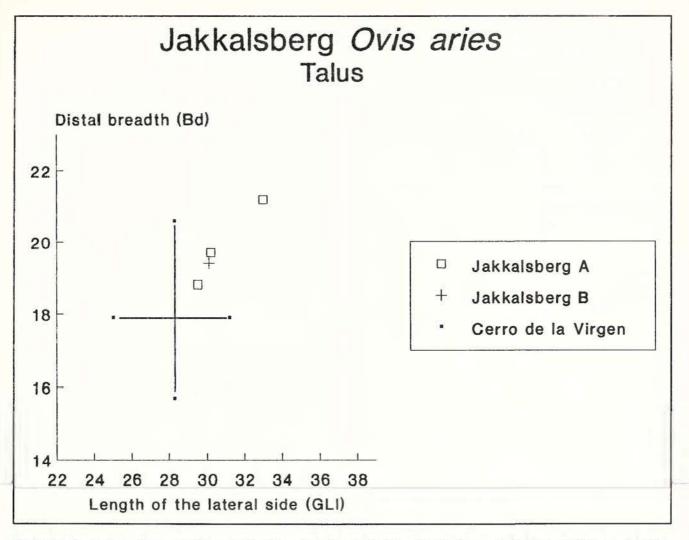


Fig. 4. A comparison of sheep tali from Jakkalsberg A & B and the Spanish site "Cerro de la Virgen". The length of the lateral side (GLI) gives an impression of shoulder height of sheep, while the distal breadth (Bd) is a reflection of robusticity. The two axes of the cross represents the ranges of variation and averages of measurements on the Spanish sheep.

Jakkalsberg B may have been rapid. The equid in Jakkalsberg B is likely to be the plains zebra.

### Sheep size

The measurements given in Table 4a and 4b allow some insight into the size of sheep from Jakkalsberg. A shortcoming, as noted above, is the lack of suitable comparisons from southern African archaeological sites. In an attempt to achieve some impression of size, we compared the Jakkalsberg sheep with Spanish Bronze Age sheep from the site "Cerro de la Virgen", near Orce in the northeast of the Province of Granada (Von den Driesch 1972). Due to the high level of fragmentation of the Jakkalsberg material no complete limb bones were available for size comparison. However, the talus ("astralagus") does give an impression of size and shoulder height and this element was consequently selected for the purpose. Figure 4 shows the result of a comparison of the talus from the two Jakkalsberg sites with the Spanish material. The length of the lateral side reflects shoulder height, while the distal breadth of the talus gives some impression of robusticity. The comparison suggests that the Jakkalsberg sheep were both

larger and more slender than the Bronze Age sheep from Spain. This would fit the expected pattern of longer-limbed sheep in more arid environments (Von den Driesch 1972; Zeuner 1962). This may point to a long period of local adaptation, which in turn could mean that at present we underestimate the time depth of the introduction of sheep into southern Africa.

Figure 5 gives a comparison of the distal humerus, which mainly reflects robusticity. The Jakkalsberg sheep seem somewhat more robust than the Spanish sheep, which supports the pattern for the talus.

# Age profiles

Teeth from Jakkalsberg A were too fragmentary to allow accurate age profiles. However, postcranial evidence suggests that all age classes are represented from newborn to fully adult. With regard to the age profile based on teeth from Jakkalsberg B (Table 3), there is clear indication that there was no specific focus on a certain age class. Most importantly, the sample is not dominated by juvenile individuals as is the case with Kasteelberg (Klein & Cruz-Uribe 1989). There is also no evidence for old sheep.

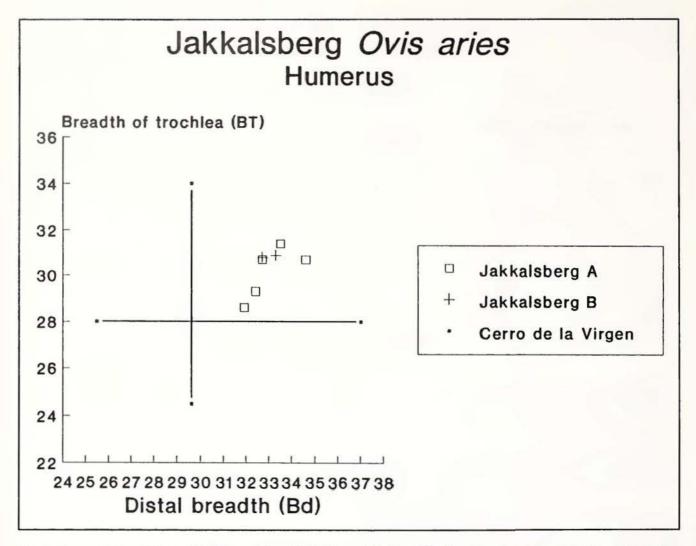


Fig. 5. A comparison of sheep distal humeri from Jakkalsberg A & B and the Spanish site "Cerro de la Virgen". The two axes of the cross represents the ranges of variation and averages of measurements on the Spanish sheep.

# Sex ratio

The sex ratio for Jakkalsberg A based on pelves for sheep/goat is male:6 specimens and female:1 specimen.

# Red ochre staining

Ochre staining at the A site was found occasionally, on some upper sheep/goat teeth and on a sheep/goat lumbar vertebra. It was also found on the skull of the juvenile human burial recovered from the edge of the A site. With regard to the B site, it appears that the ochre was stored or transported in ostrich eggshells and tortoise bowls as numerous pieces were recovered thickly coated in red ochre. One talus of a sheep/goat and numerous bone splinters were found stained with red ochre. Most significantly, the pelvis of a young adult male sheep/goat was also found covered in ochre.

#### DISCUSSION AND CONCLUSIONS

Jakkalsberg is remarkable in the narrowly focused range of species exploited by the inhabitants of the site. The dominance of sheep in the faunal sample suggests that Jakkalsberg represents a "herding economy" (Smith et al. 1991). The inhabitants of the site were not targeting a particular age group in their butchery decisions although adult remains are more common. The sheep mortality profile at Jakkalsberg contrasts with Klein & Cruz-Uribe's (1989) hypothesis that pastoralist sites should contain mainly young males and postprime females. The mortality profiles of caprine samples from the prehistoric pastoralist site of Kasteelberg B and pastoralist levels at Boomplaas Cave A (Von den Driesch & Deacon 1985) and Die Kelders (Schweitzer & Scott 1973) are dominated by individuals in the first 10% of potential lifespan. The majority of the sheep remains from the base of the Kasteelberg B site (Klein & Cruz-Uribe 1989) which date to the same period as Jakkalsberg (i.e., 1300 BP), were less than 12 months of age.

It also is instructive to compare the faunal sample from Jakkalsberg with that collected by Robertshaw (1978:29) from a recently abandoned pastoralist camp-site beside the lower Orange River at Sendelingsdrift, i.e., only a few kilometres upriver of Jakkalsberg. Although we do not know the size of the pastoralist group who resided at Sendelingsdrift or the duration of their stay,

the modern goat sample, consisting of 23 individuals, were all between 24-30 months of age. This confirms the second author's observations among contemporary pastoralist groups (in many cases descended from the Namaqua Khoekhoen) in the Leliefontein, Steinkopf and Richtersveld Rural Areas, that young adult or adult sheep and goats are preferentially slaughtered in order to obtain maximum meat gain. The results from Jakkalsberg would support such a butchery strategy. When newborn sheep are represented, as in the Jakkalsberg B sample, they are more likely to reflect the high infant mortality rate (which may reach 30%) among contemporary pastoralist groups (Cribb 1984), rather than be indicative of a deliberate policy of slaughtering juvenile individuals.

The limited impression of sheep size offered by the highly fragmented bone remains suggests that the Jakkalsberg sheep were robust and long-limbed. This may reflect a long period of adaptation to the arid climate of the dry western parts of southern Africa, since sheep from more arid parts normally are long-limbed. This could point to a long period of local adaptation and an earlier date of introduction than commonly accepted at present. This, however, needs to be tested by further measurements on sheep remains.

The ochre-stained pelvis of a young adult male sheep/goat from Jakkalsberg B suggests that domestic stock may have been slaughtered for various ritual purposes. Among the Griqua (Waldman 1989) and the Korana (Engelbrecht 1936), who are both Khoekhoen pastoralists, female sheep or goats are slaughtered during a young girl's initiation ceremony, and the pelvis (liberally coated with ochre and fat) is hung up in the initiation hut. It was believed that the pelvis or //haus of the slaughtered animal, which contains certain magical powers (Hoff 1990), should not be broken or the initiated girl would suffer complications during childbirth. The presence of the ochre-stained pelvis at the B site supports the view, explored elsewhere (Webley in press), that it may have functioned as a gender-specific area.

Finally, with regard to the large fish sample from Jakkalsberg (as yet unidentified) only *Clarius gariepinus* or catfish could be positively identified. The historical sources have suggested that the consumption of fish may have been associated with various food taboos but the large fish sample from Jakkalsberg indicates that at least some of the occupants of the site, whether male, female or juvenile, were consuming fish some 1300 years ago.

Jakkalsberg is also unusual in other respects. There is clear evidence that its inhabitants had access to iron (Miller & Webley 1994), while differences in material culture between the A and B sites hint at gender relations which are further discussed elsewhere (Webley in press). We conclude by noting that the differences between the contemporary sites of Jakkalsberg and Kasteelberg point to variability among pastoralist peoples during the precolonial period. Further excavations of pastoralist sites (as well as sites containing ceramics and/or domestic caprine remains) in South Africa, are likely to change the perception that Khoekhoen history was 'timeless' or 'static' (Abrahams 1995).

### ACKNOWLEDGEMENTS

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