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EARLY EVIDENCE FOR SHEEP FROM SPOEG RIVER CAVE, NAMAQUALAND*

LITA WEBLEY

Albany Museum, Somerset Street,
Grahamstown, 6140

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ABSTRACT

Faunal remains from Spoeg River Cave on the Namaqualand coast include sheep from basal units dating to 1920 BP. The site was occupied until 1390 BP after which it was abandoned. Micromammalian data suggest that the site was first occupied during a cooler, wetter period but that increasing summer aridity and a decline in grasses may have precipitated a movement elsewhere. Sheep remains and pottery are present throughout the well stratified shell midden deposit. This early date for sheep from Namaqualand provides support for the growing consensus favouring the introduction of domestic stock along the South African west coast and would appear to refute suggestions that the region was too arid and rugged for pastoralist settlement.

INTRODUCTION

Stone age pastoralist research in southern Africa since 1977 has been concerned with evaluating the merits of the hypothesis proposed by Richard Elphick regarding the origins and dispersal of the Khoekhoen peoples. The suggested route followed by these first Khoe-speaking pastoralists are presented in Elphick (1977, 1985) and since reviews by Deacon *et al.* (1978), Robertshaw (1978), Humphreys & Thackeray (1983) and Klein (1986) are available, I shall not repeat them in detail here. Briefly it has been proposed that the ancestors of the Cape Khoekhoen travelled southward from Botswana, through the interior of the country until they reached the Cape south-east coast. From here they moved along the coast to the southern and western coastal regions. A group of Khoekhoen remaining behind on the Orange River travelled in a westerly direction until they reached the Atlantic Ocean. They subsequently split into two groups, one settling in Namibia (the Great Namaqua) while the other moved south into Namaqualand (the Little Namaqua). Elphick (1985:17) explicitly rejected the west coast route through Namaqualand because of the nature of the terrain and the low rainfall which, he claimed, would have made it difficult to cross in the summer months.

While Humphreys & Thackeray (1983:294) and Beaumont & Vogel (1984) have argued that sheep and pottery did occur in the northern Cape ca. 1500 BP, or even earlier, the association between these elements and the charcoal on which the dates were run, is not secure. More recently Morris & Beaumont (1991) have described the site of Biesje Poort (dating to between 1390 BP and 2050 BP) in the northern Cape, as an early herder site, but confirmation of this awaits publication. A lack of convincingly early dates for sheep from the northern Cape has swung the balance of opinion toward the west coast route. So Hart (1989:237) summarising the ceramic sequence in the Zeekoe (Seekooi/Seacow) Valley concludes that "herders penetrated the Zeekoe valley far later than the date predicted by Elphick (1977)" which he proposed may be negative evidence in favour of the west coast route. According to the west-coast model (Deacon *et al.* 1978; Robertshaw 1978) early pastoralist groups moved west from Botswana, through Namibia and southward into southern Africa. To date the pattern of archaeological dates would support this view. Early (ca. 2000 BP) dates have been obtained for pottery from Namibia (Kinahan 1989) while equally early dates for sheep and pottery have been reported from the southern Cape coast (Schweitzer 1974; 1979; Avery 1975). The archaeological evidence confirms a fairly rapid spread of the herding economy southward from Namibia/Botswana.

Since Namaqualand provides the bridge between Namibia and the southern Cape, archaeological data from this region is crucial to the testing of the west coast model. Excavations at Spoeg River have provided the data needed to examine the introduction of pastoralism to this region.

THE SITE

The Spoeg River is a perennial river which flows into the Atlantic Ocean just south of Hondeklipbaai. The site itself (30.17.40S; 17.16.20E) is situated in an outcrop of granite rock on the southern banks of the river, about

two kilometres from the sea (Fig. 1). There is a small lagoon at the mouth of the river, which has not been broached in many years. The level of the lagoon is maintained by groundwater seepage and consequently has a low salinity measurement. The lagoon allows a wide variety of plant and animal life to be supported even during the dry period (Grindley & Heydorn 1981). Furthermore, a spring of fresh water right on the edge of the sea, just five kilometres south of the site, provides permanent drinking water. The vegetation in the surrounds of the site is Strandveld Proper (Acocks veld Type 34 (b)) which may be described as open semi-succulent scrub (Acocks 1975). The present fauna of the area includes Cape fur seal, porcupine, steenbok, grey duiker, bat-eared fox, water mongoose, red meerkat and various rodents. A wide variety of birds has also been reported from the area (Grindley & Heydorn 1981).

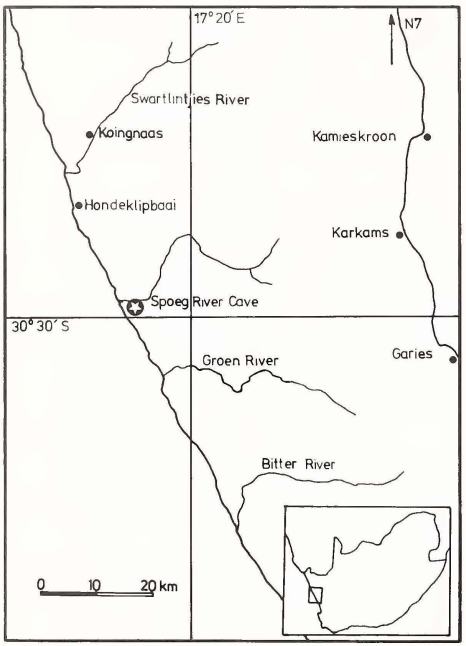

Fig. 1. The location of Spoeg River Cave on the Namaqualand coast.

THE EXCAVATION

The cave measures approximately eleven metres across by seven metres wide and faces due north into the face of the prevailing winter winds. Just over a metre of well stratified deposit consisting of layers of shell interdigitating with lenses of loam, as well as many hearths and occasional bedding patches, are present throughout the sequence (Fig. 2). Preservation is remarkable with fragments of crayfish carapace and various grasses recovered down to the basal units. Two square metres were excavated and a further column measuring one metre by 0,20 m was removed for shellfish analysis. Thirteen stratigraphic units were recognised in square C9 and a further three units were identified in B8 (Fig. 2). The units in C9 from top to bottom are: Surface, Unit 1, Twiggy, BS 1 and 2, Patella, Ashy Soil, Shelly Brown, Ashly Brown, Brown, Shell Patch 1 and 2, and FBS.

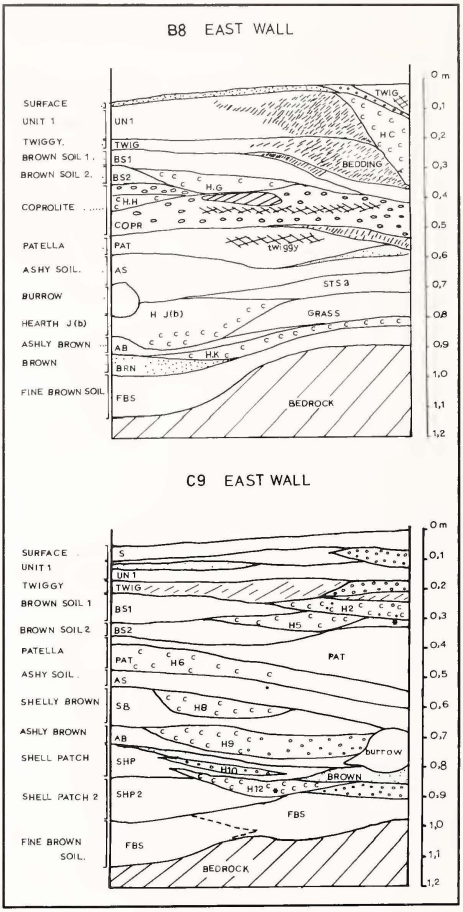

Fig. 2. The east-facing section of squares C9 and B8.

Twiggy consists of a dense layer of organic material including pits filled with seeds. In Square B8, which is situated closer to the back of the cave, Twiggy appears to represent layers of bedding grasses and reeds. B8 contained a substantial coprolite unit wedged between Patella and BS2. The coprolites, as well as the acid

etching on the bones from this unit, confirm that the site functioned as a maternity lair for the strandwolf or brown Hyaena (*Hyaena brunnea*). There are also two compacted grass layers in B8 which appear to represent bedding horizons. Grass is situated under Shelly Brown and has been combined with Ashly Brown while Grass 2 is located under Brown and has been combined with Shell Patch.

DATING

Due to the excellent preservation of organic material charcoal was collected in large quantities from all the units. Two samples were dated: Hearth 3 (Twiggy) in square C9 at 20 cm from the surface was dated to 1390 ± 50 BP (Pta-4753); Hearth 12 (FBS) in square C9 at 91 cm from the surface was dated to 1920 ± 40 BP (Pta-4745).

PALAEOENVIRONMENTAL INDICATORS

An analysis of the micromammals from the site by Margaret Avery (Avery in press) has confirmed observations made by Tyson and Lindsay (in press) off the coast of Walvis Bay in Namibia, namely, that there is evidence for cooler, wetter conditions ca. AD 100 to AD 200 followed by a warmer, drier period from AD 250 to AD 500. The micromammals from units FBS to Brown (Phase 1), dated to ca. 1920 BP, suggest "relatively good general vegetation cover due to higher than average rainfall and/or less seasonal drought" (Avery in press). Samples from the final units of occupation, on the other hand, "suggest a reduction in rainfall with more pronounced summer aridity" (Avery in press). The deterioration of conditions with a reduction in grass from Coprolite onward may have been a prime factor in the abandonment of the site soon after 1390 BP.

CULTURAL REMAINS

Stone artefacts

Stone artefact numbers are low (Table 1), only 1 187 being recovered from 213 buckets or 2,2 cubic metres of deposit. There are only 22 formal tools in total. However lithic artefact concentrations and formal tools peak in the basal units (Phase 1) where formal tools amount to 3,2%. Thereafter formal tool numbers decrease to 1% in Phase 2 (Ashy Soil to Coprolite) and 0,9% in Phase 3 (BS2 to Surface). The decline in artefact numbers appears to occur after unit Brown, although there does not appear to be any noticeable change in technology. Formal tools include scrapers, miscellaneous retouch pieces, segments and backed pieces. Several flaked quartzite cobbles may have functioned as upper grindstones but have no apparent grinding surfaces. At least three of these cobbles are ochre stained. These implements occur in Patella and the upper units of the deposit.

Although there are small numbers of silcrete and chalcedony formal tools in Phase 1, the majority of the formal tools in Phases 2 and 3 are of quartz. Approximately 80% of all stone artefacts are of quartz (Table 2) with quartzite second in frequency, followed by chalcedony, silcrete and granite. There are several larg7e pieces of mica in Phase 3, three quartz crystals (two in Phase 1) and a fragment of specularite in BS2.

Bone artefacts

Several bone artefacts were recovered (Fig. 3). A fragment of a tortoise shell bowl and a bone point were found in Twiggy. Broken bone points were found in Patella and Shelly Brown, a linkshaft from Ashly Brown and a bone tube bead from Shelly Brown. A sawed and snapped bone tube from BS1 indicates that the manufacture of bone implements probably took place on site on occasions.

Pottery

The small sample of 141 potsherds included two rims and four decorated fragments (Table 3). Potsherd density at the site amounts to 56,4 sherds per cubic metre. Sixteen sherds were recovered from Phase 1, 39 from Phase 2 and 86 from Phase 3. Pottery is clearly present in sufficient numbers down to FBS (dated to 1920 BP) to make it unlikely that sherds may have moved down the sequence. There are three sherds decorated with incised horizontal lines and one sherd with small circular impressions (Fig. 4). All the decorated sherds occur only in Phase 3. There are no lugs or spouts and the pottery is generally fine-grained with a quartz temper. Sherds recovered from above Coprolite are generally slightly thicker than those below it (Table 3). Furthermore a large number of the sherds from Unit 1 (Phase 3) consist of only the outer slip, the interior having broken away. For this to have occurred it would appear that the pottery may not have been properly fired.

Decorative items

Ostrich eggshell beads are fairly evenly distributed throughout the sequence, with a small peak in Unit 1, Ashy Soil and Shelly Brown (Table 4). There are very few unfinished beads and they occur mainly in Brown and Shelly Patch indicating that bead manufacture did take place on site. The exterior diameters of the beads from each Phase were measured since it has been suggested that ostrich eggshell beads may have increased in size soon after 2000 BP. Recently Jacobson (1987a & b) and Yates (Hart 1989; Schrire & Deacon 1990) have speculated that external diameters, as well as internal aperture measurements (Yates pers. comm.), of ostrich eggshell beads may allow us to distinguish a herder from a hunter-gatherer site. While Jacobson (1987a & b) emphasises the importance of beads in the 7,5 mm category, Yates (Hart 1989) is of the opinion that pastoralist assemblages generally exhibit a mean of between 6-7 mm. Early ceramic assemblages have a mean of around 5,0 mm while pre-pottery assemblages tend to show a mean diameter measurement in the range 4,4 - 4,8 mm (Yates pers. comm.).

With respect to Spoeg River, the earliest phase

Table 1. Spoeg River: Lithic artefact inventory.

	SUR	UN1	TWIG	BS	COP	PAT	AS	SBRN	ASBN	BRN	SHP	FBS
VOLUME (buckets)	10	24	16	27	16	21	19	17	17	14	13	21
Chips	10	15	10	12	-	14	20	20	27	57	41	35
Chunks	9	34	12	14	4	10	15	16	8	21	13	11
Flakes	14	53	21	36	13	35	43	28	37	81	59	75
Bladelets	-	1	-	1	-	-	-	-	1	1	-	-
Cores	5	7	6	9	4	14	9	5	3	10	15	20
P.esq.	1	1	-	1	-	1	-	-	-	-	-	-
Lithic Man.	4	17	13	25	5	10	6	13	4	6	3	2
Total	44	128	62	98	26	84	93	82	80	173	131	143
Utilised Flakes	-	2	-	-	-	3	-	-	-	-	-	-
Ground Cobbles	-	2	1	1	1	3	2	-	-	-	-	-
Hammer-stones	-	1	-	-	1	1	-	-	-	-	-	-
Total	0	5	1	1	2	7	2	0	0	0	0	0
Scrapers	-	-	-	1	-	1	-	1	-	3	1	-
Segment	-	-	-	-	-	-	-	-	-	3	1	-
Backed Flake	-	-	-	-	-	-	-	-	-	-	-	1
B. Blade	-	-	-	-	-	1	-	-	-	-	-	-
MRP	-	1	1	-	-	-	-	-	1	1	3	2
Total	0	1	1	1	0	2	0	1	1	7	5	3
% Formal Tools	0	1,5	1,5	1	0	2	0	1,2	2,5	4,9	4,3	2
Grand Total	43	134	64	100	28	93	95	83	81	183	136	146

Table 2. Spoeg River: Lithic raw materials.

	SUR	UN1	TWIG	BS	COP	PAT	AS	SBRN	ASBN	BRN	SHP	FBS
Waste												
Quartz	35	103	52	81	19	75	77	69	66	150	104	124
Qzte.	7	5	1	8	1	3	4	5	3	14	3	2
Granite	-	8	3	3	2	-	3	1	2	-	1	3
Chal.	-	-	1	2	-	2	4	3	3	8	16	6
Sil.	-	1	-	1	-	2	5	3	3	3	5	7
Other	1	1	3	1	4	2	-	1	3	1	-	-
Curated	1 M	10 M	2 M	1 S/1 C							1 C	1 O
Total	44	128	62	98	26	84	93	82	80	173	131	143
Utilized												
Quartz	-	3	1	-	1	3	1	-	-	-	-	-
Qzte.	-	2#	1	1	-	1	-	-	-	-	-	-
Granite	-	-	-	-	1	1	1#	-	-	-	-	-
Sil.	-	-	-	-	-	-	-	-	-	-	-	-
Chal.	-	-	-	-	-	2	-	-	-	-	-	-
Other	-	-	-	-	-	-	-	-	-	-	-	-
Total	0	5	1	1	2	7	2	0	0	0	0	0
Formal												
Quartz	-	1	1	1	-	2	-	-	1	5	3	3
Chal.	-	-	-	-	-	-	-	1	-	2	-	-
Sil.	-	-	-	-	-	-	-	-	-	-	2	-
Total	0	1	1	1	0	2	0	1	1	7	5	3
Grand Total	44	134	64	100	28	93	95	83	81	183	136	146

Ochre stained * M=Mica, S=Specularite, C=Quartz crystal

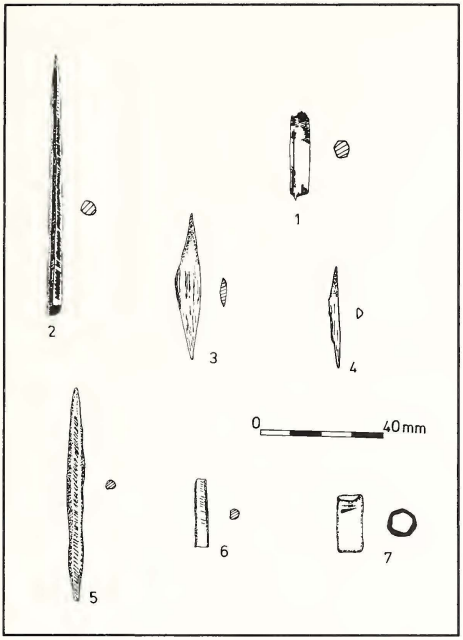

Fig. 3. Bone implements from the site. 1=BS1 Hearth e; 2=Unit 1 Bedding pit; 3=B8 Unit 1; 4=B8 Twiggy; 5=B8 Ashly Brown; 6=C9 Shelly Brown; 7=B8 Shelly Brown.

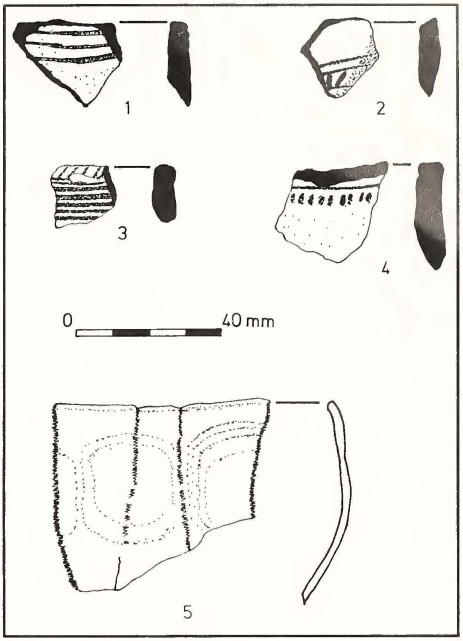

Fig. 4. Excavated pottery and a tortoise shell bowl from the site. 1=BS1; 2=Surface; 3=Hearth 2; 4=Twiggy; 5=Twiggy Lower.

of occupation has a mean diameter measurement 4,5 mm which falls within the hunter-gatherer range although both sheep and pottery are present in this unit in small numbers (Fig. 5). The second phase has a mean of 4,9 mm which borders on the hunter-gatherer/pastoralist divide, indeed it is during this phase that sheep numbers increase substantially. The final phase, dated to 1390 BP, has a mean diameter measurement of 5,8 mm. This is very close to the mean of 6,0 mm obtained from the site of Geduld in Namibia, considered by Jacobson (1987a & b) to represent an early herder site. It is still considerably less, however, than the mean of 7,0 mm on the beads from the base of Kasteelberg B (Smith *et al.* 1991).

Two beads from BS1, one from Twiggy and one from the Surface, were ochre-stained and one fragment of OES from Twiggy also contained an ochre mark. In addition to the OES beads there are also four seed beads; all occurring in Phase 3. Only one cowrie shell was recovered; it is interesting that none of the marine shells which are present along this coastline were made into pendants or strung as beads.

PLANT REMAINS

The remarkable preservation of organic material at Spoeg River makes it possible to infer the importance of plants in the diet of coastal dwellers. Unit 1 in Square B8 is composed almost entirely of thick wads of grass; in Twiggy the grass is arranged in definite bedding hollows. Further "bedding units" appear in Grass and Grass 2. Some of the bulk "bedding" samples from Twiggy contained pieces of 'matjiesgoed', (reed matting), or *Scirpus* spp. commonly used in the construction of reed mats for huts in Namaqualand. A pit filled with the outer cases of several hundred large (as yet unidentified) berries was recovered from Twiggy. The seeds of *Rhus* spp, *Euclea tomentosa* as well as a fourth as yet unidentified seed, were recovered in varying proportions from Phases 2 and 3. Furthermore a few corm casings and bases were identified but it appears that they did not form an important part of the diet of the site's inhabitants. The presence of several dried flower heads (*Mesembryanthemaceae*) support the evidence provided by the seeds, namely that the site was occupied predominantly during the spring and early summer months in Phases 2 and 3. Pieces of *Boophane disticha* from both Grass and Twiggy are interesting as this plant is not currently utilised by the inhabitants of the reserves in Namaqualand.

In addition to the plant remains the site also produced numerous fragments of cordage of varying

Table 3. Spoeg River: Pottery frequencies, sherd measurements and potsherd densities per unit.

	TOTAL	RIMS	DECORATION	THICKNESS MM	% POTTERY	SHERDS PER BUCKET
SUR	6		1	5,4 mm	4,2	0,6
UN1	43		1	5,4 mm	30,4	1,8
TWIG	19			5,3 mm	13,4	1,2
BS	18		1	5,6 mm	12,7	0,6
COP	11			5,9 mm	7,8	0,6
PAT	4			3,9 mm	2,8	0,2
AS	6			4,9 mm	4,2	0,3
SBRN	11	2		5,0 mm	7,8	0,6
ASBN	7			5,1 mm	4,9	0,4
BRN	7			4,7 mm	4,9	0,5
SHP	4			5,0 mm	2,8	0,3
FBS	5			5,4 mm	3,5	0,2

Table 4. Spoeg River: ostrich eggshell pieces and beads.

	GRAMS OES	% OES	BEADS	INCOMPLETE	BROKEN	OTHER NOTES
SUR	47,7 g	5,2	7	1	3	-
UN1	485,9 g	52,9	19	2	-	1 seed bead
TWIG	155,2 g	16,9	6	2	2	1 seed bead
BS	53,0 g	5,7	8	11	-	1 seed bead, 1 ochre bead
COP	1,1 g	0,1	1	-	-	-
PAT	62,4 g	6,7	2	-	-	-
AS	4,9 g	0,5	11	1	2	-
SBRN	8,6 g	0,9	17	-	1	-
ASBN	10,5 g	1,1	4	-	1	-
BRN	36,8 g	4,0	10	10	-	-
SHP	13,5 g	1,4	10	3	1	-
FBS	36,6 g	4,1	12	-	1	-
Total	916,2 g		107	30	11	

thickness and well as a twisted piece of leather which resembles a "riem" (thong). The cordage comprises two strands which are of plant fibre. Six pieces of cordage were recovered from Grass, one from Ashy Soil and one from Twiggy. In addition several large pieces of kelp (*Ecklonia maxima*) may well have functioned as storage containers (Wilson 1990).

FAUNAL REMAINS

The remains of various mammals, shellfish and crayfish were recovered from all the units.

Shellfish

The analysis of bulk shell samples from square D9 revealed that various species of limpet as well as the black mussel were exploited during the occupation of the site (Table 5). *Patella granularis* and *Patella granatina* dominate the upper portion of the sequence while *Choromytilus meridionalis* assumes some importance in the lower units (Fig. 6). Other limpet species do not achieve 10% of the total and it is significant that *Patella argenvillei* (which is presently very common along this stretch of the coast) was not exploited.

Limpets amount to more than 90% of shellfish composition in units BS, Patella, Ashy Soil and Shelly Brown. Mussels however, vary in frequency between 40% and 55% in the lower three units (Fig. 7). These high mussel frequencies coincide with low crayfish numbers, the latter increasing remarkably in Shelly Brown with the shift to the exploitation of limpets. It would appear that in Phase 1 the inhabitants of Spoeg River exploited mussels and limpets in almost equal quantities, but then in Shelly Brown they not only started relying almost exclusively on limpets, but they also changed from *P. granularis* (which is easier to harvest) to *P. granatina* (Fig. 8).

Crayfish

A large number of crayfish (*Jasus lalandii*) mandibles as well as carapace fragments were recovered from the excavation. The total MNI amounted to 357, and they were measured for mean carapace lengths which varied between 70 and 100 mm. Exploitation seems to have been particularly heavy in Unit 1, Twiggy and BS and then again in Patella, Ashy Soil and Shelly Brown (Fig. 9). The bigger individuals (greater than 100 mm) were recovered from the lower units. The high frequency of crayfish in the deposits of Phases 2 and 3 suggest that it then formed an important component of the diet.

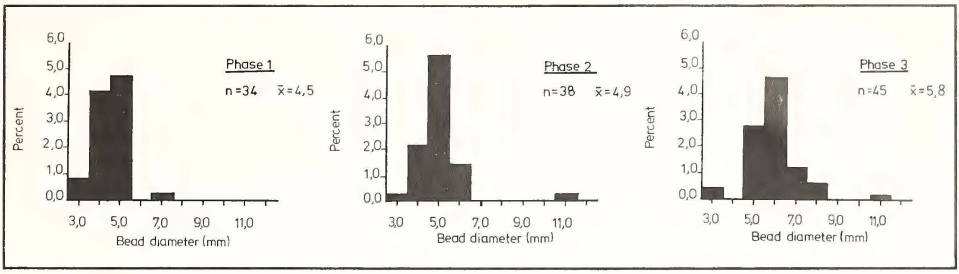

Fig. 5. The size distribution of ostrich eggshell beads in Phases 1, 2 and 3 at Spoeg River.

Mammals

The small bone sample (Table 6), analysed by Richard Klein, was dominated by the Cape Fur Seal (*Arctocephalus pusillus*). The west coast of Namaqualand is known for its large seal populations and there are references to their exploitation by the Little Namaqua during the historical period (Alexander 1838:85). According to Klein (pers. comm.) the significantly large proportion of seal carpals, tarsals, metapodials and phalanges are unlike any other sample he has seen. It is unlikely, he adds, that the abundance of these skeletal parts could be attributed to the action of carnivores (such as the brown hyaena) in returning seals to the site and feeding on them, since these are the bones one would expect them to have swallowed and destroyed.

Agents other than people (indicated by the burnt bone and cut marks) did however contribute to the faunal collection. Some of the bone, especially from the Coprolite unit, shows signs of attack by digestive juices, and this evidence, together with the thick accumulation of coprolites and twiggy material, confirms that the site functioned as a brown hyaena maternity lair sometime between 1390 BP and 1920 BP. There is virtually none of the gnawing observed on bone from Kasteelberg attributed to the action of dogs (Klein pers. comm.).

Very few tortoise bones were recovered despite the fact that tortoises are very common in the region. In addition, Klein has commented on the fact that they are unusually small with a mean distal humerus breadth of only 5,39 mm. They may in fact have been introduced to the site by crows or some other predatory bird.

Apart from Cape Fur Seal, dassie and hare appear to have contributed to the diet in equal numbers. Bovid remains include hartebeest, grey duiker, steenbok

Table 5. Spoeg River: Shellfish MNIs and percentages.

	SUR	UN1	TWIG	BS1+2	PAT	AS	SB	AB	BRN	SHP	FBS
Choromytilus meridionalis.	-	3	14	11	28	4	-	4	13	103	9
Aulacomya sp.	1	-	1	-	-	-	-	-	-	2	-
P.granularis	3	133	72	185	208	247	87	17	16	192	35
P.granatina	26	83	197	175	112	150	98	36	2	72	14
P.argenvillei	-	6	9	23	7	2	3	-	-	7	2
P.barbara	-	1	-	2	1	-	1	1	-	-	-
Whelks	-	2	1	2	-	-	-	-	-	37	22
Oxystele sp.	-	-	-	-	-	-	1	-	-	-	-
Bullia sp.	1	-	-	-	-	-	-	-	-	-	-
Mussels MNI	-	3	14	11	28	4	-	4	13	103	9
Limpets MNI	29	223	278	385	328	399	189	53	18	371	51
Total	29	226	292	396	356	403	189	57	31	474	60
% mussels	0	1,33	4,79	2,77	7,86	0,99	0	7,02	41,94	21,72	15
% limpets	100	98,67	95,21	97,20	92,13	99,01	100	92,98	58,06	78,27	85
P.granularis	3	133	72	185	208	247	87	17	16	292	35
P.granatina	26	83	197	175	112	150	98	36	2	72	14
P.argenvillei	-	6	9	23	7	2	3	-	-	7	2
P.barbara	-	1	-	2	1	0	1	-	-	-	-
Total	29	223	278	385	328	399	189	53	18	351	51
% *P.granularis*	10,34	59,64	25,90	48,05	63,41	61,90	46,03	32,08	88,89	78,70	68,63
% *P.granatina*	89,66	37,22	70,86	45,45	34,14	37,59	51,85	67,92	11,11	19,40	27,45
% *P.argenvillei*	0	2,69	3,24	5,97	2,13	0,50	1,59	0	0	1,88	3,92
% *P.barbara*	0	0,45	0	0,51	0,30	0	0,53	0	0	0	0

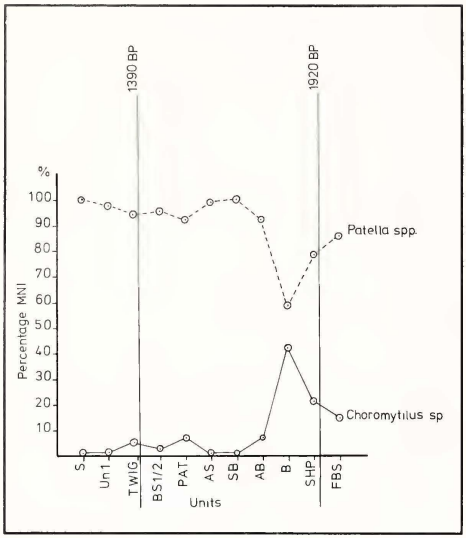

Fig. 6. The percentage mussels versus limpets at Spoeg River.

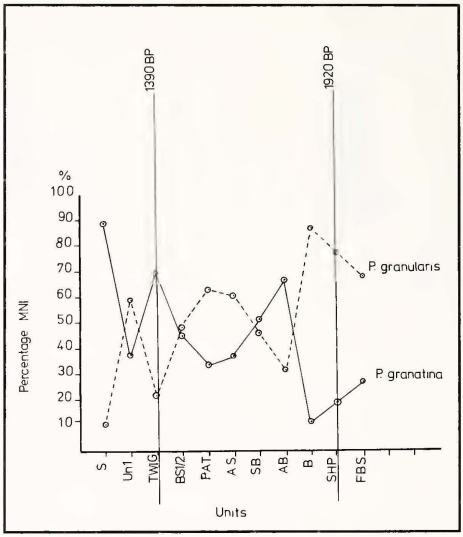

Fig. 8. The percentage of *P. granularis* versus *P. granatina*.

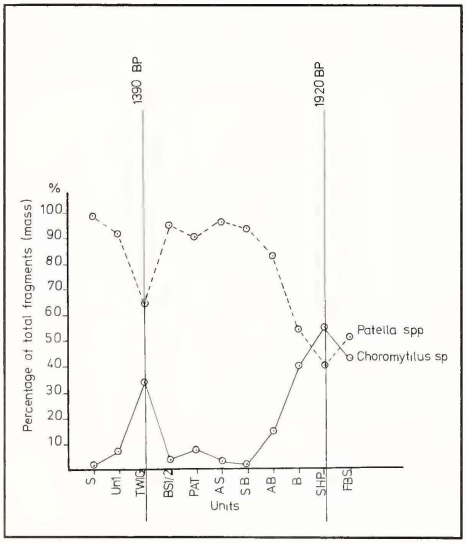

Fig. 7. The percentage mass of mussels and limpets.

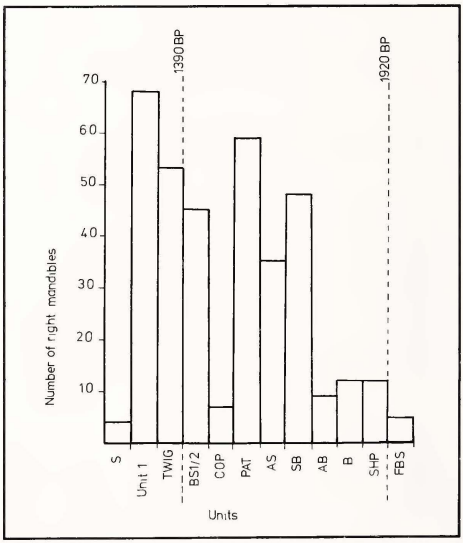

Fig. 9. Frequency of crayfish mandibles.

and grysbok but the bulk of the bovid material could not be ascribed to species because of its fragmentary nature. The largest number of small and small/medium sized bovids occurs in Patella and this peak in small herbivore numbers coincides with the increase in sheep counts.

With respect to the presence of the latter species, Klein was able positively to identify sheep from most of the units in the deposit including the basal unit. The largest number of sheep NISPs (22) occurs in Patella. MNI counts remain low throughout the deposit; however, it

Table 6. Spoeg River: Faunal list of NISPs and MNIs

	SURF	UN1	TWIG	BS1	BS2	COPR	PAT	AS	SBRN	GRA	ASBN	BRN	GRA2	SHP	SHP2	FBS
Lepus sp(p.)	2/1	5/1	3/1	5/1	2/1	29/2	17/2	10/2	17/2	6/2	0/0	0/0	1/1	0/0	0/0	1/1
Bathyergus suillus	0/0	0/0	1/1	0/0	0/0	9/2	11/2	15/2	20/2	5/1	0/0	0/0	0/0	0/0	1/1	1/1
Canis sp	0/0	0/0	0/0	2/1	1/1	8/2	2/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/1
Mellivora capensis	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Galerella pulverulenta	0/0	0/0	0/0	1/1	0/0	0/0	1/1	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Hyaena brunnea	0/0	0/0	2/1	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0
Felis libyca	0/0	2/1	1/1	0/0	0/0	0/0	2/1	5/2	1/1	0/0	0/0	0/0	0/0	0/0	0/0	3/1
Felis caracal	0/0	1/1	0/0	1/1	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Panthera leo	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Panthera pardus	0/0	0/0	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	1/1	0/0	0/0	0/0
Arctocephalus pusillus	17/2	132/3	118/2	29/2	7/1	87/3	81/3	40/1	111/5	34/2	40/2	81/2	40/1	1/1	3/1	46/2
Procavia capensis	3/1	11/3	11/2	5/2	2/1	13/3	8/2	7/2	23/4	6/2	2/2	2/1	1/1	1/1	0/0	2/1
Alcelaphus buselaphus	0/0	0/0	0/0	0/0	0/0	1/1	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Sylvicapra grimmia	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	1/1	0/0	0/0
Raphicerus campestris	0/0	1/1	0/0	0/0	1/1	0/0	2/2	0/0	2/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Raphicerus melanotis	0/0	0/0	0/0	1/1	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Raphicerus sp(p.)	0/0	9/4	3/1	3/1	5/2	5/2	35/5	6/2	19/4	0/0	0/0	0/0	0/0	1/1	0/0	1/10
Ovis aries (teeth only)	0/0	1/1	0/0	1/1	2/1	0/0	8/2	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0	0/0
Ovis aries (teeth and bones)	3/1	2/1	0/0	4/1	5/1	10/2	22/2	1/1	0/0	5/1	0/0	1/1	0/0	1/1	0/0	1/1
Bovidae indet.																
small	5/1	42/4	47/2	28/1	10/2	61/7	106/5	42/2	57/4	9/1	11/2	7/2	4/1	19/2	10/1	21/2
small-medium	4/1	2/1	0/0	7/1	5/1	14/2	29/2	2/1	6/1	0/0	0/0	2/1	0/0	3/1	0/0	3/1
large-medium	0/0	0/0	0/0	0/0	1/1	18/2	10/1	1/1	4/1	3/1	0/0	1/1	0/0	0/0	0/0	0/0
large	0/0	0/0	2/1	1/1	0/0	1/1	0/0	2/1	1/1	0/0	0/0	0/0	2/1	0/0	0/0	3/1
Chersine angulata	XX/2	XX/3	XX	XX/1	XX/1	XX/1	XX/4	XX/4	XX/12	XX/2	XX	XX/2	XX	XX/1	XX/1	XX/2

should be remembered that only 2 square metres of deposit were sampled.The majority of sheep NISP's pre-date 1390 BP and at least one individual dates to 1920 BP. This lower date is especially significant as it is clearly one of the earliest dates for positively identified sheep in South Africa.

DISCUSSION

I have divided the occupation of the site into three phases on the basis of the cultural and faunal material described above. Units FBS, Shelly Patch and Brown appear to form a phase of occupation distinct from the units above them. Stone artefacts are present in greater numbers than in the upper units, formal tools are more frequent and there are relatively more artefacts made of raw materials such as silcrete and chalcedony. Although Artefact concentrations and formal tools numbers decline gradually, there is no evidence for the replacement of one technological tradition by another. Bone tools are absent from this first phase. The greater artefact concentrations in this unit could indicate the presence of people more tied to a formal lithic technology or indicate relatively longer occupation at the site. Support for the latter suggestion comes from the number of unfinished beads recovered from the basal Phase, in particular from Brown. These early inhabitants of the site had pottery but it was not decorated. They also owned small numbers of sheep although they appear to have subsisted primarily off shellfish. They exploited equal numbers of black mussel and *P. granularis*, both of which are easy to harvest. They were not exploiting crayfish in any numbers. They also collected plant material for bedding but not plant foods, unlike in the upper units. The presence of large numbers of mussels suggests that the site was not occupied in summer when there is red tide (Grindley & Nel 1970); alternatively, equal numbers of limpets and mussels could indicate occupation more evenly spread through the year.

Phase 2 is represented by units Ashly Brown, Shelly Brown, Ashy Soil and Patella. This phase of occupation was not dated directly but spans a period of some 500 years between 1920 and 1390 BP. Ashly Brown differs from the units below it in the fairly sudden elimination of mussels from the diet and the exploitation of *P. granatina* at the expense of *P. granularis*. Crayfish numbers increase dramatically in Shelly Brown. Various mammal species increase significantly in number in Phase 2 and sheep numbers peak in Patella. A number of plant foods, such as *Euclea* spp. and *Rhus* spp., are collected for the first time in small numbers. The variety of plant and animal species utilised in Phase 2 suggests that the occupants of the site were exploiting their environment on a more extensive scale than their predecessors. With respect to the cultural component of this Phase, stone artefact numbers decrease relative to Phase 1, as do formal tools. Bone artefacts occur for the first time. Pottery increases gradually in numbers and there are few unfinished beads. Various indicators suggest that the site was occupied in late spring/early summer.

The third and final phase of occupation dates to around 1390 BP. All the indications are that the inhabitants of the site in this last phase of occupation did not differ significantly in material culture or economic activity from the previous phase. Stone artefact numbers remain low, there are very few formal tools and artefacts of silcrete and chalcedony are virtually non-existent. The presence of the specularite suggests the inhabitants of the site were now part of a larger exchange network, possibly extending to the northern Cape. Pottery numbers increase significantly and vessels are decorated for the first time. Bone implements continue in importance, and new elements such as a tortoise shell bowl and a number of seeds beads appear for the first time. The large numbers of ostrich eggshell fragments in Unit 1 coincides with a peak in both pottery numbers and beads suggesting that ostrich shells may have been valued as much for containers as for raw material in the manufacture of beads. Plant remains occur in very large numbers in these top units and seed pits occur for the first time in Twiggy. The presence of 'matjiesgoed' (*Scirpus* spp.) and cordage may indicate that people were living, at least for part of the year, in structures made of mats. The evidence from the seeds and flowers from this top unit are further confirmation that the site was occupied in spring and summer. Large numbers of crayfish were exploited and there is a brief swing to the harvesting of mussels in Twiggy on a scale almost equal to limpets. The terrestrial diet in this final phase of occupation reverts to Cape Fur Seal, dassie, steenbok and other small bovids, while sheep numbers are down considerably.

CONCLUSIONS

Evidence from other parts of Namaqualand (Webley in prep.) confirms that this region, like that of southern Namibia, was unoccupied throughout most of the early Holocene. Although sporadic earlier visits to this region are not ruled out, substantial evidence for human occupation appears only from about 2000 BP onwards. The micromammalian data (Avery in press) suggests "people moved into the area at a time when conditions were relatively benign and left again as drought conditions returned".

Spoeg River arguably contains evidence for the gradual shift from a hunter-gatherer existence to that centred on pastoralism. While sheep are present ca. 2000 BP they do not form a significant portion of the diet of the region's inhabitants. Sheep numbers gradually increase to Unit 2 after which they decrease again suggesting that increasing summer aridity and a decline in grasses may "have made it even more necessary for people with sheep to move on to a more suitable region" (Avery in press). The abundant plant food remains from the upper units of the site refute suggestions by Deacon (1976) and Parkington (1976) that shellfish gathering replaced plant food gathering at the coast. The decrease in all faunal species in Phase 3 coincides with the increasing reliance on plant foods and marine resources. One possible explanation for this is that increasing summer aridity experienced at the site ca. AD 500 meant that game had moved away and visitors to the site had become more reliant on smaller resources.

The reduction in the number of formal tools appears to have taken place gradually and post-dates the appearance of sheep and pottery at the site. Spoeg River provides a sequence which spans this crucial time period, thereby enabling us to determine whether an informal toolkit was indeed introduced by pastoralist groups or was a local development with its antecedents in the post-Wilton of 3000 BP. Coinciding with the reduction in formal tools from unit Brown, there is the first appearance of evidence of ochre staining. This is also a phenomenon of coastal sites (Webley in prep.).

The ceramic sample from Spoeg River is very small but it is interesting to note that decorated sherds only occur in Phase 3 and that the pottery in the upper units does not appear to have been as well-fired as the earlier ware. Finally the increase in the external diameter measurements of ostrich eggshell beads from Phase 1 through to Phase 3 also conforms to expectations of hunter-gatherer group turned pastoralist.

Increasing summer aridity on the coastal plains and the probable acquisition of cattle ca. 1300 BP, as suggested by Klein (1986), would have been one of the reasons for a move to areas with better grazing and more permanent standing water. More importantly, while sheep may have been the communal property of the hunter-gatherer band (Webley in prep.) and managed as such, cattle are more likely to have been owned and herded by families or individuals. The emphasis in stock management would have been placed on families who would have resided further apart. Caves and rock shelters would no longer have been suitable locations for human residence although they would have continued to function as kraals for livestock. The presence of cordage and fragments of *Scirpus* spp. reeds from the final units at the site suggest that the inhabitants were in a position to construct matjies huts which would have facilitated a move from caves into the open.

To conclude, the evidence from Spoeg River Cave, discussed above, confirms that domestic stock and pottery were introduced along the north-western Cape coast some 1900 years ago. This would support the western route of pastoralist expansion into southern Africa proposed by Deacon *et al.* (1978) and Robertshaw (1978).

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