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THE FAUNAL REMAINS FROM FOUR LATE IRON AGE SITES IN THE SOUTPANSBERG REGION: PART III: TSHIRULULUNI*

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ABSTRACT

The faunal remains from four Late Iron Age sites in the Soutpansberg area are described in three parts according to the settlement patterns ascribed to them by Loubser (1988). Part III describes the faunal remains from Tshirululuni, a Mutzheto Pattern settlement, which was an important centre of the Western Singo after the collapse of the Singo state in the 18th century. Cattle remains predominate in the samples while sheep/goat numbers are low. The upper unit of Trench 1 contains a high number of juvenile cattle remains, reminiscent of the Great Zimbabwe Hill Midden. The majority were apparently deposited in one of two pits located in this trench. The unit also contains a gross over-representation of juvenile and adult cattle metapodia. The distribution of ages, taphonomy, butchering evidence and pathologies are also described. Skeletal element representations are then considered on an intra-site level in terms of human patterns of refuse disposal.

INTRODUCTION

In order to clarify conflicting ideas on the origins of the Venda people and their relationship with the Shona of Zimbabwe and the Sotho-Tswana of the northern Transvaal, Loubser (1988) excavated a number of Late Iron Age sites in the Soutpansberg region. Sites were grouped according to settlement layout and walling style (Fig. 1); and ceramic and other finds were used in his research design. In this series of articles Part I describes and discusses the faunal remains from Tavhatshena, a Central Cattle Pattern settlement dating to between the 11th and 16th centuries (De Wet-Bronner 1994). In Part II, the faunal evidence from two Dzata Pattern settlements, Tshitheme and Dzata, with dates between the 15th and 18th centuries, are presented and discussed (De Wet-Bronner 1995). In this paper, I discuss the remains from Tshirululuni, a Mutzheto Pattern settlement inhabited during and after the collapse of the Singo state in the 18th century.

The layout of Mutzheto settlements differ from Zimbabwe and Dzata Pattern settlements in that they often have an empty space separating the commoner area from the upper "musanda" (palace area). The chief's wives lived above the court in front of the chief's area. Loubser (1991) describes them as stacked terrace walls (round boulders and angular blocks set on edge) demarcating the main residential area with interlinking terraced enclosures along the upper portion of the settlement. Mutzheto sites are common north and south of the Soutpansberg. The majority of Mutzheto settlements occur on hilltops because of internal wars and the "difaqane". Consequently, spatial locations vary somewhat with the steep gradients.

METHODS

Identification procedures, taphonomic processes and quantification techniques have been discussed in Part I (De Wet-Bronner 1994).

TSHIRULULUNI 2329 BB9

Tshirululuni is located on the saddle and northern slope of a hill (23.01.15S; 29.54.55E) within the municipal boundaries of Louis Trichardt (Fig. 2). Raphulu, a Dau ruler, reputedly lived here. He had begun to extend his power shortly before the Singo arrived in the late 17th century (Beach 1980:215-6). The Ramabulana house conquered Raphulu and settled in the area. Apparently Ramabulana preferred living in Tshirululuni "on account of the scarcity in the Nzhelele Valley" (Motenda 1940:54). After the collapse of the Singo state at Dzata, which is situated in the Nzhelele valley, the Ramabulana Singo established independence and dominated politics in the Western Soutpansberg at least from the beginning of the 19th century. This settlement was politically important to the western Singo and this may explain why Ramabulana and his younger brother Ramavhoya were buried in the cattle byre and not in the traditional burial

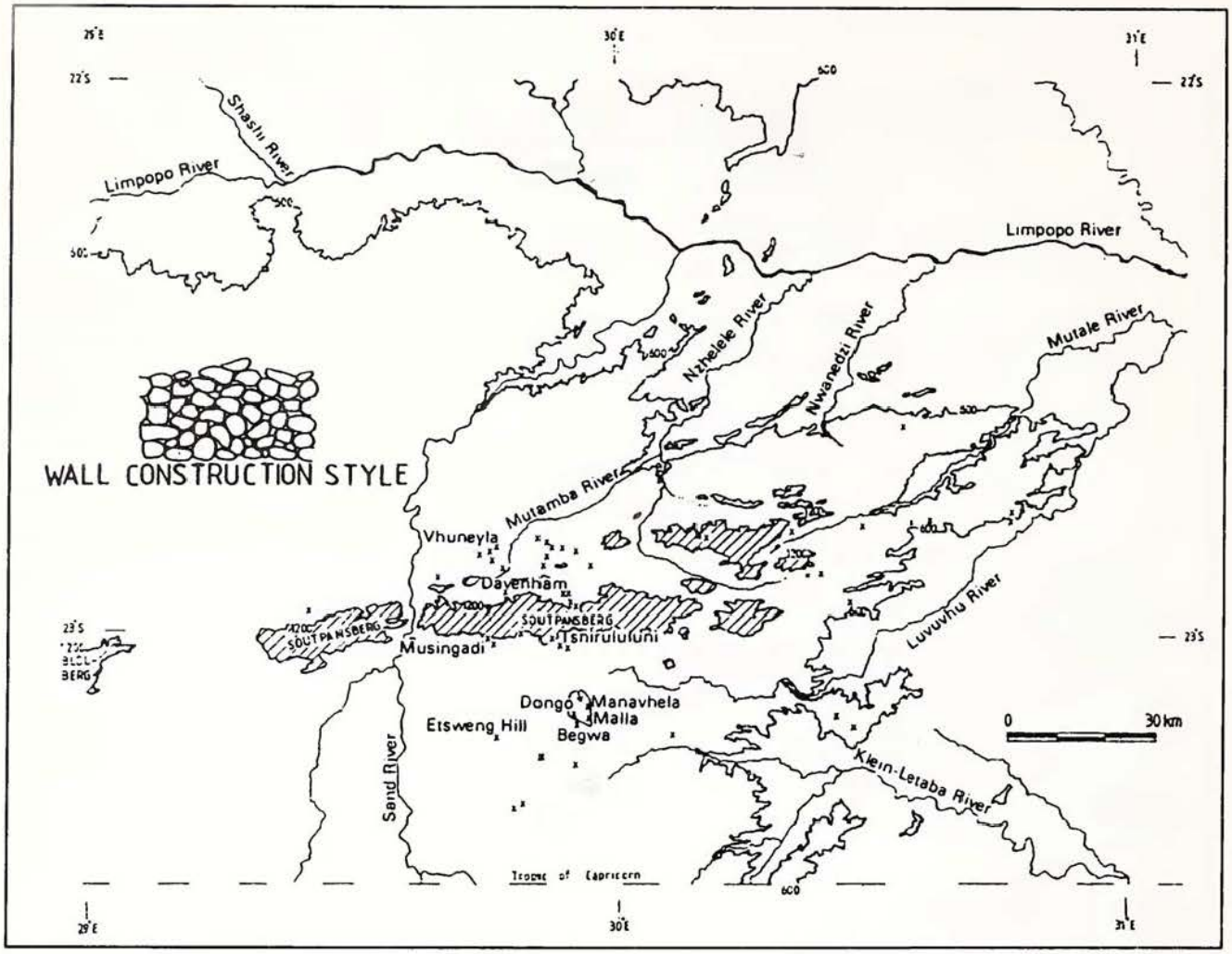

Fig. 1. Distribution of Mutzheto Pattern settlements in the Soutpansberg region.

grounds of the Singo at Tshiendeulu Mountain (*cf.* Loubser 1988:210).

Loubser excavated two trenches (Fig. 2). Trench 1 (9 m^2) was placed over an ash mound below the terraced area of the chief's wives and contained seven levels. A charred post in Trench 1 Level 4 (T1/4) has been dated to AD 1730 ± 80 (WITS-1533). Trench 2 (3 m^2) straddled the wall of the main assembly area and had six levels (Loubser, 1988:213-4).

Three ceramic horizons were demarcated, namely Eiland in T1/7B and T2/6, Moloko in T1/7A and T2/3-5, and Letaba in T1/1-6 and T2/1-2. Although Loubser (1991:335) distinguishes between T1/7A and B the bone bags were not separated. Therefore I analysed T1/7 as one unit. Levels 1-6 of Trench 1 are all Letaba, but an extensive floor line (Floor 2) separates levels 5-6 from levels 1-4. I therefore separated the fauna accordingly (Table 1).

I combined levels 1-4 in Trench 1 for several reasons. Firstly, only an edge of Floor 1 separated T1/2 and 3 and it was not possible to determine which part of the faunal sample relates to this floor. Secondly, only one date comes from these levels and it is therefore not known which Letaba levels pertained to Singo and pre-Singo occupations. Thirdly, species differences do not justify a separation (Table 2) and fourthly, levels 3 and 4 mainly consist of thin daga lenses.

Although two pits had been dug into the floors of Trench 1 in antiquity, the pit outline was unclear and pit remains were not kept separate. I used other methods to separate the faunal remains in these pits from the rest.

TOTAL FAUNAL SAMPLE

The total bone sample consists of 10144 pieces totalling 55566,6 g. (Table 3). Of these, 73% are from T1/1-4 with decreasing percentages for T1/5-6, T2/1-2, T1/7, T2/3-5 and T2/6 respectively. On average about 19% of the total bone sample is identifiable with a larger variety of species in T1/1-4 and T1/5-6. *Bos taurus dominates* the bovid remains. There is a high identifiability rate (34%) for the Moloko levels.

Worked and unworked ivory fragments are identified from most levels of Trench 1. Many are parts of bracelets, one piece is a bodkin. The bodkin's functional use would have been for cotton weaving. A Bov III long-bone shaft was worked into a knife hilt with decorative carvings. Other worked bone, ivory, carapace and shell finds are presented in De Wet (1993: Appendix A).

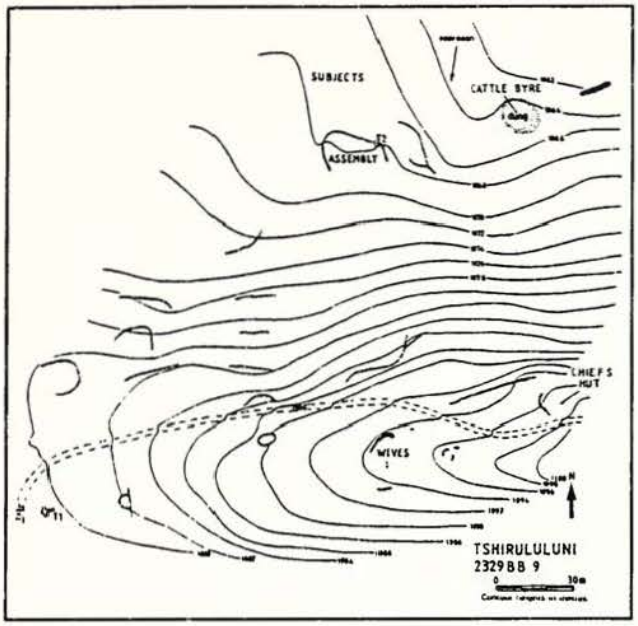

Fig. 2. Layout of Tshirululuni.

MEAT CONTRIBUTIONS

The variety of animals in the Moloko component is limited and cattle contribute a greater proportion of the meat. According to calculations based on the QSP method, a method which accurately calculates actual meat contributions (De Wet-Bronner 1994), non-domestic bovids and non-bovids contribute about 20% of the meat in T1/7. Loubser recovered only one bone fragment of a sheep/goat from T1/7. There are no sheep/goats in T2/3-5 and there were few other animal remains recovered except cattle (Table 2). For the Moloko component as a whole, sheep/goat contribute less than 1%.

In both Letaba units of Trench 1, cattle yield about 88% of the meat (Tables 4 & 5). Based on MNI percentages, cattle meat contributions are much less, as the contributions of non-domestic bovids and non-bovids reduce these percentages. Although the MNI amounts of these other animals seem large, the actual amount according to QSP is not great. In the Letaba unit of Trench 2, however, both QSP and MNI percentages for cattle are much less, at 62%, while Bov III meat contributes a large amount at 29%. It is likely that the Bov III size class contains cattle remains and the cattle meat yield is therefore higher. The meat yields of sheep/goats are less than one percent for all the units in the Letaba component.

AGE DISTRIBUTION

In the Moloko unit, T1/7, all cattle are sub-adult and adult. There is a 40% presence of immature (Thorp's age classes I-III) animals. The inclusion of post-cranial remains shows that some 17% are juveniles (Voigt's age classes I-III). There are no sheep/goat teeth present in this unit, but one post-cranial fragment represents an adult (Table 6).

Table 1. Tshirululuni: stratigraphic levels and ceramic components.

Ceramic component		Trench 1	Trench 2
Letaba	Levels	1	1
		2	2
		3	
		4 AD 1730 ± 80 (WITS-1533)	
		5	
		6	
Moloko			3
		7	4
			5
Eiland			6

The cattle teeth in the Moloko unit, T2/3-5, represent two individuals of the mature age classes (Class VII & VIII). Only one Bov III sized juvenile bone fragment occurs in T2/3-5.

In the Letaba unit, T1/5-6, cattle ages range from neonate to aged. With initial analysis mature and immature cattle (Thorp's classes I-III) are equally represented. By including post-cranial remains, the numbers of mature cattle become predominant. There is also a slight increase of juveniles (Voigt's classes I-III), but as a whole, immature animals decrease in percentage. The sheep/goats from these two levels, including post-cranial material, were all from adult and old individuals. A sub-adult is represented only by a radius fragment.

In T1/1-4 all cattle age classes are represented, but there is a high number of juveniles - the highest recovered from any of the Soutpansberg sites. On teeth alone, immature outnumber mature cattle, 59% to 41% respectively (45% of immature are juveniles). With the inclusion of post-cranial remains, the number of juveniles decreases (31%) and mature animals show a greater representation (59%). Nevertheless, the number of juveniles is still substantial and includes very young animals and neonates (Voigt's classes I-II).

The sheep/goats from T1/1-4 are mainly adult to old age, but some are also very juvenile. Sub-adults are nominally present in teeth and post-cranial remains.

Juveniles from other species are also present in some units. A nominal number of juveniles from non-domestic Bov II and III and indeterminate Bov III size classes occur in T1/5-6. Most juveniles come from T1/1-4, including klipspringer, buffalo, bushbuck, giraffe, non-domestic Bov I, III and IV and indeterminate Bov II and III size classes.

No cattle or sheep/goat teeth were recovered from T2/1-2, but the post-cranial remains of cattle and sheep/goat are of adults.

SEXUAL IDENTIFICATION

Cattle remains from T1/5-6 include one female and one probable female. Of the 15 sexed cattle specimens from

Table 2. Tshiruruluni: species/group size present in each level of trench 1, letaba component, and in other Moloko and Letaba units.

Species/Group size	T1/1	T1/2	T1/3	T1/4	T1/5	T1/6	Mol. T1/7	Letaba T2/1-2	Moloko T2/3-5
Bos taurus cattle	+	+	+	+	+	+	+	+	+
Ovis aries sheep	+	+	+		+	+			
Capra hircus goat	+	+	+		+				
Sheep/goat	+	+	+	+	+	+	+	+	
Papio ursinus baboon		+				+			
Civettictis civetta African civet						+			
Atilax paludinosus water mongoose	+								
cf. Acinonyx jubatus cheetah			+						
cf. Panthera leo lion		+							
Felis serval serval						+			
Felis lybica African wild cat		+							
Small felid						+			
Medium felid		+							
Large carnivore		+			+				
Medium carnivore		+							
Loxodonta africana elephant	+	+		+	+		+		
Rhino/Hippo		+							
Equus burchelli zebra	+	+	+		+		+		
Procavia capensis rock dassie						+			
Phacochoerus aethiopicus warthog	+								
Potamochoerus porcus bushpig				+	+				
Giraffa camelopardalis giraffe		+					+		
cf. Connochaetes taurinus blue wildebeest	+	+							
Alcelaphus buselaphus red hartebeest		+							
cf. Alcelaphus sp.					+				
Alcelaphine		+	+		+				
Sylvicapra grimmia grey duiker	+					+			
Oreotragus oreotragus klipspringer	+	+			+				
Raphicerus campestris steenbok					+				
cf. Raphicerus campestris			+						
Aepyceros melampus impala	+							+	
cf. Aepyceros melampus	+	+							
Pelea capreolus grey rhebok					+				
cf. Hippotragus niger sable		+		+					
Hippotragine		+	+						
Syncerus caffer buffalo	+	+	+	+	+	+			
Tragelaphus strepsiceros kudu		+							
cf. Tragelaphus angasii nyala		+							
cf. Tragelaphus scriptus bushbuck		+							
cf. Taurotragus oryx eland	+	+	+				+		
Redunca arundinum reedbuck								+	+
Redunca fulvorufula mountain reedbuck								+	
Bov I		+	+		+	+			
Bov II non-domestic	+	+	+		+	+			
Bov II	+	+	+	+	+	+	+	+	
Bov III non-domestic	+	+	+	+	+	+	+		
Bov III	+	+	+	+	+	+	+	+	+
Bov IV	+	+			+	+	+		
Manis temminckii pangolin					+				
Lepus saxatilis scrubhare						+			
Struthio camelus ostrich			+						
Francolinus cf. coqui								+	
Sagittarius serpentarius secretary bird						+			
cf. Geochelone pardalis leopard tortoise	+								
Tortoise		+							
Large reptile			+						
Frog					+				
Achatina sp. terrestrial gastropod	+	+	+						
Unionidae freshwater bivalves		+							
Unio/Aspatharia sp. freshwater bivalve					+				

Table 3. Tshirululuni: total bone sample.

Skeletal part	T1/1-4	%	T1/5-6	%	T1/7	%
Bovid remains	1386	18,8	326	14,1	42	30,0
Other remains	68	0,9	25	1,1	4	2,8
Total identifiable	1454	19,7	351	15,2	46	32,8
Enamel fragments	59	0,8	31	1,3	-	-
Skull fragments	1424	19,3	188	8,2	1	0,7
Vertebra fragments	377	5,1	170	7,4	12	8,6
Rib fragments	892	12,1	266	11,5	22	15.7
Misc. fragments	2024	27,4	925	40,2	35	25,0
Bone flakes	1146	15,5	372	16,1	24	17,1
Total non-ident.	5922	80,3	1952	84,8	94	67,1
TOTAL SAMPLE	7376	100,0	2303	100,0	140	100,0
Mass (g) ident.	23401,0	57,5	7931,9	62,0	815,5	73,9
Mass (g) non-ident.	17321,9	42,5	4861,9	38,0	287,8	26,1
TOTAL MASS (g)	40722,9	100,0	12793,8	100,0	1103,3	100,0
% of sample burnt		1,3		1,9		
% of sample ident.		19,7		15,2		32,9
Median length of bone flake (mm)	33		32		29	

Skeletal part	T2 /1-2	%	T2 /3-5	%	T2 /6	%	TOTAL T1-T2	%
Bovid remains	6	3,2	42	31,6	2	25,0	1804	17,8
Other remains	-	-	3	2,2	-	-	100	1,0
Total identifiable	6	3,2	45	33,8	2	25,0	1904	18,8
Enamel fragments	3	1,6	3	2,3	-	-	96	0,9
Skull fragments	20	10,8	28	21,1	4	50,0	1665	16.4
Vertebra fragments	3	1,6	1	0,8	-	-	563	5,5
Rib fragments	20	10,8	8	6,0	2	25,0	1210	11,9
Misc. fragments	114	61,6	25	18,8	-	-	3123	30,8
Bone flakes	18	9,7	23	17,3	-	-	1583	15,6
Total non-ident.	178	96,2	88	66,2	6	75,0	8240	81,2
TOTAL SAMPLE	185	100,0	133	100,0	8	100,0	10144	100,0
Mass (g) ident.	75,4	21,8	399,0	67,4	5,3	62,4	32628,1	58,7
Mass (g) non-ident.	270,6	78,2	193,1	32,6	3,2	37,6	22938,5	41,3
TOTAL MASS (g)	346,0	100,0	592,1	100,0	8,5	100,0	55566,6	100,0
% of sample burnt		8,6		4,4		12.5		5,1
% of sample identifiable		3,2		33,8		25,0		18,8
Median length of bone flake (mm)*	30		42				34	

* Median average calculated for TOTAL.

Table 4. Tshirululuni T1/5-6: Letaba: meat contributions.

Species	QSP	QSP value	QSP %meat	MNI	MNI %meat
Herding					
Bos taurus adult	163	1,000	81,61	8	39,7
juv.	25	,157	5,09	3	5,9
Sheep/goat adult	14	,086	,45	3	,9
TOTAL HERDED	202	1,243	87,15	14	46,5
Hunting: Bovids					
Bov. I	4	,024	,06	3	,4
Bov. II non-dom. adult	2	,012	,04	1	,2
juv	1	,006	,02	1	,2
Bov. III non-dom. adult	4	,024	,69	2	3,2
juv	3	,019	,37	1	1,2
Bov. IV	7	,043	5,49	1	7,8
TOTAL HUNTED: BOV	21	,128	6,67	9	13,0
Indeterminate bovids					
Bov. II	5	,031	,16	2	,6
Bov. III adult	10	,061	2,20	2	4,4
juv.	2	,013	,26	1	1,3
TOTAL INDET. BOV	17	,105	2,62	5	6,3
Hunting: Non-bovids					
Loxodonta africana	1	,004	1,78	1	27,1
Equus burchelli	5	,032	1,68	2	6,4
Procavia capensis	1	,007	<,01	1	<,1
Potamochoerus porcus	1	,044	<,01	1	,6
TOTAL HUNTED:N-BOV	8	,047	3,48	5	34,1
Snaring					
Lepus saxatilis	1	,007	<,01	1	<,1
Sagittarius serpentarius	2	,040	,01	1	<,1
TOTAL SNARED	3	,047	,02	2	<,1
Gathering					
Manis temminckii	3	,013	,02	1	,1
Frog	1	,037	<,01	1	<,1
Unio/Aspatharia	1	,250	<,01	1	<,1
TOTAL GATHERED	5	,300	,02	3	,1
TOTAL FOOD ANIMALS	256	1,870		37	
Non-contributor					
Papio ursinus	1			1	
Civettictis civetta	1			1	
Felis serval	1			1	
Small felid	1			1	
Large carnivore	1			1	

T1/1-4, seven are male, four are female, with one probable male and three probable females. Most of the probables come from horncore fragments. One pelvic fragment from a Bov II individual is female.

SKELETAL PART PRESERVATION, TAPHONOMY AND DAMAGE

The low level of preservation in the Eiland component may be due to crushing associated with their bed rock location.

Weathered bones are more frequent in the Moloko units than in the Letaba units although the percentages are still low, about 3,7% and 2,7% respectively. This may mean that the Moloko component had been exposed before the subsequent occupation.

The percentage of weathering varies little between the Letaba units. Preservation fluctuates with soil variation, particularly in T1 with its many hut floors. The quality of the bone material from T1/5-6 is not good and soil is often cemented to the bone. Furthermore, quite a number of fragments are trampled. This may be due to the regular wetting and packing of the hut floor in these two levels. Some limited root etching is present in T1/6. Some bone fragments show evidence of termite activity particularly in T1/1-4.

The prevalence of the various kind of butchering marks differ between the different skeletal elements. There are, for example, more chopping marks on crania, radii, ulnae, femora and tibiae whilst cut marks are more frequently found on scapulae, pelves, first phalanges and

Table 5. Tshirululuni T1/1-4: Letaba: meat contributions.

Species		QSP	QSP value	QSP %meat	MNI	MNI %meat
Herding						
Bos taurus	adult	622	3,816	75,78	22	47,1
	juv.	245	1,541	12,17	10	8,5
Sheep/goat	adult	54	,331	,42	5	,7
	juv.	10	,063	,06	3	,3
TOTAL HERDED		931	5,751	88,43	40	56,7
Hunting: Bovids						
Bov I	adult	6	,036	,03	3	,2
	juv	3	,018	<,01	1	<,1
Bov II non-dom	adult	10	,061	,11	1	,2
	juv	1	,006	,01	1	,1
Bov III non-dom	adult	26	,159	1,21	5	4,4
	juv	3	,019	,09	1	,5
Bov IV	adult	20	,123	3,64	4	11,7
	juv	2	,012	,22	1	2,0
TOTAL HUNTED:BOV		71	,434	5,31	17	19,1
Indeterminate bovids						
Bov. II	adult	24	,147	,56	3	,4
	juv	3	,019	,01	1	<,1
Bov III	adult	35	,215	3,77	2	1,9
	juv	7	,044	,23	1	,6
TOTAL INDET. BOV		69	,425	4,58	7	3,0
Hunting: Non-bovids						
Loxodonta africana		1	,004	,43	1	11,7
Rhino/Hippo		1	,004	,18	1	4,9
Equus burchelli		11	,070	,89	1	1,4
Suid		2	,008	,02	2	,6
Giraffa camelopardalis	juv	1	,006	,14	1	2,6
TOTAL HUNTED:N-BOV		16	,092	1,67	6	21,1
Gathering						
cf. Geochelone pardalis		2	,021	<,01	1	<,1
Achatina sp.		6	3,000	<,01	4	<,1
Unionidae		1	,250	<,01	1	<,1
TOTAL GATHERED		9	3,271	<,01	6	<,1
TOT. FOOD ANIMALS		1096	9,937		76	
Non-contributor						
Papio ursinus	juv	1			1	
Atilax paludinosus		1			1	
cf. Acinonyx jubatus		1			1	
cf. Panthera leo		1			1	
Felis lybica		1			1	
Medium felid		1			2	
Large carnivore		1			2(1)	
Medium carnivore		1			1	
Struthio camelus		-			1	
Large reptile		1			1	

Table 6. Tshirululuni: ages of *Bos taurus* and sheep/goat based on tooth eruption and wear. Numbers listed are MNI.

	Age classes		MNI			
			Moloko		Letaba	
	Voigt (1983)	Thorp (1984)	T1/7	T2/3-5	T1/5-6	T1/1-4
Bos taurus	I	I	0	0	1	4
	II	I	0	0	0	4
	III	II	0	0	1	2
	IV	III	1	0	1	2
	V	III	1	0	2	1
	VI	IV	1	0	1	2
	VII	IV	1	1	2	3
	VIII	IV	0	1	1	3
	IX	V	1	0	1	1
			--	--	--	--
			5	2	10	22

N.B. Including post-cranial:
T1/7 = juv.=1; sub-adult=1; adult=4 = 6.
T1/5-6 = juv.=3; sub-adult=1; adult=7 = 11.
T1/1-4 = juv.=10; sub-adult=3; adult=19 = 32.
T2/1-2 = adult = 1.

Sheep/goat	I	0	0
	II	0	3
	III	0	0
	IV	0	1
	V	1	3
	VI	1	2
		--	--
		2	9

N.B. Including post-cranial:
T1/7 = adult=1.
T1/5-6 = sub-adult=1; adult=4 = 5.
T1/1-4 = juv.=4; sub-adult=3; adult=6 = 13.
T2/1-2 = adult = 1

the carpals and tarsals. Cut marks on the carpals and tarsals generally run along the sides of the body and parallel with the articulation surfaces; these would have cut the tendons joining the main longbones. Longitudinal splitting occurs most frequently on metacarpals and metatarsals as well as second phalanges. Butchering marks on the other bovids and non-bovid species occur randomly on various elements.

For the non-identifiable remains, butchering marks occur only on a few pieces in T1/7 and T2/3-5 of the Moloko component. In the Letaba units, T1/5-6 and T1/1-4, chop marks occur more frequently on skull, vertebral and miscellaneous pieces whilst cut marks predominate on ribs. Snap-cut marks occur mostly on rib pieces. The rib pieces were broken in a variety of ways and often the heads, or heads and ends, are absent. In Trench 2/1-2 there are too few bones and marks to warrant comment.

The two Letaba component units of T1 have the most vertebral pieces and these demonstrate a variety of butchering methods. Sixteen vertebral pieces are sheared on the horizontal or vertical axis, cranio-caudally. Some fragments are sheared on both axes. Several others had only the dorsal spines sheared off.

Relatively little bone is actually burnt in the Letaba units of Trench 1, about 1,6%. On Level 6 around the base of Pit 1, ash clings to half the bones. On Level 5 all the anteater remains are totally burnt. The bones from a small section of T1/4 directly on top of Floor 2 bear black ash, indicating an ashy zone. A patch of burnt bone lay two levels higher. In Trench 2/1-2, 8,6% of the bone sample is burnt, reflecting activities in the assembly area.

Several bones from T1/5 and T1/2 bear green stains suggesting that they were deposited in close proximity to copper.

PATHOLOGY

In the Moloko component of T1/7, a cattle phalanx has exostosis. Osteoporosis, or bone degeneration, is present in a human seventh cervical from T2/5.

Exostosis is the most common pathological lesion present in the Letaba component. One cattle ulna from T1/5-6 has evidence of these boney overgrowths, particularly around the articulation surface. From T1/1-4, it is seen on a cattle proximal metatarsus and especially on the articulation surfaces and bodies of first phalanges.

Distal condyles of a metacarpus and a distorted proximal end from a first phalanx of a buffalo in T1/2 show exostosis. This may have been caused by a stress fracture or an arthritic condition.

In T1/2, a cancerous growth occurs on the roots of a cattle premolar and the tooth enamel is extremely pitted. Wear on the tooth indicates that the animal was extremely old when it died. Another pathological condition associated with old age in cattle from T1/1 is the crystallization of the os petrosum, located in the ear area. A Bov. II scapula from this upper unit had bony growths on the edge of the blade. This is probably a result of old age. A cancerous abscess on a *Bos* first phalanx comes from T1/2.

In both units, T1/1-4 and T1/5-6, there may be the presence of a genetic anomaly on several femora. The foramen lies abnormally above the vascular groove, rather than to the side. Whether this is caused by inbreeding or during the process of selective breeding is unknown. It also may be an atavistic or 'throwback' trait (*cf.* Saunders, 1989:96). Analysts have apparently not noticed this trait at other Iron Age sites, possibly because of the high fragmentation of most samples (Plug, pers. comm.). Further research is necessary to establish whether such non-metric phenomena are within normal variability or a trait inadvertently brought about through human intervention.

It is curious that only two fragments of a human skeleton were found in Trench 2/5. Perhaps the rest of the skeleton has yet to be excavated. One of these, a seventh cervical, is osteoporotic with some osteo-arthritic vertebral lipping at the intersection of the body and articular surface. Such pathology occurs in the elderly. But recent research shows that certain kinds of occupational stress can also cause similar conditions. Extreme stress in a relatively young adult skeleton may result in that individual being 'overaged' (Iscan & Loth 1989:27). The pathology in the seventh cervical in T2/5 could have resulted from carrying loads on the head (Scher in Kennedy 1989:27).

SKELETAL PART REPRESENTATION AND DISTRIBUTION

Of the unidentifiable fragments, miscellaneous pieces are the greatest in number in most of the units, followed by skull fragments. There are more skull pieces in the lower levels associated with the Moloko and Eiland ceramic components.

Of the remains identified to species or size class,

Table 7. Tshirululuni T1/5-6: Letaba: number of skeletal parts. (P: primate, C: carnivore, EL: elephant, EQ: zebra, HY: hyrax, S: suid, A: anteater, HA: hare, B: bird, F: frog, nd: non-domestic, d: domestic).

Skeletal part	P	C	EL	EQ	HY	S	Bov I	Bov II nd	Bov II d	Bov II	Bov III nd	Bov III d	Bov III	Bov IV	A	HA	B	F	TOTAL
Horncore												18							18
Cranial		2								3		11	1						17
Atlas												3	1						4
Scapula													1		1				2
Humerus				3					1	1		14		1	1		1		22
Radius									1	3		13	4						21
Ulna							1	1	3		1	7	1						14
Carpal								1				13							14
Metacarpal							1				1	13							15
Pelvis									2	1		11		2					16
Femur		1		3	1			1	1	1	4	16	6	2					36
Tibia	1	1						1	1	1		18	3	1		1		1	29
Patella												2							2
Astragalus							2				1	7							10
Calcaneus											1	1		1					3
Tarsal												7							7
Metatarsal									1			14	1						16
Metapodial										1	1	3	2	1					8
Phalanx 1											1	17		1					19
2												8							8
3									1			9							10
Sesamoid			1									2							3
Rib							2												2
Vertebra													1						1
Total	1	4	1	6	1		6	4	11	11	10	207	21	9	2	1	1	1	297
Teeth			1			1		1	3			40	1	2					49
TOTAL	1	4	2	6	1	1	6	5	14	11	10	247	22	11	2	1	1	1	346

Table 8. Tshirululuni T1/1-4: Letaba: Number of skeletal parts. (P: primate, C: carnivore, E: elephant, R/H: rhino/hippo, EQ: zebra, S: suid, G: giraffe, R/T: reptile/tortoise, nd: non-domestic, d: domestic).*

Skeletal part	P	C	E	R/H	EQ	S	G	Bov I	Bov II nd	Bov II d	Bov II	Bov III nd	Bov III d	Bov III	Bov IV	R/T	Total
Horncore													53				53
Cranial		1			1			3	1	7	6	4	141	12	3		179
Hyoid									1		3		8	2			14
Atlas										1			9				10
Axis		1											2				3
Scapula									4	4	5	4	29	8			45
Humerus									1	5	3		38	2	3		52
Radius		1						1	1	2	4	1	28	2			40
Ulna					2				1	2	1	1	10		2		19
Carpal											1	1	43	1	2		48
Metacarpal					2		1		1	4	4	6	81		4		103
Pelvis				1						1	4	2	26	4		1	39
Sacrum							2						3				5
Femur		3						3	1	1	3	2	58	6	1		78
Tibia					2			2	2	2	1	3	67	4	2		85
Patella													1				1
Astragalus								1					9	1			11
Calcaneus		1							2	2			10				15
Tarsal						1				1		1	13				16
Metatarsal		1			1			2		3	3	5	104	2	2		123
Metapodial					1					2	2		58	10	2		75
Phalanx 1										2		2	50		5		59
2					1								36				37
3										1		1	29	1	2		34
Sesamoid													19		1		20
Plastron																1	1
Carapace																1	1
Rib		2	8		2												12
Vertebra		1											9	3			13
Other												1		3			4
Total		11	8	1	12	1	3	12	15	40	41	33	925	61	29	3	1192
Teeth		1		18		2	1		2	1	28	1	6	179	10	3		252
TOTAL		1	11	26	1	14	2	3	14	16	68	42	39	1104	71	32	3	1447

* Does not include shell from ostrich and mollusc = 7

post-cranial fragments outnumber cranial (including teeth) in Trench 1. In T2/3-5 cranial fragments (including a few teeth) outnumber post-cranial remains. The large portion of the non-identifiable remains from T2/3-5 (Moloko) are skull and probably come from cattle.

Although the sample is small, post-cranial cattle fragments are in the majority in the Moloko component of T1/7 and no over-representation of any skeletal element is present. Horncore, cranial and foreleg fragments occur in T2/3-5.

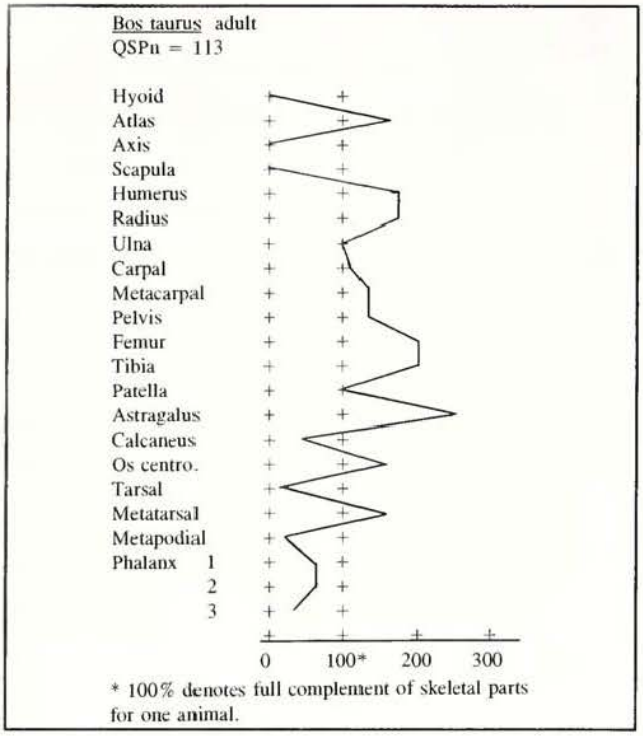

Fig. 3. Tshirululuni T1/5-6: Letaba: percentages of post-cranial remains represented after correction for skeletal complexity.

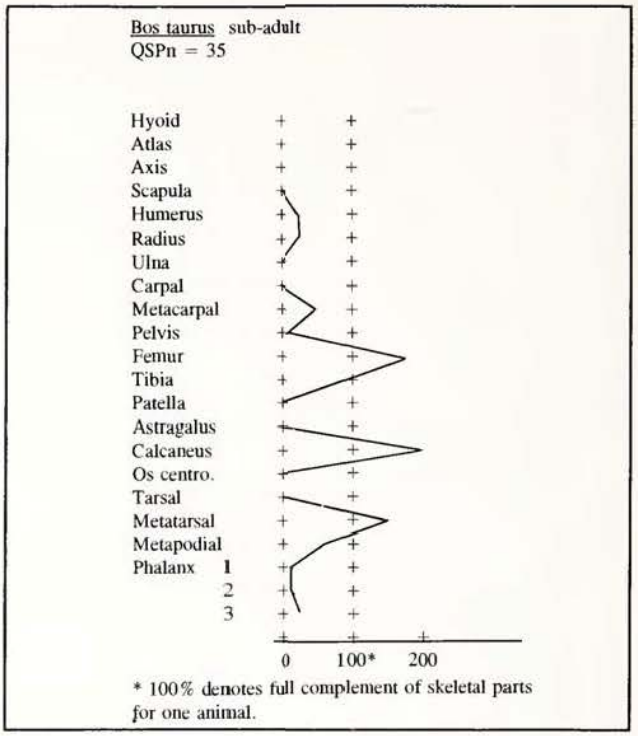

Fig. 5. Tshirululuni T1/1-4: Letaba: percentages of post-cranial remains represented after correction for skeletal complexity.

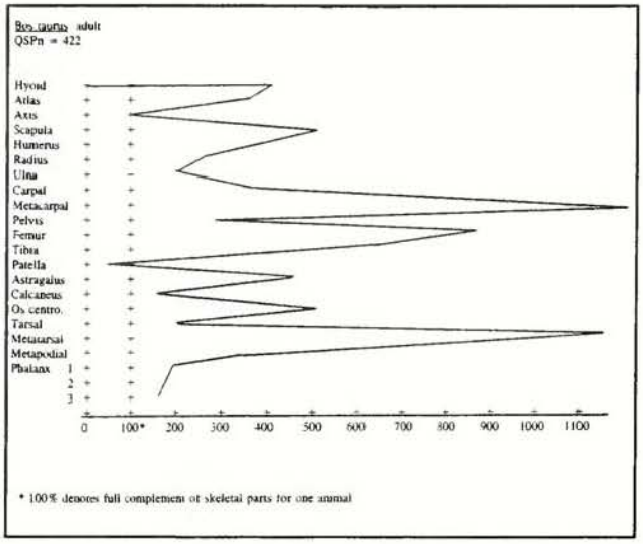

Fig. 4. Tshirululuni T1/1-4: Letaba: percentages of post-cranial remains represented after correction for skeletal complexity.

After corrections for skeletal complexity and refitting of fragments, post-cranial cattle remains in the Letaba unit T1/5-6 (Table 7) show a fairly even distribution but with an over-representation in astragali (Fig. 3). This figure is in striking contrast to that for the Letaba unit above (Table 8), where there is an extremely high number of adult metacarpals and metatarsals (Fig. 4).

Calcaneus, astragalus and os centroquartale should be included under the tarsals and not separately to get a more realistic comparison between carpals and tarsals (Plug, pers. comm.). If this is done for T1/1-4, the tarsals represent about four to five individuals in comparison to 3 to 4 individuals represented by carpals. This is still low in comparison to metacarpals and metatarsals where over 11 individuals are represented. Therefore this pattern is consistent for adults and unique. Does this pattern hold for sub-adult and juvenile cattle? In Figure 5, the sub-adult remains have a good representation of metatarsals, but no more than femur and calcaneus. Juvenile metacarpals and metatarsals, however, are also grossly over-represented representing over 5 and 9 individuals respectively (Fig. 6).

Another feature derived from these figures show adult and juvenile cattle phalanges as under-represented in Trench 1, particularly in T1/1-4. For example, on Figure 4, the skeletal parts (with the exception of metacarpals and metatarsals) represent about four to five individuals; the phalanges, only about two.

Although sheep/goat remains are not sufficiently numerous to display on graphs, particularly after correction for skeletal complexity, enough pieces were recovered from T1/1-4 show that most of the larger limbbones are represented (Table 8).

Bov III size class has a relatively high representation of adult scapulae in T1/1-4 after the fragments are reconstituted into complete elements. These represent about two individuals; whereas all other elements after reconstitution represent less than one individual. As large bovid scapulae have few diagnostic features, and can seldom be identified to species, the high number is to be expected. These scapula fragments may belong to cattle.

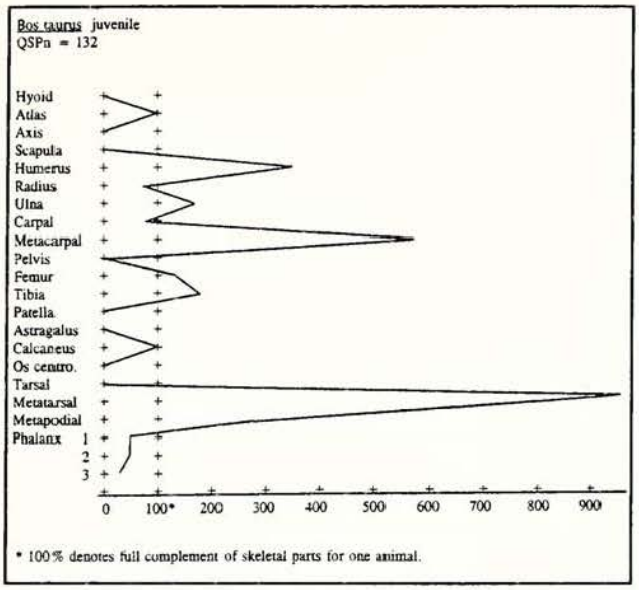

Fig. 6. Tshirululuni T1/1-4: Letaba: percentages of post-cranial remains represented after correction for skeletal complexity.

The samples from Trench 2 are too few to represent graphically.

Pits 1 and 2 in Trench 1

As noted earlier there is a relatively high number of juvenile cattle (Voigt's classes I-III) remains in T1. I initially assumed that these animals may have come from the pits. To determine if this was so, it was necessary to do a NISP analysis in terms of the original one-meter squares.

The first pit covers about three square meters and is several levels deep: from the base of Level 6 to Level 2. In Level 6 some juvenile cattle remains are found in and near the pit area, but these are negligible. There are however no other juveniles in this level. In Level 5 only one small part of the pit has more juvenile cattle fragments than adult; the rest of the pit lack juveniles, while a few juvenile remains are scattered in other areas of this level. Level 4 has only adult remains. In the pit area in Level 3, juveniles represent 11% to 42% (based on the total cattle sample for the level) *versus* 0 to 18% in areas outside the pit. In the lower section of Level 2, the percentages of juvenile NISP ranges from 24 to 42% in the pit area *versus* 0 to 20% outside the pit. The upper section of Level 2, just above the pit, has more NISP of juveniles than adults. In the pit 1 area, the percentage of juveniles range from 19% to 56%. Many juveniles therefore probably came from this pit.

The second pit extends from Level 3 to bedrock and has no exceptional distribution of juvenile cattle in relation to adults.

DISCUSSION

Two significant expressions are present in Trench 1, firstly the apparent concentration of juvenile cattle remains in and near a pit and secondly the gross over-representations of adult and juvenile cattle metapodia in levels 1-4.

In order to assess the level of involvement of humans on the creation of these assemblages, natural taphonomic factors need to be considered first. If we look at the elements in terms of relative density values (Lyman 1992), proximal metacarpals and metatarsals have high density values and are over-represented. However, several elements with lower densities are also well represented, while others with high densities are not. The metatarsals and metacarpals of juveniles are also markedly over-represented. Juvenile bones are usually fragile and one would expect their under-representation. The density values of juvenile bone is unknown, and I assume that juvenile astragali, calcanei, metacarpal and metatarsal ends are relatively more dense than other elements, as with adults. If true, then the relatively under-represented juvenile calcanei and astragali are unusual.

In most of the Soutpansberg samples, the phalanges are not well represented, and usually their representation decreases from phalanx 1 to 3. This could be explained in terms of the density values, as the second and third phalanges have lower densities, however, other less dense elements are shown to be better represented.

Generally, the correlation of bone density and preservation patterns produces mixed results, and the pattern of skeletal part representation cannot be explained in terms of natural attrition alone. Bone density is clearly not the only factor contributing to the creation of this sample. We must therefore consider human activities.

To begin to look at the significance of the representations and distributions of these cattle remains in terms of human activity behaviour, namely patterns of refuse disposal, several aspects need to be assessed simultaneously. Firstly, what is the contextual relationship of worked bone and ivory finds to the cattle remains? Secondly, it is also important to examine the location of Trench 1 in relation to known areas of activity in this settlement. And thirdly, traditional Venda rules concerning the division of meat and whether cattle body parts, particularly the lower limbbones are of any social or economic significance, must also be investigated.

Concerning the high incidence of juvenile cattle remains in Pit 1, one could assume that as levels 1-6 in general have a relatively high number of juveniles, the pit may only reflect this trend. I would rather propose that this high incidence may have been intentional, since juvenile bone waste decreases the farther one moves away from the pit. With this in mind, the contextual relationship of the pit remains and worked items becomes more significant.

Ivory and bone artefacts mostly come from Level 2. Fortunately the positions of these items within the levels were marked. Most, including the ivory bodkin and bone hilt, were located on top or in the immediate vicinity of Pit 1. There are ivory fragments from T1/1, but these are scattered as are those from other levels and sections. (Level 1 may have been disturbed by bulldozing.) Thus it appears that juvenile remains and ivory fragments may

have been intentionally placed into the pit.

According to Loubser's field notes, his Ndou informant associates the ivory bodkin and bone hilt with "domba", the well-documented ceremony concerned with girls' and boys' initiation into marriageable status (*e.g.* van Warmelo 1932:52). "Domba" and other rites of passage were usually held in or near the "tshivhambo" and also in the public assembly area. Trench 1 is not located near either of these areas. Instead, it is near peripheral huts below the actual "musanda". These huts may have belonged to the chief's wives. Whatever the case, something special produced the high incidence of juvenile cattle remains.

The high number of juvenile cattle is reminiscent of the Hill Midden at Great Zimbabwe (Thorp, 1984:44). Of this age group 43% are present at Great Zimbabwe and 45% at Tshirululuni, based on teeth using Voigt's age classes. Although the sample sizes are different, it may be worth investigating this trend with larger and more intensive excavations at Tshirululuni. As a Venda capital, the Tshirululuni leaders probably had control over a large number of cattle and access to many deaths, whatever their causes. Thirty-six percent of the bones were from neonate and very juvenile animals. This high incidence, however, may not be due to a preference for veal as suggested for the Hill Midden. Whether neonates are palatable is debatable. Tshirululuni people may not have eaten these animals but only disposed of them in one place; and it appears that this pit may have been created for this purpose.

Another question remaining unanswered concerns the significance of the over-representation of cattle metacarpals and metatarsals in Trench 1/1-4.

Most traditional societies in southern Africa divide meat according to established rules, and the Venda were no exception. Venda divide meat along kinship lines and the chief always received a certain part of the beast (Stayt 1931). The Pedi (Quin 1959; Monnig 1967) also bestow a certain section to the host of the ceremony, as well as the owner of the animal, specific relatives, age groups and visitors. Other Tswana also have a systematic process (Grivetti 1976). It does not necessarily follow, however, that the remains of these different portions are deposited in different areas. Unfortunately, too few ethnographic records deal with waste disposal.

At Ondini (Watson & Watson 1987) and more particularly at uMngungundlovu (Plug & Roodt 1990), different cattle elements were deposited in different areas as the result of activity and status differences. For example, the coppersmith's assistants at uMngungundlovu were relegated inferior cuts.

Although Tshirululuni was not a Zulu military headquarters or a Tswana settlement, these other examples strengthen the probability that different skeletal parts had different status values in early Venda settlements.

According to Stayt (1931:41), the hooves together with the meat around the heart and lungs went to the herdsman. The metacarpals and metatarsals may therefore be the remains of his meals. On the other hand, the actual hooves and phalanges are highly under-represented in this sample and according to Loubser (pers. comm.), a cattle herdsman is unlikely to have lived here. This pattern then probably reflects some other activity.

A final point that remains unclear in terms of disposal patterns, is the very weak presence of sheep/goat remains from the excavated portion of this site. Their low numbers may mean that sheep/goats were not consumed often, or at least, thrown away, in the wives' and court areas. From the ethnography one expects the commoners to have eaten more of these kinds of animals. Loubser believed commoners resided further down the slope, but unfortunately this area is now mostly under forestry plantations. We cannot know if the low incidence of sheep/goat remains is due to sample bias or whether their negative evidence is significant in terms of human disposal behaviour.

The Tshirululuni remains, particularly those from cattle in Trench 1, are examples of intriguing evidence that may be linked with intentional actions regarding refuse disposal. At present we lack important information on the placement of refuse at traditional Venda settlements, and the question remains whether some of these remains can indeed be strictly regarded as refuse (see Mack *et al.* 1991; and similar comments in De Wet-Bronner 1994, 1995).

CONCLUSIONS

The four Late Iron Age sites that have been presented here in three parts span 800 years of prehistory in the Soutpansberg region. The information derived from the faunal analyses has been both descriptive and interesting, but also exploratory and limited. The significance of much of the evidence has been elusive however, particularly in terms of human activity behaviour. Before refuse patterns, for example, can be successfully interpreted, we need to establish clearly whether middens are general purpose dumps or related to nearby activities. In other words, we need to know more about 'garbage'. Ethnography can assist and along with surveys and excavations much has been revealed to the archaeologists in terms of cultural, social and economic change, settlement layout and some aspects of daily life. The animals these people utilised should also be examined beyond the level of description and the confirmation of 'economic activities'. Domesticated animals, in particular, are part and parcel of what and who these inhabitants were, they are the silent voices of prehistory still waiting to be heard.

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