The aim of *South African Field Archaeology* is to communicate basic data to professional archaeologists and the public. Manuscripts of original research undertaken in southern Africa will be considered for publication. These include reports of current research projects, site reports, rock art panels, rescue excavations, contract projects, reviews, notes and comments. Students are encouraged to submit short reports on projects for publication. *South African Field Archaeology* will also welcome general information on archaeological matters for publication, such as reports on workshops and conferences.

*South African Field Archaeology* will except papers in English and Afrikaans. Manuscripts submitted in Afrikaans must be accompanied by an abstract in English.

*South African Field Archaeology* is published twice a year. Closing dates for submission of manuscripts are 30 November and 30 April.

Ten reprints will be supplied free to authors, which must be shared in case of joint authorship. Additional reprints will be supplied on request at cost price.

Subscription rates are R25,00 per year for individuals subscribers and R40,00 for institutions in southern Africa. Outside: U.S. $13,00 and £6,50 for individual subscribers and U.S. $24,00 and £12,00 for institutions.

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## EDITORIAL

Significant changes in our socio-political environment during the last decade has meant that archaeology, like many other disciplines in South Africa, has had to re-evaluate its goals in order that it remain 'relevant' in the construction of a new, non-racial society. Archaeologists are all involved to some degree in this process of reflection and introspection and, inevitably, some pessimism has been expressed about the future of archaeology as it is currently practised in South Africa.

In his guest editorial in the *South African Archaeological Bulletin* of June 1988 entitled "What future has archaeology in South Africa?", Hilary Deacon specifically addressed the problems that face universities, particularly the curtailment of government funding. He concluded that the future of archaeology in South Africa would be secured through contract archaeology.

Although contract archaeology may be a stimulus for the creation of new posts for archaeologists at universities and museums, we are of the opinion that the future of our profession lies not only herein but also in public education programmes and the wider dissemination of basic archaeological research data. In this regard archaeology departments at state and provincial museums in South Africa have a very valuable contribution to make. Despite the fact that they too are under considerable economic stress, they are still fulfilling an important function with their public educational programmes. These programmes are geared toward schoolchildren of all ages and cultures. For the majority of schoolchildren their only exposure to archaeology is likely to be in a museum. Here museum archaeologists are reaching the general public at grassroots level, communicating the importance of archaeology in the construction of the past. By so doing, archaeologists are creating an audience that will be sympathetic to the cause of archaeology and that will in time advocate stronger support for the maintenance of archaeological posts and the creation of new ones. It is the opinion of the editors that public programmes serve as one of the most important investments we as archaeologists can make in securing the future of the discipline in South Africa. We can illustrate the importance of these programmes by citing some statistics gathered at the Albany Museum.

During the course of 1991 some 500 schoolchildren
black schoolchildren visiting the Department on International Museum Day alone.

Public programmes by themselves are not sufficient to convince the public of the importance of archaeology. Archaeologists also have to market their profession, and one of the means of doing this is through the publication of research findings. Aron Mazel has pointed out in a recent guest editorial in the South African Archaeological Bulletin of Desember 1991, that it is our moral obligation to make our research findings accessible to both our colleagues and the public. It is also true that our responsibility to the broader South African community is only partially addressed by the publication of basic research data in journals, the readership of which is likely to be limited to professional archaeologists and a few dedicated amateurs. Nevertheless, the editors are of the opinion that by publishing our findings we make available to historians the material which they require for the synthesis of historical events and processes which will, in time, become incorporated into school text books.

The time has come for archaeologists to realise that they cannot depend on improved legislation or the changing attitudes of government/university officials to secure the future of archaeology in this country. If archaeology wants a future in the 'new' South Africa then the communication of basic research data together with public education programmes are two important ways to reach such goals.

It is the intention of Southern African Field Archaeology (SAFA) to make a contribution in this respect. Many archaeologists in South Africa have during the course of their professional career conducted excavations at sites but, for a variety of reasons, have not published the results. We therefore invite our readers to use SAFA as a forum for the publication of their unpublished site reports. Contract archaeology, too, has generated a number of surveys and excavations but little of that data has been published to date. SAFA also provides a platform for students wishing to publish their research projects as well as additional, Honours and Masters theses. This should enable them to gain the necessary publishing experience needed when employed as professional archaeologists. There is clearly a niche for a journal which will publish this kind of data. A 11 new ventures experience growth pains and the editors foresee that this one will be no exception. One of the first obstacles we have encountered, which may jeopardize this venture, is the issue of the accreditation of scientific journals and the financial benefits which accrue to authors and some institutions from publishing in such journals. There are no financial benefits for Provincial museum staff, however, in publishing in accredited journals. Some researchers have indicated that they will not publish in non-accredited journals because there are no financial incentives to do so. They are, however, prepared to publish in SAFA once it becomes accredited. It is important to note that no new journal "will be considered for accreditation before it has had a good track record for at least three years" (pers. comm., spokesperson for the Department of Education and Culture). This creates a 'chicken-and-egg' situation. Professional archaeologists could make a contribution towards having SAFA accredited by publishing in it, then all will reap the benefits of having an archaeological journal in which to publish site reports and research findings.

The editors of SAFA will be assisted in their task by an advisory editorial board comprising some of the younger archaeologists from a range of institutions and with differing research interests. The papers published in this first issue of SAFA are indicative of the nature of articles which will be published in future issues. Although it may be argued that some of these papers are 'too theoretical' for SAFA, the editors are of the opinion that all archaeological research is conducted and reported within a theoretical framework. Future issues of SAFA could debate this and related topics, such as the nature of present site reports and whether they should not be restructured as Ian Hodder (1989) and Christopher Tilley (1989) suggested recently.

We believe that in SAFA we have created a forum for those archaeologists who are concerned about the future of archaeology in southern Africa. This forum will enable them to communicate their research findings to their colleagues and the public and we cordially invite them to assist us in making this venture a success.

REFERENCES

EARLY EVIDENCE FOR SHEEP FROM SPOEG RIVER CAVE, NAMAQUALAND*

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Grahamstown, 6140

* Accepted for publication March 1992

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 convincing 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 Seekoei (Seekooi/Seacow) Valley concludes that "herders penetrated the Seekoei 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 (Kinaan 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 Hondekloof. The site itself (30.17.40S; 17.16.20E) is situated 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 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).

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. 1. The location of Spoeg River Cave on the Namaqualand coast.](image1)

![Fig. 2. The east-facing section of squares C9 and B8.](image2)
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 large 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.

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Table 2. Spoeg River: Lithic raw materials.

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# Ochre stained * M=Mica, S=Specularite, C=Quartz crystal
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, Eucla 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 Boaphane 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.

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

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<th>BEADS</th>
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<tr>
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</tr>
<tr>
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Total 916,2 g 107

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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.
**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

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**Table 5. Spoeg River: Shellfish MNIs and percentages.**

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<td>22</td>
</tr>
<tr>
<td><em>Oystele sp.</em></td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Bullia</em> sp.</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Shellfish</th>
<th>Mussels MNI</th>
<th>Limpets MNI</th>
<th>Total</th>
<th>% mussels</th>
<th>% limpets</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>P. granularis</em></td>
<td>3</td>
<td>29</td>
<td>29</td>
<td>0.33</td>
<td>100</td>
</tr>
<tr>
<td><em>P. granatina</em></td>
<td>26</td>
<td>226</td>
<td>252</td>
<td>1.33</td>
<td>98.67</td>
</tr>
<tr>
<td><em>P. argenvillei</em></td>
<td>-</td>
<td>6</td>
<td>11</td>
<td>0.09</td>
<td>97.20</td>
</tr>
<tr>
<td><em>P. barbara</em></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>0.09</td>
<td>97.20</td>
</tr>
</tbody>
</table>

**Table 6.**

<table>
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<tr>
<th>Phases</th>
<th>n</th>
<th>Mean Bead Diameter (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phase 1</td>
<td>34</td>
<td>4.5</td>
</tr>
<tr>
<td>Phase 2</td>
<td>38</td>
<td>4.9</td>
</tr>
<tr>
<td>Phase 3</td>
<td>45</td>
<td>5.8</td>
</tr>
</tbody>
</table>

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

ACKNOWLEDGEMENTS

I should like to thank Mr B. Steenkamp, of the farm Swartfontein, who provided valuable logistical support. Thanks are also extended to Tim Hart, Ed February and Madelon Tusenius for assisting with the excavations. Tim Hart also supervised the analysis of the shellfish material and Prof Richard Klein undertook the faunal analysis. Dr Margaret Avery analysed the micromammalian fauna and Dr John Vogel provided the radiocarbon dates. Without
the help of these individuals this report would not have been possible. Finally, the financial assistance of the Institute for Research Development towards this research is hereby acknowledged. Opinions expressed in this work, or conclusions arrived at, are those of the author and are not to be attributed to the IRD.

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Tyson, P.D. & Lindsay, J.A. (in press). The Little Ice Age in southern Africa.
Webley, L.E (in prep.) The history and archaeology of pastoralist and hunter-gatherer settlement in the north-western Cape, South Africa.
Southern Africa has produced some of the oldest fossils of modern humans in the world, and there has been much interest in the physical development of these people (e.g. Rightmire 1984a, 1984b; Brauer 1984; Brauer & Rimbach 1990). Complementary to this is an interest in the behavioural development of the early moderns on the subcontinent (e.g. Binford 1984; Klein 1987; Deacon 1989).

Most of the work on the behaviour of early modern people has been focussed on their subsistence strategies. One view holds that Middle Stone Age (MSA) people were modern in their behaviour but were limited by their technological capabilities (Klein 1975, 1976, 1987; Volman 1984). They hunted antelope and collected shellfish, although they were apparently not very efficient at either. In contrast to this Binford (1984), working on the faunal remains from the Singer & Wymer (1982) excavation at Klasies River, has argued that MSA people were opportunistic hunters and had to rely heavily on scavenging for the procurement of meat. This suggested a different kind of behaviour, with little food-sharing between people. A third view is that MSA people were modern in their behaviour, were not limited by their technological capabilities, but had a different perception of their environment (Deacon 1989). Scavenging provided a source of animal protein (Brink 1987), but the early moderns also actively hunted young prime adults of medium-sized antelope (ibid). They utilised a range of resources similar to Later Stone Age (LSA) populations (Deacon 1989). MSA people had a detailed knowledge of their environment and as they could make fire at will (evidenced by the many hearths at MSA sites), possibly increased the productivity of geophyte resources through purposeful burning (Deacon 1989). It would appear that by the end of the MSA these people had a perception of their environment similar to their LSA descendents (Opperman & Heydenrych 1990).

Evidence of the social and symbolic behaviour of early modern people is enigmatic. The differences between the MSA and the LSA are noted by some researchers (e.g. Volman 1984) but more recently studies of changes in the artefact sequences seem to indicate symbolic and social behaviour analogous to that of the LSA (Deacon 1989; Kaplan 1989; Thackeray 1989). While it is accepted that stylistic changes in artefact manufacture through time may have behavioural connotations, there is not as yet consensus on what these are.

Another approach to understanding human social behaviour is through an analysis of their use of space. Concepts such as what is meant by "modern behaviour" still need to be examined (see Henderson 1990b), and this can possibly be done by comparing how MSA and LSA people created or used their living space. A comparison of this sort falls beyond the scope of this paper, but the study reported on here is a contribution in this direction.

APPROACH

Identifying patterns

The arrangement of material objects has a spatial dimension. It is also an integral part of the social world (Lane 1987:55), and in this way the material and social are linked. Through consistency in the patterning and associations of objects, one can understand the "physical configuration" (ibid), and possibly draw inferences about
social behaviour.

Material culture is created by individual actions (Hodder 1986:6), although it is usually impossible to separate these actions from one another and is often thought irrelevant to do so (Kent 1987:4, 44). However, individual actions are not isolated events. People interact with each other and for their continuing existence these interactions have to be mutually understandable and acceptable. This does not mean that behaviour is formalised and actions proscribed (ibid, Lane 1987:56), but that social actions and interactions are negotiated within the accepted norms of the society (Hodder 1986:8-9; Lane 1987:56). Although each action is individual there will be similarities in activities within a group over time. The traces produced by these activities should therefore also exhibit similarities in form, content and distribution. One might therefore expect patterning of activity traces at a certain level.

However, one cannot expect to 'read' from the material remains what exactly people did at a site. All activities have their own particular context, which will regulate the location and duration of the activity, as well as the materials used and whether the activity was completed or not. Objects can enter into archaeological context at any stage during the activity of which they were a part (Newell 1987:113), not necessarily only when they were broken or were discarded on completion of the activity. Discard practices themselves can be extremely complex. The interplay of culture, perceptions of future planning and the physical properties of refuse, as well as the meanings attached to it, influence the spatial patterns of discard (Hodder 1987; Kent 1987; Stevenson 1991).

Modification of patterns

The very nature of a site can influence patterning. An archaeological site is the result of special conditions which preserve traces of past activities. If there is a concentration of material remains at a site, then there is an immediate problem of the overprinting of patterns, unless each particular activity is carried out in a separate area. Patterns will be preserved if the spatial arrangement of activities is "congruent with previous occupations of the same space" (Brooks & Yellen 1987:68). In other words the identical activities are carried out in the same place as in previous occupations. "Spatial redundancy" however will obscure patterning, as activities will overlap (ibid). Continued occupation of a particular location heightens the possibility that secondary accumulations of debris will occur (ibid) and that a greater range of activities will take place. These factors in turn will raise the possibility of the redundant use of space. There is also a greater likelihood of spatial overprinting if the dimensions of the site are fixed, such as is the case in a cave or shelter.

Apart from the movement of people around a site which will influence the distribution of artefacts (Stevenson 1991), there are the natural factors which modify the state of preservation of the archaeological material. The chemical composition of the soil, exposure of the deposit, disturbance (such as burrowing) and the micro-environment of the site in general all influence preservation. The modified sets of artefacts and food waste are further filtered through excavation and observation processes in the present.

Context and the object

Both the excavated object and its associations are basic to any archaeological analysis. The recognition of associations depends on detailed information on the context of an object. This contextual information is essential for the recognition of patterns (Toussaint 1978). In this particular study the trace fossils of human behaviour are stone artefacts, bone fragments and shellfish remains. The immediate context of these traces is the stratigraphic unit in which they have been preserved. The units are the result of certain depositional episodes or conditions and act as the boundaries for their contents. In the field units were distinguished from each other by colour differences and/or changes in matrix. The matrix of a unit had to be internally consistent. Information for the study reported on here was collected through detailed recording of the locations of the objects as they were excavated. This was done by a system in which the position, (including orientation and dip) of each object greater than a certain size was recorded three-dimensionally. Note was also taken of other inclusions and features as well as of the nature of the unit in which the objects occurred.

KLASIES RIVER

Extensive work has been done on the MSA from Klasies River (for location see Fig. 1). The stratigraphy of the site has been well detailed (Butzer 1978; Singer & Wymer 1982; Deacon & Geleijnse 1988), and the material from the excavations has been the subject of several major studies (Klein 1976; Singer & Wymer 1982; Binford 1984; Avery 1987; Thackeray & Kelly 1988; Thackeray 1988, 1989; Deacon 1989).

Klasies River main site consists of a series of caves and rock shelters cut into the cliff which forms the southern seaward margin of the coastal platform at this

![Fig. 1. Location of the sites mentioned in the text.](image-url)
point. Each cave and rock shelter is numbered for reference (Fig. 2A). The first excavations at the Klasies River main site complex were conducted in the late 1960s by Ronald Singer and John Wymer (Singer & Wymer 1982). In 1984 H.J. Deacon initiated a new phase of excavations of which the one reported on here formed a part. These excavations were initially aimed at understanding the "effects of climatic change on the productivity and diversity in plant and animal communities and ultimately on the distribution and relative abundance of human populations" (Deacon et al. 1986:31). A later objective was to provide a firmer sequence for the dating of the hominid material from the site (Deacon & Geleijnse 1988). The Deacon excavations were mostly in the form of one metre square sampling columns, with larger areas being exposed in Cave 1.

The witness sections in Caves 1 and 1A are not suitable for large-scale excavation and permit the excavation of stratigraphic sampling squares only. Excavation of an area larger than a sampling square was, however, possible in the smaller Shelter 1B and a limited excavation measuring 2 m by 1.5 m was undertaken there. The Shelter 1B stratigraphic sampling square, (PP38) is located between the area excavation and the 1967-68 excavation (Fig. 2B).

The stratigraphic units at Klasies River

The deposits at Klasies River are made up of a series of dark, often shell-rich, horizons which are intercalated with yellow or yellowish-brown sands. The former relate to episodes of human occupation of the site, while the latter represent phases when the site was either not occupied or only sporadically so (for convenience these are referred to as non-occupation units).

The blackness of the occupation units is the result of the carbonisation of plant material (Deacon & Geleijnse 1988:12). It is known from Later Stone Age sites [such as Melkhoutboom and Highlands (Deacon 1976)], and now from Strathalan B (Opperman & Heydenrych 1990) that plant material was introduced to sites as bedding and/or as the waste from processing vegetable foods. It is only in the vicinity of a hearth that plant material has been burnt, elsewhere it has decayed and become humified. An example of this is in one of the units in Shelter 1B (see discussion below), DC PCP, where the black, carbonised portion around the hearths grades into a dark brown sand (DC BS3 of PP38). In the field the texture of the occupation horizons was often described as 'greasy' or 'oily', a reflection of the higher content of finely divided organic and clay materials in these units. In contrast the matrix of non-occupation units is sandy, with a large quantity of roof rock suggesting slow rates of sedimentation (Deacon & Geleijnse 1988:12, Fig. 11).

The occupation and non-occupation units differ markedly in their contents. The occupation units are dominated by imported worked stone in the form of flakes and the debris from flaking, while the lithic component of the non-occupation units consists mainly of roof spalls from the weathering of the cave itself. Stone artefacts and the waste from tool manufacture occur in the non-occupation units, but these are possibly chance incorporations derived from the slumping and erosion of older occupation units.

The faunal composition of the two types of units underlines their distinctiveness. Macrofaunal remains dominate in the occupation units, while the remains from non-occupational horizons are predominantly microfauna, fish and reptile bones and the result of the use of the caves by birds (Deacon & Geleijnse 1988:12) and small carnivores. There are spotted genet latrine areas in the back of Caves 1 and 2 at present. Their faeces contain microfauna and it is likely that microfaunal remains are in part due to the presence of viverrids in the caves. Cormorants are probably mostly responsible for the fish-bone accumulation. It has been noted in the present that comorants use the cliffs as a resting place, and that they regurgitate pellets of fish-bones, which fall into the excavations.

A characteristic of the occupation units at Klasies
River is that they are shell-rich. The shells are high-bulk, non-edible residue and can contribute significantly to the volume of included materials, although the quantity and state of preservation of the shells differs between the units. Shell is generally better preserved in the shell midden units than in the occupation units where the chance of compaction is greater with the decay of organic material. Mussel shells are easily compacted, especially when they have been burnt. The alkalinity of the unit also affects the preservation of shell and as with the faunal remains the state of preservation decreases away from the cave walls.

The random orientations of the stone artefacts and bone fragments indicate that the slope did not cause any major post-depositional movement within the units, which appeared to be stratigraphically distinct. Although this distinctness is not necessarily an indication that any inclusions are in primary context (Villa 1982), there are no signs of unnatural sorting of artefacts (see Matthews 1965; Stockton 1973; Sirriainen 1977). The density of materials within the units indicates that it is unlikely that each unit was the result of a single occupation episode. One of the units contained six ash features, and this points to the fact that the units represent a collection of occupation episodes within a relatively short period. There must have been a time-lapse between episodes sufficient for the traces of the previous occupation to be covered, as the ash features have been individually preserved even though they occur next to, and sometimes on top of each other. Most objects were found lying horizontally, but there were examples which had been tilted or were vertical. One flake-blade was found which had broken in half under pressure. The proximal and distal ends were tilted upwards and in cross-section the blade was lying in a V position. This could be consistent with settling and the compaction of the deposit which would have occurred with the decay and/or carbonisation of plant materials.

**DATING**

The units which were excavated for this study were near the top of the deposit in Shelter 1B (Fig. 3), about 1m above the level of a modern human mandible (no. 41815) found in the 1967/68 excavations (Singer & Wymer 1982). The units have been correlated with the Sands-Ash-Shell (SAS) member of Cave 1 (see Deacon & Geleijnse 1988 for more detail). This member has electron spin resonance (ESR) dates on tooth enamel of between 90 000 and 60 000 years (Grüen et al. 1990). This age estimate agrees well with the amino acid racemisation dates obtained on bone which bracketed the SAS member to between 90 000 and 65 000 years old (Bada & Deems 1975).

**KLASIES RIVER SHELTER 1B**

The deposit in Shelter 1B was originally much more extensive than it is today. The units in the area excavation have been truncated in the south-eastern portion of the excavation. This would be expected if water was the agent responsible for the erosion as it would follow the north-east south-west slope of the surface of the shelter. What remains is the rear portion of a mound of occupational debris.

The units

Three occupation horizons were sub-units of the DC BS1 compound unit (Fig. 4, DC is a submember in the SAS member, and BS1 is the first brown sand unit excavated). DC BS1 was a light brown sand with high frequencies of stone artefacts and bone fragments. Apart from the three occupation units, there was one small shell lens in the southern part of the excavation, and a patch of darker soil between CP2 and CP3 (CP is a carbonised parting). None of the occupation units covered the total area of the excavation. It is possible that the whole of DC BS1 resulted from a phase of occupation within a restricted time-period (of possibly several decades), and that the CP's merely indicate that during the time of their formation fires carbonised material in the vicinity of the excavated area. The CP's are the minimal observable units and could represent a particular event or several events close together in time as is indicated by the presence of one or more hearths in the excavation. DC BS1 CP2 is not discussed further in this paper as it did not contain an ash feature.

The DC PCP (partly carbonised parting) occupation unit occurred stratigraphically below a non-occupation unit, DC YSM (yellow sand marker), and was quite separate from the DC BS1. It was the most complex of the horizons in that it contained six hearths and a possible waste disposal area.

**DC BS1 CP1**

This was the uppermost of the occupation horizons of the area excavation. It was also the most limited in extent as a result of the erosion of the deposit in that part of the site (Fig. 5).

One small, oval ash feature, AF, measuring 200 mm by 100 mm, was preserved in this unit. Adjacent to the ash feature, and contemporary with it, was an elongated patch of burnt *Perna perna* shell, measuring 400 mm in length and between 50 mm and 150 mm in breadth. There were no artefacts or bone in the ash feature and only one flake-blade in the *P. perna* concentration. The two features combined are referred to as the main feature, F1. The direct association of a hearth feature with a concentration of burnt shell is repeated elsewhere in the excavation, and is observable patterning in food processing and waste disposal. To the north of F1 was another area which appeared to have higher quantities of *P. perna*. It was some 300 mm in diameter and is referred to as the second feature, F2. Several large blocks of roof rock were present in the vicinity, as were most of the plotted stone artefacts and waste in the unit. This feature was partially eroded away and it is possible that an ash feature was associated with it but had been destroyed by erosion.

Of the stone artefacts plotted in CPI, five of
these occurred in F2. There was one small piece of ochre in the unit which, although smooth, had no signs of modification or use. This was found in the western part of the excavation. The plotted bones appeared to be clustered in two main areas. The denser of these clusters formed part of F2. The other bone cluster, located in the south-western corner of square RR37, had few associated, plotted, stone artefacts.

Nine species are represented in the plotted bone sample, and they include all bovid size classes from small (SB) to small medium (SMB), to large medium (LMB) and to the large class (LB). *Raphicerus* sp. (grysbok or steenbok) and *Arctocephalus pusillus* (seal) are the species represented by the most body parts. Most of the *Raphicerus* sp. remains were located around F2 while the *A. pusillus* bones were spread over the entire excavation. The most noteworthy occurrence of seal bones was that of two ribs and a metapodial which, along with a bird bone and a canid vertebra, made up a small intermediary group between F2 and the accumulation in the south-western corner of RR37. The large bovid remains appeared to be restricted to the southern part of the excavation. Two rib fragments, one of which was slightly blackened, lay next to one another. The remains of a hippotragine antelope could be positively identified on dental remains.

Three carnivores identified in the unit were *Felis nigripes/lybica*, a canid and a large carnivore. Skeletal elements that could be identified as *Procavia capensis* (hyrax), *Lepus* sp. (hare) and *Papio ursinus* (baboon) are also present in the sample.

*P. perna* was the dominant species of shellfish...
present in the unit. Other shellfish present were Turbo sarmaticus, Patella granatina, Patella sp. Donax serra, Choromytilus sp. and Burnupena sp.

Key to identifications of plotted bone fragments from DC BS1 CP1:

1. (a) Small bovid (SB): cervical vertebra fragment.
   (b) Raphicerus melanotis (SB): cervical vertebra.
   (c) Raphicerus melanotis (SB): distal end of right humerus.
   (d) Raphicerus melanotis (SB): astragalus.
   (e) Raphicerus melanotis (SB): navicular cuboid.
   (f) SB: radius shaft fragment.
   (g) SB: proximal head of right femur (2).
   (h) Raphicerus melanotis (SB): rib fragment.

2. (a) Small-medium bovid (SMB): pelvis fragment.
   (b) SMB: transverse process of lumbar vertebra.
   (c) SMB: rib fragment.

3. (a) Large-medium bovid (LMB): thoracic vertebra fragment.
   (b) LMB: spine of thoracic vertebra.
   (c) LMB: ulna shaft fragment.
   (d) Hippotragus leucophaeus (LMB): first incisor.
   (e) Hippotragus leucophaeus (LMB): lower deciduous fourth premolar.

4. (a) Large bovid (LB): rib fragment (2).
   (b) LB: sesamoid (2).
   (c) LB: caudal vertebra fragment.

5. (a) Procavia capensis: right femur.
   (b) Procavia capensis: radius.
   (c) Procavia capensis: right maxilla.
   (d) Procavia capensis: lumbar vertebra.

6. (a) Arctocephalus pusillus: clavicular fragment.
   (b) Arctocephalus pusillus: metapodial (3).
   (c) Arctocephalus pusillus: rib (2).
   (d) Arctocephalus pusillus: metatarsal.

7. (a) Large carnivore: proximal metapodial.
   (b) Felis nigripes/libyca: distal end of left humerus.
   (c) Canid: vertebra.
   (d) Canid: thoracic vertebra.

8. (a) Lepus sp.: pelvis acetabulum.
   (b) Lepus sp.: atlas.
   (c) Papio ursinus: proximal tibia fragment.

9. (a) Reptile: vertebra.

10. (a) Bird: phalange.
    (b) Bird: bone fragment (2).
    (c) Bird: tarsometatarsus.
    (d) Bird (penguin): metapodial.

11. (a) Bovid: horncore fragment.
    (b) Bovid: thoracic vertebra spine fragment.

12. (a) Rib fragment.
    (b) Large mammal, vertebra.
    (c) Cervical vertebra fragment (2).
    (d) Vertebra fragment.
    (e) Sacrum fragment.

DC BS1 CP3

This was the lowest, thickest, and most extensive of the three occupation units within DC BS1, although it did not extend over the whole area (Fig. 6). The colour of the sandy matrix varied significantly over the unit and was darkest in the centre of the excavation. It was more brown in colour than the other partings suggesting that, in part, the original plant component was humified rather than carbonised.

There was one small ash feature in the excavated area of the unit (Fig. 7). It contained very little in the way of stone artefacts or bone fragments, but is comparable to the ash features from the DC PCP unit. None of the plotted bone was associated with the ash feature, but was rather located mostly north of the larger block of roof rock and the hollow in RR38. The plotted stone was most dense between the two blocks of roof rock in QQ37 and the hollow in RR38 slightly to the east of the main bone concentration. This is where all three cores from the unit were located within 400 mm of each other. A much less dense scatter of artefacts occurred in a semi-circle from the roof rock in RR38 around to the west of the ash feature. Between this, the hollow in RR38, and the edge of the unit was a light scatter of artefacts; a pattern which suggests a cleared working or sitting space next to the fire. The 17 artefacts which had traces of damage on the edges were randomly distributed throughout the unit.

The plotted bone from CP3 demonstrated the most interesting patterning of all the occupation units excavated. Burnt and blackened bones occur over the whole area of the unit, but those bones with evidence of battering and cut or chop marks appeared to be centered around the hollow in the middle of the excavation. There
Fig. 6. Plan of DC BS1 CP3 plotted stone artefacts.

Fig. 7. Plan of DC BS1 CP3 plotted faunal remains showing ash feature (AF1).

Key to identifications of plotted bone fragments from DC BS1 CP3:

2. (a) Small-medium bovid (SMB): distal end first phalanx.
   (b) SMB: metatarsal.
   (c) SMB: second phalanx.
   (d) SMB: rib fragment.
3. (a) Large-medium bovid (LMB): metacarpal fragment
   (b) LMB: tooth root.
   (c) LMB: rib fragment.
   (d) ?LMB: shaft fragment.
   (e) LMB: radius fragment.
   (f) LMB: proximal end of radius.
   (g) LMB: mandible fragment.
   (h) LMB: metatarsal fragment (4, 2 conjoining).
   (i) LMB: carpal.
   (j) LMB: tibia shaft fragment (4).
   (k) LMB: ulna shaft fragment.
   (l) LMB: sesamoid.
4. (a) Large bovid (LB): calcaneum (newborn/fetal individual).
   (b) LB: mandibular symphysis.
5. (a) Procavia capensis: distal end of humerus.
   (b) Arctocephalus pusillus: epiphysis fragment.
   (c) Arctocephalus pusillus: vertebral epiphysis.
   (d) Arctocephalus pusillus: clavicular fragment.
   (e) Arctocephalus pusillus: rib fragment.
   (f) Arctocephalus pusillus: shaft fragment.
6. (a) Tortoise carapace (2).
   (b) Bird: distal end of tibiotaures.
   (c) Bird bone.
11. (a) ?Bovid: shaft fragment.
12. (a) Small animal skull fragments.
   (b) Petrosum.
   (c) Proximal end of second phalanx.
   (d) Skull fragment.
   (e) Rib fragment.
   (f) Cervical vertebra fragment (juvenile).
   (g) Rib articulation.
   (h) Cryptomys hottentotus (common mole rat): maxilla.
   (i) Ilium (pelvis) fragment.
   (j) Humerus shaft.

is evidence for the processing of the lower portions of both a front and a back limb of a large-medium bovid, but unfortunately none of the fragments can be identified to species level. Two of the four metatarsal fragments, lying 400 mm from each other, are conjoinable, and the other two fragments appear to come from the same bone. One of the four tibia shaft fragments has chop marks, and the ulna fragment is blackened. Evidently the limb bones were being broken up, possibly for the extraction of marrow. It could also be that the bones were being heated to make marrow extraction easier, as has been suggested by Binford (1984:164). The large-medium bovid remains also included two fragments of a radius, as well as a sesamoid, a carpal and a metacarpal. Visually the four metatarsal fragments appear to belong to the
same bone, as do the four tibia shaft fragments. The assumption made here is that there is only one individual represented (and then only by two lower limbs). It is possible that more of this individual would have been uncovered if the excavation had been larger, but as only the lower parts of different limbs are represented butchery may have taken place elsewhere.

Apart from at least one small-medium bovid, there are two individuals from the large bovid size-class. These are represented by a fragment from a mandibular symphysis, and the calcaneum of a newborn or foetal calf. As in the other occupation units, Arctocephalus pusillus is well represented; in this instance by a third phalanx and bones from the thoracic portion of the animal.

DC PCP

This was the most extensive of the carbonised horizons investigated (Fig. 8), and was between 5 mm and 20 mm thick over most of the area excavated, reaching a maximum of about 30 mm thick in the south-western corner of RR38. It covered most of the area excavation and was dark in colour but graded into a brown sand in PP38. It was darkest in colour and therefore most distinctive in QQ38 and RR38. It is perhaps no coincidence that most of the ash features occurred along the QQ38/RR38 border. All of the features excavated fell wholly or partially into RR38 (Fig. 9), and there were several small patches of dense ash in the soil matrix of the square.

![Fig. 8. Plan of DC PCP.](image)

![Fig. 9. Location of features in DC PCP.](image)

Difficulty was experienced in tracing this unit towards the cave wall section of RR37 and QQ37 where it was more sandy. Along this side there was a dense brown sand lens, different in character to the over- and underlying non-occupational units, and containing less shell than the DC PCP. As with DC BS1 CP3 the stratigraphy is not well preserved against the wall.

The most interesting observation that relates to the DC PCP unit is the location of the features within it. Six discrete ash features occur in one area which would seem to indicate that over a limited time period fires were repeatedly made in one part of the site. The largest of the features was AF3. It lay in a hollow directly on the underlying sand unit, DC BS3, which had been carbonised in this area by the fire. The hearth appeared to be associated with what was labelled the Burnt Perna Feature (BPF) (Fig. 10). This feature was distinguishable from the rest of the unit not only by its slightly ashy appearance but also by the texture of its loose matrix of fragments of burnt P. perna shells. It extended partially over the top of AF3, but the bulk of the feature lay alongside the ash feature also in a hollow in DC BS3. To the east of AF3 and partially in the ash was another small concentration of burnt P. perna shell fragments. From the close association of shells with the hearth it could be inferred that the fire was used to cook the shellfish. Bivalve mussels are tightly closed when collected off the rocks, but open up when placed on a fire. The two associated features can be interpreted as the remains of shell debris around a hearth after the bulk of the waste shell had been discarded elsewhere. The low minimum
count of shellfish associated with a well developed hearth suggests regular waste disposal.

On top of AF3 was another hearth, AF2. The two hearths were distinguishable from each other, as the carbonised under portion or ‘underburn’ of AF2 was clearly visible lying in the top of AF3. It was a small ash feature, and consisted of a white ash underlying a grey ash. AF1, AF4 and AF6 were similar to AF2. All were thin whitish-grey ash lenses with little in the way of contents. AF5 had a more sandy matrix with a significant white ash component. AF6 was located directly under the ash feature in the DC BS1 CP3 unit. AF1, AF4 and AF6 were at about the same height and AF2 lay above AF3. The base of the hollow of the BPF was lower than that of AF3, although the two features were interlinked and were at the same level as AF5.

The plotted artefacts and bone fragments were randomly scattered over the unit although the scatter was less dense in the region of the ash features. An attempt was made to conjoin artefacts and flakes in the DC PCP unit and its features. Although the quartzite raw material is uniform in appearance, making refitting difficult, seven joins were made (Fig. 11). Of these, four were of artefacts which were broken and three were representative of stages of artefact manufacture. One of the broken artefacts was a flake-blade from the BPF. The two pieces were found lying parallel to each other, ventral side up and 20 mm apart. In two cases joins were made between an artefact in the BPF and one in the DC PCP. One of the pieces is a chunk which lay about 150 mm away from its conjoinable small flake in the DC

Fig. 10. DC PCP AF3 with BPF APF.

PCP. The other is a medial flake-blade section. The distal section was unplotted, but lay in another square at least 200 mm away. The remaining four joins were made over distances of 792 mm, 415 mm, 354 mm and 54 mm. The nine stone artefacts which showed signs of edge damage were scattered over the whole unit. Two of these were medial flake-blade sections, and one an almost-complete parallel flake-blade, with its distal end missing. The distribution of the conjoining artefacts and those with edge damage was random and it does not appear that any obvious disposal practices were linked to artefact production or utilisation.

The blackened and burnt bone fragments appear to be fairly equally divided between the eastern and western parts of the excavation. However, the majority of the identifiable parts and those bone fragments with longitudinal cracking were found in the eastern portion of the excavation (Fig. 12). The bones in the western portion of the excavation display cutmarks, fire cracking and are very broken up. This could indicate that processing had taken place in the vicinity or that this was a general dump area.

Apart from Arctocephalus pusillus, other species identified were Connochaetes gnu, Syncerus or Pelorovis, and Procavia capensis, as well as two carnivores, Felis lybica, and a hyaenid. The body parts from the various species, and from the four bovid size classes, are given in the key to Figure 12.

As in the other occupation horizons, the dominant shellfish species was Perna perna. Other species recorded were Choromytilus sp., Patella sp. and

Fig. 11. Plan of conjoining artefacts from DC PCP.
Turbo sp.. The Choromytilus sp. counts from this unit were relatively high (23 individuals). Choromytilus is a west-coast species, preferring colder water (Kilburn & Rippey 1982) and able to tolerate sandy conditions better than Perna perna. The Perna perna shell frequencies from this unit were also high and no simple ecological reason such as cooler waters or sandier conditions, can be offered for the high Choromytilus counts.

**CAVE 1B: PATTERNS IN SPACE**

It may be assumed that in a large area excavation it would be possible in spite of overprinting, to gain an understanding of the gross spatial organisation of activities at the site. Here the emphasis is on micro-scale patterning and detail in a limited area.

Unit CP1 had the least number of artefacts. It is likely that there is less overprinting in this unit than in the CP3 and PCP units. The density of the artefacts in PCP is less than that for CP3, although PCP had six ash features whereas CP3 had only one.

A focal point for discussions on spatial arrangements is "the concept of a feature, a unique palimpsest or patterning of archaeological material or modification of the occupied surface" (Johnson 1984:77). Activities are often focussed on and arranged around features, as they are immovable, and once created form part of the 'structure' of the occupied area. Simek (1984) has demonstrated that features "act as 'centres of gravity' for artefact distributions". At Klasies River 1B, the distribution of ash features in the various units will be the focus of attention, but the area excavated was not large enough to determine whether they acted as 'centres of gravity' in the shelter as a whole.

The ash features in CP1, CP3 and PCP were in the same portion of the excavation (Figs 4, 6 & 8). AF1 in CP3 was directly above AF4 in PCP. The concentration of ash features in this portion of the excavation would appear to support the idea that at the periods of occupation represented by the units, site use was similar. The arrangement of ash features 1, 2, 3, 4 and 6 in PCP is an indication that on at least five occasions there was a very definite preference for that particular location. It can be concluded that the placing of fires in that part of 1B was not altogether random, at least during some phases of occupation. The determining factors of fire placement could be either physical, such as shelter from wind or rain, or they could be social.

The fires were consistently less than or equal to 0.5 m in diameter. The dimensions of the complete hearths ranged from 0.2 m by 0.1 m (DC BS1 CP1 AF1) to 0.3 m by 0.35 m (DC PCP AF3). If the thin ash spread around DC PCP AF3 is included, the feature is at least 0.5 m by 0.45 m in diameter, and with the BPF, the compound feature is in the region of 0.8 m by 0.65 m. This is the largest excavated ash feature in this particular excavation. Even so, it is not very extensive. The sizes of the ash features suggest individual or small rather than large group hearths, and if these can be interpreted as domestic hearths, they are an indication that food
preparation was carried out on an individual or immediate family rather than group basis.

The six ash features in PCP represent different episodes of site use that were not separated by any considerable length of time. One can assume that the time interval involved was of the order of a few years rather than tens of years. Each hearth would have been used for a period of weeks or even months judging by the volume of ash preserved. This is suggested by a modern experiment conducted during the course of more recent field work when a hearth created one km away from the main site at the Cave 5 camp was excavated three years after it was abandoned. It had been used daily for a period of three weeks for all domestic tasks such as cooking and boiling water, by six people. The hearth measured 1.2 m by 0.8 m in its largest dimension and 0.3 m at its deepest. The large volume of ash which had accumulated had already become quite compact, giving some indication of the effect of post-depositional modifications, such as leaching of solubles on this type of deposit.

UNDERSTANDING PATTERNS IN CONTEXT

The Cave 1B deposit reported on here probably dates to between 80 000 and 70 000 years BP, and in an open shelter, even with the protection of a fore-dune, the deposit would have undergone considerable diageneric over time. Studies of the spatial distribution of activities are made more difficult where sites were densely occupied and where the deposits have become very compacted. Both these conditions pertain at Klasies River Shelter 1B and in consequence the overprinting or spatial redundancy of patterns is high.

Klasies River main site acted as a focus in the movement of people in the landscape. The total quantity and variety of occupation debris suggests that people used the main site (including the 1B Shelter) repeatedly as a living place. The multiple discrete horizons produced by human occupation and the separation of these horizons by those of variable thickness formed by natural processes is indicative that occupation was episodic and not extended. It is unlikely that habitation of the site was by sedentary groups as postulated by Singer & Wymer (1982:107). In contrast, however, the site was more than just a convenient shelter for brief stop-overs to cook a few mussels and eat scavenged meat (Binford 1984).

Even a single unit probably does not represent a single occupational episode. Unit DC PCP represents at least six episodes of hearth building within a certain period (perhaps a few years). The hearths are in the same part of the excavation but at varying heights in the unit and the assumption is that they were not used at the same time. Any spatial patterning that has been preserved at the site will therefore be the result of congruent use of space over that particular timespan. This could have implications as to consistency in planning depth, and notions of hygiene and comfort of the early modern humans.

The following points can be summarised from a detailed study of the units and their contents.

1. There are rich concentrations of stone artefacts and food waste in the form of bone and shell fragments in the depositional units excavated. Some of the stone artefacts and some of the bone fragments can be conjoined.

2. The units contain ash features with carbonised surrounds. In one unit there are six discrete ash features and associated with one of these features are two patches or concentrations of burnt *Perna perna* shell. This association of burnt *Perna perna* shell and an ash feature also appears to be present in at least one other unit.

From an analysis of the actual contents of the units (Henderson 1990a) the following points can be added.

1. In the artefact sample from the units excavated there are very few stone flakes which are first removals from cobbles. The cores are worked out and the standardised artefact component (see Thackeray & Kelly 1988) is made up entirely of complete, almost complete and sections of flake-blades.

2. The faunal sample is fragmentary, but impact damage and cut marks are evident on some fragments. Most of the species which have been identified in the faunal samples from the different units are represented by one or two fragments only, and species from a variety of habitats may occur within the same unit. Remains of small and/or large carnivores occur in all units excavated.

3. *Perna perna* is the dominant shellfish species represented. Variable proportions of other preferred taxa have been recorded in the samples from the different units excavated.

Certain inferences can be drawn from the foregoing.

The Klasies River Caves and Shelters were a location where people in the past lived and purposefully discarded refuse.

In one particular part of shelter 1B there was a repetition of domestic tasks which had to do with the preparation of food.

Primary stone tool knapping took place at least one metre away from the hearth area. Both humans and carnivores had had access to the bones present in the deposits in the shelter. In the 1B excavation there was no sign of the order in which this happened. Binford, however, noticed cut marks over tooth marks on some of the bones from the Singer & Wymer excavation, and this he takes to be a proof of the fact that the MSA people had been
scavenging from carnivore kills elsewhere and bringing the bones back to the caves (Binford 1984).

Shellfish were cooked on open fires. The co-occurrence of concentrations of burnt *Perna perna* shells and hearths in at least two instances suggests that (possibly for reasons of cleanliness and/or comfort) there might have been organisation of the use of space within the shelter and possibly regular disposal of food waste.

CONCLUSION

Although I think one can accept that the hearths excavated in Shelter 1B were used for the processing of shellfish and animal meat and bones, it is not possible to say much more about the organisation of space within the shelter, other than that it appears as if there was some consistency in the location of the hearth, and small shell disposal features. Spatially more extensive excavations would demonstrate whether this consistency is part of a pattern of space use. However, even with the limited work done so far one could propose that the disposal of certain bulky waste (in this case shell) did occur and was possibly a regular part of the activities of the inhabitants of Shelter 1B. The organisation within the Strathalan B Cave seems to indicate that activities to do with the preparation of food took place near the hearth. Bedding grass was located well away for the hearths (Opperman & Heydenrych 1990). This pattern appears in LSA contexts as well (see Henderson 1990b). It would be interesting to extend the excavation of 1B to see whether late Middle Stone Age/LSA patterns of space use within caves are similar to those from the earlier part of the MSA, as indicated at Klasies River.

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FINGER PAINTINGS IN THE HARTS RIVER VALLEY, NORTHERN CAPE PROVINCE, SOUTH AFRICA*

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ABSTRACT

Finger paintings from the Harts River valley, northern Cape are reported. These paintings will soon be submerged as a result of the construction of a dam near Taung. A great deal more research is required on this genre of rock art before the question of authorship is broached and more detailed interpretations offered. None the less a few interesting aspects about these paintings are briefly pointed out.

INTRODUCTION

Over the years there have been some comprehensive reports covering the rock art of the northern Cape, which forms part of the greater area known as the Thirstland. Although these accounts show a much greater concentration of engravings in this area (Van Riet Lowe’s sub-region 5, 1952), numerous painting sites also exist (Wilman 1933; Goodwin 1936; Rudner & Rudner 1968; Fock & Fock 1984, 1989). There is a great diversity in style and content of the engravings, but the paintings are strikingly similar throughout this sub-region.

The northern Cape paintings are predominantly simple geometric designs that have been painted with the finger. The designs include grids, combs, dots, circles, ladders, crosses, cross-in-circles, and sets of parallel lines. At a very few sites, the well known Wonderwerk Cave for example, animals are also painted (Rudner & Rudner 1968:81; Fock & Fock 1984). These animals also appear to have been made with a finger. They include eland, gemsbok, elephant and ostrich. Human figures are rarely painted. The predominant colours used for these paintings are varying shades of maroon and red, but black, white and ochre were also used. None of the painting sites described by Rudner and Rudner (1968) or Fock and Fock (1984, 1989) have paintings of ‘modern objects’ such as wagons or cattle.

Van Riet Lowe (1952:8-9) suggested this art was made by Bushmen and that it belonged: to the final and artistically decadent, restless phase of the Post-Bantu Period. ... The impression it gives one is that it is recent work of an artist folk driven from their mountain fastnesses into the wilderness where a precarious existence afforded little if any leisure for artistic pursuits. It is, as it were, the end of the story.

For Van Riet Lowe (1952:8) the fact that the artists were living out their last days in this area explained why there should be "less than two dozen very scattered" painting sites.

Today, however, we know the Bushmen were not driven out of the more mountainous regions, like the Drakensberg, and into the less hospitable areas of the northern Cape. The Bushmen were not moving from an area where their art flourished to an area where their artistic skills deteriorated. Because there are no ‘great’, or classical paintings in the northern Cape, we do not believe that the concentration of these finger paintings here represents an evolutionary decline of painting from the more spectacular shaded polychrome paintings of the Drakensberg to simpler, finger paintings. Further, because the finger paintings do not seem to have much in common with the engraving tradition in the area (Fock & Fock 1989:155), it also seems unlikely that the finger paintings represent a development of this tradition.

Although van Riet Lowe considered the region to be sparsely painted, the Rudners and the Focks have
added many sites to the list. In the future, painting sites will continue to be found in this region, and these discoveries will challenge earlier ideas about the distribution, density and social context of this rock art style. In this paper we report some recently discovered finger painting sites in the Harts River Valley.

SITE DESCRIPTIONS

The sites, seven in all, are soon to be submerged as a result of the construction of a dam northeast of Taung, on the Harts River (Figs 1 & 2). The sites are in a narrow part of the valley running east-west (Figure 3), at the base of rocky cliffs.

Fig. 1. Places in the northern Cape mentioned in this report.

Fig. 2. Location of the rock art painting sites. The inset shows the dam wall and the extent of maximum flooding.

Unlike this small scale rescue project, Parkington and his co-workers have demonstrated good links between paintings and deposit. Both correlate with regional changes in settlement pattern that is consequent upon the arrival of pastoralists in the south western Cape

Fig. 3. View of Harts River valley showing the location of five sites.

(see, for example, Manhire et al. 1983; Parkington 1987). Some of the sites in our study area do have occupational debris. But, in such a limited, small-scale rescue operation, we cannot assume that the occupation debris found in the shelters necessarily relates to the painting episode(s). A more extensive rescue of the archaeological material at these sites has been undertaken by the Archaeological Resource Management team, University of the Witwatersrand.

Sites 1, 2 and 3 are in a narrow tributary off the main valley. They contain only painted crosses: in site 1 there are nine red crosses (Fig. 4) and one black cross placed at intervals around the shelter wall. Their height above the floor ranges from 0.5 m to 2 m. The size of the crosses also varies from 25 mm x 16 mm to 14 mm x 12 mm. Most of them are faded, but two, done with thick paint, still appear very ‘fresh’. Sites 2 (Fig. 5) and 3 are in smaller recesses on the opposite side of the ravine from site 1. Site 2 has four red crosses, and site 3 has two. Site 3 also has areas of very faded, indistinguishable red paint.

The paintings in site 4, a shallow overhang, include riders on horseback (Figure 6), a ‘scene’ of riders on horseback apparently chasing an elephant (Figure 7), and two geometric patterns (Figure 8a). All these paintings
Site 2. Two painted red crosses can be seen.

Fig. 5. Site 2. Two painted red crosses can be seen.

Site 1 is a roofed overhang with a small opening in front of it. The black paintings are done in black. A number of black lines have been added on top of the elephant. Site 5 is a much larger overhang with stone walling in front of it. Here the black paintings are very simple and so badly preserved that it is impossible to discern what they depict.

Sites 6 and 7 are on the southern side of the Harts River. Site 6 (Figure 9) is a slight overhang, whereas site 7 is a small cave (Figure 10). The paintings in both these sites are red geometric patterns (Figure 8b, c, d, e). At
Fig. 8. Compilation of geometric patterns. A: site 4, black; B: site 6, red; C: site 7, red; D & E: site 6, red (scale in cm).

Fig. 9. Site 6, figure 8D & E being traced.

site 6 it is still possible to see the ridges in the paint that in all probability resulted from a finger smearing paint over the rock surface (Figure 11). The comb-like pattern (Figure 8b) has been placed in such a way that it comes off the edge of a right angle in the shelter wall. Site 7 has only a grid-like geometric pattern with some small finger smears near it.

Fig. 10. Blundell inspecting figure 8C.

Fig. 11. Smear of red paint showing ridges left by the movement of the finger.

DISCUSSION

The interpretative line of enquiry that has characterised rock art research over the last two decades has paid little attention to finger paintings such as these. And it is still not possible for us to offer detailed interpretations of these paintings. Even though our intention is simply to report sites that are soon to be destroyed, the paintings none the less raise four interesting points.

First, the geometric paintings from the sites are much like the schematic art found throughout Southern and Central Africa (see, for example, Philipson 1972; Willcox 1984). In particular, geometric patterns found at site 4 (Fig. 8a) are remarkably similar to paintings in the western Cape, northern Malawi and northern Zambia (Clark 1958). The significance of this similarity, however, remains uncertain.

Secondly, the exclusive occurrence of the crosses in three secluded feeder kloof shelters is perhaps not coincidental (Fig. 2; sites 1, 2 & 3). Only crosses are found in these sites, while crosses are not found in the more exposed aspects along the main Harts River cliff.
line (Figs 2, 3; sites 4, 5, 6 & 7). This implies that crosses and the specific context of their production and consumption determined a more secluded locale.

Thirdly, one of the most intriguing features at these sites is the way the painter of the geometric pattern illustrated in figure 8b has taken cognizance of the rock face. This use of right angles and facets closely resembles those found among the engravings (Dowson 1992). The way in which artists exploited natural features and interacted with the rock face has recently been discussed using paintings from the south-eastern Drakensberg and the south-western Cape (Lewis-Williams & Dowson 1990; Yates & Manhire 1991) and engravings from the southern Transvaal and northern Cape (Dowson 1992). Whether or not these interpretations are as applicable to the finger paintings or not is still to be demonstrated.

Lastly, neither the Rudner’s nor the Focks’ have reported subject matter that explicitly relates to farmers, herdsmen or white colonists. As far as we are aware, the painted horses found at site 4 (Figs 6 & 7) are the first reported finger paintings of more modern themes from the northern Cape. Although not denying these themes could only appear after European contact we move away from labelling these depictions ‘contact period’ paintings. This label creates a false category by excluding themes that do not explicitly relate to ‘contact’ (see also Dowson 1992a). The paintings of horses and the painted elephant provide a possible age bracket for the painting of these images.

Although Van Riebeeck introduced horses to the Cape when he arrived, they were few in number (Sked 1980:362). But by 1810 horses were definitely in the northern Cape, owing to the travels of early explorers and missionaries (see for example Campbell 1815). Maingard (1932:116), citing historical sources and eye-witness accounts, shows that the Koranna arrived in the Taung area after 1780, having moved from the Cape. Although there is no mention of their having horses, it is highly likely that they did.

Sked (1980:213-215) has collated early travellers’ sightings of elephant in the northern Cape. None of the references refer to the area around Taung, but these accounts none the less suggest that elephant had disappeared from Kuruman by c.1835, and from Danielskuil by c.1839 (Backhouse 1844:450), which are not far away from Taung (see Fig. 1).

While this historical information does not give an exact date for the paintings of the elephant and the horses at site 4, they do provide a fairly tight and reliable age bracket; the painting could not have been made much before 1780 or after 1840. This age bracket confirms earlier researchers’ views that these paintings belong to a very recent tradition (Clark 1958; Rudner & Rudner 1968; Fock & Fock 1984, 1989). But, as we have shown, this does not mean that they are the result of the end of a decline in artistic styles.

A further, more general comment is the question of authorship. There is no reason to assume, as van Riet Lowe did, that these paintings were made by Bushmen.

As with the interpretation, a great deal more research on them is required before suggestions can be offered. But, more specifically, it is worth considering that the crosses in sites 1, 2 and 3 were produced by people with a different world-view to those that produced the paintings at the other sites discussed in this report. These brief remarks point to some interesting questions that require attention if we are to understand the social and historical context underlying geographic and stylistic differences in southern African rock art.

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MAGICO-RELIGIOUS INTERACTIONS, DREAMS, AND RITUAL TRANSFORMATIONS: TOWARDS A BETTER UNDERSTANDING OF TRANCE EXPERIENCE AMONG THE KHOI*

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ABSTRACT

In this article possible examples of trance-related behaviour amongst Khoi pastoralists are outlined. It is argued that altered states of consciousness were not unknown in the past and interviews with Khoi descendants in Namaqualand also indicate a knowledge of trance-like states. However, it appears that trance never formed a central part of Khoi religious expression. It is suggested that Khoi in close contact with Bushman groups could have been responsible for some trance-related rock art especially as the borrowing and transformation of Bushman beliefs is known to have occurred.

INTRODUCTION

The interest in altered states of consciousness in southern African archaeological interpretation was largely initiated by the rock art research of Lewis-Williams and his colleagues during the last two decades. These studies rely predominantly on Bushman ethnography and neuropsychological research and emphasise the shamanistic significance of rock art (Lewis-Williams 1981; Lewis-Williams & Dowson 1988, 1989).

Rock art is seen in terms of symbols of potency, metaphors of trance experience, significant human and animal postures, entoptic phenomena, and hallucinations experienced by Bushman shamans. As a result the majority of rock art in southern Africa is considered to belong exclusively to Bushman hunter-gatherers whilst the depictions are regarded as a reflection of their ritual and religious ideas. However, it has also been argued that some of the rock art of southern Africa was executed by groups other than Bushmen.

Some publications (Rudner 1982; Rudner & Rudner 1959, 1970; van Rijssen 1984, 1985, 1986) have discussed the possibility that Khoikhoi or their immediate forerunners may have been responsible for certain depictions in Namibia and the western Cape. However, these ideas have generally been discarded by the majority of researchers since the Khoi are not known to have painted on rock (Willcox 1985:167). Furthermore, it has been argued that there is no evidence that these pastoralists engaged in trance performance associated with physical, mental and social healing (Wilson 1989:4) despite the fact that descriptions and syntheses relating to Khoi medicine men have been available for many years (Laidler 1928:433-447; Schapera 1930:389-395).

The absence of trance is unusual, especially as Schapera (1930:399), in his monumental work on the Khoisan, has argued that a single religious system common to both the Bushmen and Khoikhoi can be identified. Closer examination suggests that trance-like states were not unknown amongst the Khoi. This paper is an attempt to outline possible examples of trance-related behaviour and point to possible transformations thereof. Additional data was obtained by interviewing the descendants of the Nama speaking Khoikhoi in Namaqualand.

ETHNOGRAPHIC OBSERVATIONS AND TRANCE

Little is known of the social organisation and religious system of the Khoikhoi as opposed to other indigenous peoples of southern Africa. This absence of first hand information is due to the fact that most groups were
either annihilated or acculturated/assimilated before their old way of life could be studied in detail. As a result researchers have had to rely on the observations of early travellers and other inquiring individuals (see Schapera & Farrington 1933). More detailed ethnographic studies amongst descendants of Khoi groups were undertaken earlier this century, most notably by Hoernlé (Carstens 1983), and others (Vedder 1928; Engelbrecht 1936; Carstens 1966; 1985). Unfortunately at the turn of the century most groups were in the process of social change whilst Khoi researchers were few in number compared with the number interested in Bushman hunter-gatherers and Bantu-speaking agropastoralists. Research on traditional Khoi groups therefore lacks the same multi-dimensional approach evident in the studies of other southern African groups.

The absence of direct evidence for trance among Khoi pastoralists can partly be explained with reference to the aforementioned factors. It is often difficult for fieldworkers to identify trance-like states and various ethnographers may interpret the same phenomena differently. A brief literature survey regarding Nguni diviners, for instance, has indicated that the trance content of certain actions, such as the "call of the ancestors" and the diviners seance, was not always identified although ample attention is usually given to the significance of dreams (Hunter 1936; Berglund 1976; Vera Bührmann 1984a, 1984b). This is rather unexpected especially since a broad anthropological distinction can be made between the trance divination, so characteristic of Nguni agropastoralists, as opposed to divination using divining dice favoured by the remaining Bantu-speaking groups of southern Africa (Hammond-Tooke 1989:105).

However, the ethnographers dilemma can partly be ascribed to the fact that the distinction between dreams and trance visions is not always clear among traditional societies and dreams may entail trance-like elements such as "out-of-body travel" (Eliade 1972:33-66; Lewis-Williams 1987:168-170). Given this background it is important to reconsider Khoi ethnography and to identify those aspects that may relate to altered states of consciousness.

TRANCE AND THE INTENSIFICATION OF RITUAL

Ethnographic evidence suggests that aspects relating to shamanistic trance, as experienced by Bushmen, were not only incorporated into Khoi beliefs and ritual but were also significantly transformed to adapt to the relevant social milieu. This process was probably initiated two thousand years ago when Khoe-speaking hunter-gatherers adopted livestock and eventually became Khoi pastoralists (Elphick 1975:10-14; Smith 1990:58-59). Continuous interaction with hunter-gatherer groups, on the magico-religious level, could also have fostered the incorporation of shamanistic elements.

It appears that Khoikhoi society was more hierarchical and structured than the egalitarian Bushman hunter-gatherers (van Tonder 1963:126-130) which may explain why overt trance-like states have not been identified amongst the Khoi. In an extensive world-wide ethnographic survey Douglas (1970) has convincingly illustrated that trance-like states in closed societies (with well defined social categories and group boundaries) are regarded as dangerous and specialised, so that ritual simultaneously becomes more explicit with magical symbolism being acted out. In contrast trance is usually welcomed, and deliberately induced, where the society is loosely structured, (social categories undefined, group boundaries unimportant) whilst ritual is not highly developed and where it occurs it is predominantly intended for social interaction. Here the inarticulateness of the social organisation in itself gains symbolic expression in bodily disassociation and trance-like states (ibid). The emphasis on ritual to the exclusion of shamanistic trance in more structured communities, such as the Khoi, is well illustrated with reference to rainmaking; the most important communal ritual traditionally practised by these pastoralists. This ritual contains remarkable similarities to the rainmaking of the less structured southern Bushmen. These similarities are reflected in: a) the elements of capture and release of the rain producing animal; b) the killing of the animal and the utilisation of its blood and uterine fluid to make rain; c) the analogical relationship between the flowing of the blood and milk along the ground and flowing of running water caused by rain (for a more detailed comparison and discussion of Khoi and Bushman rainmaking see Solomon 1989; Prins 1992).

The most significant difference between Bushman and Khoi rainmaking is that the former is trance related (Prins 1992). Bushman shamans either experienced hallucinations relating to the capture of a mythical rain-animal or performed rituals with living animals such as eland or cattle in association with trance (Lewis-Williams 1981:108-109; Campbell 1987:80-101). In contrast there is no evidence that the Khoi rituals entailed altered states of consciousness. Some ethnographers actually observed Khoi rainmaking rituals (Hoernlé 1985:75-76) and descriptions therefore should not be interpreted metaphorically. The Khoi rituals involved the killing of a "real" animal, and none of these accounts provide evidence for a mythical, and therefore a trance related, rain- animal. That which was probably experienced as shamanistic trance amongst the southern Bushmen became acted out in "reality" as a living ritual amongst the Khoi, thus neatly illustrating that in more highly structured communities ritual is emphasised to the exclusion of overt trance-like states. The implication is that aspects relating to shamanism were incorporated and restructured into the belief systems of Khoi pastoralists and that the trance elements not only became muted but also highly ritualised (ibid).

INTERACTION AND TRANSMISSION OF IDEAS

It has recently been argued that the Khoi pastoralist mode of production was exclusive to the extent that competition with Bushmen was removed by restricting and denying
these hunter-gatherers access to the means of production (domestic stock). Bushmen were thus kept on the fringes of pastoralist society in a subservient status (Smith et al. 1991:90). There are numerous examples in African ethnography which show that the ruling groups afforded ritual status to the original occupants of an area; the latter is usually politically subservient (Stayt 1931:11; Harinck 1969:153; Felgate 1982:13; Turnbull 1984a:157, 1984b:167). Ethnographic reading suggests that this may also have applied to Khoi perceptions of Bushmen even though they were regarded by many Khoi as belonging to a lower "class". Examples of the transmission and incorporation of magico-religious ideas, usually from Bushmen to Khoi, abound in the literature (see Dornan 1923:507; Schapera 1930:395-399; Engelbrecht 1936:73-74; Wright 1971:9; du Pisani 1976:165; Schmidt 1979; Prins 1990:112) and suggest that such interactions were frequent during the historical period if not earlier. Two accounts in particular, relating to contact with Bushmen, can be singled out in the identification of trance involvement among Khoi pastoralists.

The well known traveller R.J. Gordon witnessed a Khoi medicine man treating a patient in the late 1700’s. His version is given below.

...saw an old Hottentot witchdoctor (though he did not want to admit it) making goideni. Sometimes he strikes the big Hottentots, and they dare not defend themselves. Everything he asked of the others they did not dare to refuse. In the evening I saw him healing and doctoring, and practising magic on a youth after their fashion. He made the youth come naked into his hut in the twilight. I had a candle lit in order to see better whereupon we went to sit beside the youth who had a pain in his foot. He rubbed his thigh and his leg, and holding his foot against his head and heart and did this a few times, after which he sneezed three or four times in succession and, opening his hand, displayed some beetles which he said he had taken from the leg. First, he rubbed some sheep fat on his leg, and rubbed himself with the rest. After that he fetched some thorn tree or Mimosa roots, bound together, which were hollow and in which were little stones rattling, and began his magic song always sitting, but with many contortions of the body, beating on the ground with bushes, often swinging furiously and shaking his head, while his wife accompanied him, clapping her hands. We could not understand him, not even Iteki (Gordon’s Khoi guide), who said that it was the language of Bushman magicians. When he stopped, wet with perspiration, I asked him several questions, but all I could get out of him was that Tuiqua (God) had taught him in a dream. They are said to have jackal and other animals in their service who take messages for them to other magicians." (Raper & Boucher 1988:203).

Again the influence of Bushmen is clearly implied. Some elements in this account, such as the vigorous dancing, contortions of the body, profound sweating, and uttering the words of an unknown language, are reminiscent of trance inducement and experience although it is not conclusive evidence. Of particular significance is the healers statement that God had instructed him in a dream, the implication of which is discussed below. It has also been indicated that Bushman "doctors" were in great demand by the Korana (a Khoi group living on the Central Orange River) who became familiar with the curing dance and the healing practice called "snoring" whilst many of their "witchdoctors" are supposed to have been taught by the Bushmen (Engelbrecht 1936:73-74). Indeed Korana informants described a possible Bushman trance dance to Engelbrecht;

He also practised some form of exorcism by dancing with camel-thorn pods, etc., tied to his ankles, clapping his hands and chanting the syllables ho ho ho in monotone (ibid).

In this way the Korana could have become familiar with trance associated with shamanism as was experienced by Bushmen (e.g. where the trance experience is active in that the spirit of the shaman temporary leaves the body to fight those powers causing sickness and death).

Some Khoi, particularly those in the eastern Cape, could also have been familiar with mediumistic trance (e.g. where the trance experience is passive in that the diviner only acts as a medium for the ancestral spirits) as a result of intimate contact and assimilation with Xhosa agropastoralists who expanded into Khoi territory (see Harinck 1969). Again there are numerous examples of interaction in the magico-religious sphere between these two groups (Bleck 1857:199-296; Lichtenstein 1928:316-317; Maingard 1934:132-134; Harinck 1969:153). In contrast to the transmission and restructuring of religious ideas from the Bushmen to the Khoi, there was also an influx of religious concepts from the Khoi to the Xhosa (Hodgson 1982:17-40, 62-74). In other instances Khoi individuals became religious functionaries for the Xhosa, thus adopting Nguni methods and practise. Historical and linguistic evidence, for instance, indicates that the Xhosa employed Khoi individuals extensively as diviners in the recent past (Harinck 1969:153; Hodgson 1982:8). In traditional Nguni society the profession of diviner was open to anyone who had experienced the "call of the ancestors" and this included psychological events such as hallucinations, stereotyped dreams (Lee 1969:140) and periods of unconsciousness (Hammond-Tooke 1989:105). As part of the training programme the apprentice had to learn the special xhentsa dance of the divining seance, and how to enter trance so that the ancestors could communicate through him (Hammond-Tooke 1989:107). These factors relating to Nguni divinship strongly suggest that mediumistic trance was not unknown amongst Khoi who had been in
contact with the Xhosa.

MODERN-DAY "BOSSIESDOKTERS" AND TRANCE

The results of colonial domination, missionary endeavour, and intermarriage with other groups has led to significant socio-economic changes amongst Khoi descendants. Yet in spite of this it is possible to identify aspects of a remnant cultural tradition which suggests a tenuous continuity with the past. This cultural tradition entails the survival of some of the original language (although Afrikaans is the most common medium today) and some ritual, much of which is still embodied in myth, legend, and belief (Carstens 1966:93; Waldman 1989:19-50). Although missionary endeavour altered beliefs in supernatural systems, many aspects relating to traditional Khoi cosmology can still be identified. For instance only some cosmological change took place concerning beliefs in a supreme being. Traditionally Tsiu//Goob the creator and powerful High God of the Khoi was regarded as omnipresent and although he died he also awoke from death several times; (See Hahn (1971) for other important supernatural figures). It was believed that Tsiu//Goob sent rain and caused the crops to grow and prayers were directed to him to this effect. These similarities between Tsiu//Goob and the God of Christian theology is remarkable, especially as such beliefs were independently derived (Carstens 1975:80).

The most significant difference between Tsiu//Goob and the God of Christian teaching is that the latter is seen as omnipotent (Carstens 1975:93). The rapid adoption of Christian teaching by the Khoi can be explained by the fact that traditional beliefs were in many instances compatible with missionary teachings. The result is that a blend of the old and the new can be identified in the belief systems of Khoi descendants as observed in Namaqualand, the Northern Cape, and adjacent areas (Carstens 1975; Waldman 1989). Systems of action relating to these beliefs, such as techniques of divination, are still found in some areas inhabited by Khoi descendants. These diviners are locally known as "bossiesdokters" in Namaqualand and Richtersveld although the original Nama word iga aob has also been retained by some. Informants stated that "bossiesdokters" of today are mere amateurs in the art of divination but the general feeling was that these people are representative of Khoi medicine men of olden times. Whilst all the Nama descendants interviewed by the authors had knowledge of "bossiesdokters" of Khoi descent their whereabouts are less well known. Nevertheless informants, including those in the Richtersveld, generally pointed to Paulshoek (situated in the Leifiefontein Reserve, in central Namaqualand) as being the "bossiesdokters" area of habitation. Informants were uncertain as to why most "bossiesdokters" live in Paulshoek but it has been observed that a large quantity of plant medicines occur in the Kamiesberge mountain range adjacent to Paulshoek which may explain their tendency to accumulate in this defined area. The inhabitants of Paulshoek had knowledge of four "bossiesdokters" and only two were present at the time of the visit by the authors.

Perhaps the most famous "bossiesdokter" known to have lived in the reserve was Wilhelm Bahrends, who died a few years ago, and it is significant that the methods used by him were also mentioned by Laidler in the 1920's (1928:434). Wilhelm Bahrends passed on some of his knowledge to his sister's son, referred to here as G, who became a "bossiesdokter" in the 1970's. G told the authors that he used to accompany his uncle whilst he was collecting plant medicine in the veld. However, God had given him the talent to heal by showing him in his dreams which plant medicines to use. He said, however, that it was important to collect certain medicine on particular days of the month, especially at the approach of full moon (see also Laidler 1928:434).

He reported utilising his talent to heal common illnesses (i.e. flu, etc.) as well as people who have been bewitched. These people are usually plagued by /has, a mythical species of spring hare with large red ears and superhuman powers, and the tokoloshe, a small hairy humanoid, almost certainly introduced from Bantu-speaking people (Schmidt 1984:38-39). G can usually identify the witch or sorcerer in his "minds-eye" but he never tells the bewitched person who the guilty party is in order to avoid conflict (this is in stark contrast with witchcraft amongst Bantu-speaking peoples where the identified witch/sorcerer is expelled or removed from the community [Hammond-Tooke 1989:73-90]). It was also said that one of the side effects of being in the company of evil-minded persons is that he himself feels physically ill afterwards. The "psychic" insight given to G, however, varies over time and place. Mostly he sees images in his dreams but it may also occur while walking in the veld. G said that it was important for him to isolate himself from other people in order to get insight from God. Occasions such as walking in the mountain to find plant medicine was mentioned as being particularly helpful. Sometimes he would see a patient in his "minds-eye" long before he arrived for consultation. G insisted that it is unnecessary for him to use divining bones as he is "psychically" talented and his faculties were improving all the time. His uncle, Wilhelm Bahrends, initially used divining bones but also abandoned them altogether because he only needed his "minds-eye". Unfortunately Wilhelm Bahrends later lost his mind and G expressed the fear that the same would eventually happen to him as a result of developing his "psychic" faculties. In his dreams he could travel in the sky to far away places. G particularly remembered looking down at cattle and horses while on these travels; he also emphasised the particular brightness of colours. As was previously indicated such "out-of-body experiences" is characteristic of trance and may indicate that G is familiar with such mental states.

J, a second "bossiesdokter" interviewed, also insisted on the importance of dreams in showing him the way to become a "bossiesdokter". These dreams, sent to him by God, improved over a period of time until he
eventually became a practising healer seven years ago. In accordance with G he helped people with normal illnesses as well as those who were bewitched. He could also "see" those responsible for witchcraft but would not tell the affected person. The location and means of preparation of plant medicines is shown to him in his dreams. However, unlike G, he does not remember visiting far away places in his dreams. Significant is the fact that J belongs to the "Traditional Healers Association of Southern Africa". He regularly meets with Bantu-speaking healers whilst Bantu-speaking and even European patients regularly visit both him and G.

A notable example of such recent interaction between Khoi descendants and other groups is provided in reports of individual Bushmen who were seen hiring their services as "medicine men" in Namaqualand and the western Cape in the first half of the present century. Informants were vague as to the background of these seemingly detached Bushmen and could not indicate any relationship between them. However, it was reported that they came from southern Namibia and would attach themselves to the local Nama descendants for long periods at a time. One of these individuals, locally known as Saul Namib, lived in a shallow rock shelter outside Steinkopf in the 1940's. He periodically visited the local matjieshut homesteads of the area to "throw his bones" for those interested and would charge 10 shillings for this service. His divining set comprised mostly yellow pips, needles and shells which he kept in a small, leather bag. Saul Namib was mostly consulted to find lost livestock and valuable minerals, but he could also identify those people who had bewitched others. Informants were uncertain as to whether he experienced trance-like states. However, convincing evidence for trance induction among such Bushmen in contact with Khoi descendants has been provided in an eyewitness account (Laubscher 1945:9-11). The validity of this account has been independently verified by a subsequent visit to the area by one of the authors in 1988. According to Laubscher (ibid) a Bushman used to visit farms in the southwestern Cape near Vredendal in the 1930's and 1940's. The account mentions him "throwing bones" for an old woman farm labourer in order to treat her illness. Later on the same evening he was offered a bottle of wine and tobacco, both of which he immediately consumed, in order to "read" the fingerbones of a skeleton which was unearthed a few days before. Half intoxicated and with smoke clouds puffing through his nostrils he gave an account of a vision which he was experiencing. This Bushman stated that, in his dreams, he could visit far away places where he would meet and talk to other people including spirits of the dead (ibid). As was the case with G it would seem that he was experiencing "out-of-body travel", thus also indicating a trance-like state.

Apart from possible experiences by "bossiesdokters" and other "medicine men" in contact with Khoi descendants a second type of trance has also been pointed out by Nama informants. Accordingly some people sometimes involuntarily experience hallucinations and periods of unconsciousness. This experience is similar to epileptic fits although informants insisted that it represents a different state of mind. Descriptions of this state showed some similarities to the *thwasa* experience of novice Nguni diviners (Hammond-Tooke 1989:105-108) but it has different implications in Namaqualand. The affected person, unlike the southern Nguni, is not regarded with special religious and ritual status. In contrast these trance-like occurrences are usually ascribed to witchcraft directed against the affected person and is seen as evil. This affliction is treated by sprinkling water on the patient for short periods of time. It is believed that sustained periods of sprinkling would result in permanent loss of consciousness.

**CONCLUDING DISCUSSION**

The evidence presented suggests that trance-like states are not unknown amongst Khoi pastoralists or their descendants. However, it appears that altered states of consciousness never formed a central part of Khoi religious experience as was the case with Bushman hunter-gatherers (Lewis-Williams 1981:78-101) and southern Nguni agropastoralists (Hammond-Tooke 1989:105-144) with whom they were in contact in the historical period. Both these groups had religious functionaries (shamans and diviners) who regularly entered trance in order to utilise supernatural power for the wellbeing of their societies. The fact that the Khoi never had a central religious ceremony connected with altered states of consciousness, such as the ceremonial trance dance amongst the Bushmen, is clearly illustrated with reference to their language. Nama informants told the authors that the Nama expression *Kai//hawos! nū sā hā* refers to trance-like states (also referred to as "beswyming" in Afrikaans). This paraphrase literally means, resting in a big dream (Haack pers. comm.), thus indicating a link between trance and dreams. Indeed this emphasis on dreaming amongst traditional Khoi "medicine men" and modern day "bossiesdokters" is particularly significant. Lewis-Williams (1987:168-170) has pointed to the close relationship between dreams and shamanistic visions as experienced by Bushman shamans, referred to as trance-dreaming. Such relationships seems to characterise other societies as well (Eliade 1972: 33-66). The spirits of Bushman shamans could visit God in a trance-like state or in dreams (Bieseke 1978:163-168) whilst contact between God, other supernatural beings, and "medicine men", amongst the Khoi, occurred in dreams as well (see also Schapera 1930:357-395; Smith & Pheiffer in press). Certain elements in the dreams of "bossiesdokters" seem to suggest trance-like states, notably the "out-of-body travel" and bright colours which G saw while dreaming (vide Eliade 1972). Trance-dreaming amongst "bossiesdokters" is probably a survival of traditional Khoi beliefs and practise as is suggested with reference to the account given to Gordon in the late 1700's (Raper & Boucher 1988:203) and the
general importance attached to dreams by Khoi "medicine men" (Schapera 1930:393). A link can therefore be postulated between dreams and trance amongst the Khoi, although this relationship is not as well defined as has been suggested for the Bushmen (Lewis-Williams 1987:168).

Thus although Khoi "medicine men" were the diviners of the community with their principal function being to cure people who had been bewitched, their treatment was mostly restricted to the application of herbal medicines. Great faith was also placed in divining bones and omens (Schapera 1930:389-395) and their only link with trance was restricted to dreams, some of which had trance-like attributes. In other instances aspects relating to former shamanistic practices among the Khoi, such as rainmaking, became highly ritualised whilst trance itself disappeared. However, more direct involvement of Khoi individuals in overt trance experience certainly took place where interaction with other groups occurred. Indeed ethnographic evidence argues for intensive contact between Khoi and other groups, such as the Xhosa and Bushmen, in the magico-religious sphere. Given the aforementioned it is thus hypothetically possible that the Khoi could have produced shamanistic rock art. It has been suggested, for instance, that the younger geometric engravings at Driekopseland, in the northern Cape, could have been made by Korana or Korana/Bush people (Fock 1969; Willcox 1985). Such engravings could also have been an expression of ritual and religion especially as Bushman beliefs were incorporated and transformed into those of the Khoi (see Schapera 1930:395-399) and in particular with those of the Korana (Engelbrecht 1936:73-74). However, these and other examples of rock art possibly executed by Khoi artists should be thoroughly researched, evaluated, and placed within the appropriate historical and ethnographic context before any final conclusions can be made.

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ARCHAEO-HISTORICAL INVESTIGATIONS OF THE WAGON-MAKING SITE AT THE LOVEDALE MISSION STATION, EASTERN CAPE PROVINCE*

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ABSTRACT

The wagon-making site at the Lovedale Mission Station is extensive and was the scene of intensive activity over a period of 50 years (1880-1930). Features and objects of historical archaeological interest may still be traced. The surface distribution of these artefacts, as well as evidence from written and oral sources, reveal a patterning of activity areas in the wagon-making, carpentry and blacksmithing departments.

INTRODUCTION

Lovedale was established in 1841 on the banks of the Tyumie River approximately 60 km north-west of King Williams Town (Fig. 1). The site is surrounded by low hills overlooking a flat valley. The vegetation of the area is recorded as being Valley Bushveld and False Thornveld (Acocks 1975:50, 53). Some 40 years ago the University of Fort Hare botany students identified 86 different plant species on Sandile's Kop, close to Lovedale, which suggests that the present degraded vegetation is a recent phenomenon.

Lovedale seminary was established as a missionary institution by the United Free Church of Scotland with the express aim of 'uplifting' African social, economic and religious life.

Sir George Grey, Governor of the Cape, was concerned however, that the education provided at the missions was 'too bookish', and therefore encouraged them to introduce industrial training. In his opinion lasting peace would only come to the Eastern Cape Frontier if the various tribes were industrialized (Wells 1905:30). Instruction in carpentry, wagon-making, smithery and building therefore commenced at Lovedale in 1856 (Oosthuizen 1970:39). According to Peires (1989:59), only Lovedale was able to "survive the withdrawal of the British government subsidy in the 1860s", indicating the success of this industrial school.

This paper is specifically concerned with wagon-making since the Cape transport wagon, which was manufactured at Lovedale, played an important role in exploration and transport at that time (Stewart 1894:79).

AIMS

It is suggested that Lovedale could provide material regarding the response of a tribal society to colonial control. The archaeological record of the site's occupation could be used as a control against which to evaluate the historical accounts relating to wagon-making, carpentry and smithery. The initial aim of the research was to determine the spatial relationships and patterning of activity areas at the wagon-making site as reflected in documentary and oral sources. Thereafter, since wagon-making can be described as an aspect of the interaction in the technical education field between the indigenous people and the Scottish Missionaries at Lovedale, it was determined to elucidate the function and role of the site in the broader context of the acculturation process.
METHODOLOGY

Research combined data collected by means of archaeological techniques as well as written and oral sources. Documentary research was undertaken in the Africana section of the University of Fort Hare where volumes of the Lovedale Mission Reports are kept. A number of elderly men, who had studied at Lovedale when wagon-making was still taught, were traced and their reminiscences recorded. Finally, an archaeological investigation of the wagon-making building and the surrounding area was undertaken. This included a surface collection of artefacts which were removed for further analysis.

SITE DESCRIPTION AND INTERPRETATION

According to the early reports, wagon-making was initially taught in another building some 40 m from the present site (Stewart 1894:79). The present site consists of two components, namely a building used for wagon-making and carpentry and an open area to the east where other activities, including smithery, took place. The building referred to was erected in 1884 and is located on the eastern boundary of the Institution’s premises (Fig. 1). The building is of a rectangular shape and is some 46 m long. A later addition (1893) against the western gable has resulted in its present L-shape (Fig. 2). The foundation consists of cut stone, while the walls are a combination of corrugated iron and brick sections. The roof, of corrugated iron, is supported by rafters resting on roughly cut yellowwood poles. On one of these poles the name "John Lediga" has been stencilled five times (Fig. 3). John Lediga was a carpentry apprentice who was enrolled at Lovedale in 1927 (Lovedale Missionary Institution 1928:23). A contemporary photograph indicates a number of poles running down the centre of the building, but the majority of these have since been removed (Fig. 4). The building has five doors and 24 windows.

A partition (25 m long and 5 m wide) in the north-western corner of the building served as an instruction room for apprentices (Fig. 5). This is confirmed by the blackboard along the southern wall as well as indications that blackboards also hung on the northern and eastern walls. Two doors connecting the teaching area with the main work area have been closed with brick. The purpose of a rectangular hole some 0,8 m deep, in the centre of the concrete floor, is unknown. There is a basin in the north-western corner of this room.

According to contemporary photographs the eastern section of the main hall was used for wagon-making while carpentry was practised in the western section. The construction of the floor indicates that the materials selected were dictated by the activities which took place. The floor in the western portion of the hall (some 5 m by 7 m in size) consists of upright tree trunks, square wooden blocks and planks (Fig. 6) which form a sturdy base intended to support heavy material (Mr Peter, a truck driver in the department in 1928, pers. comm.). A large hole in the middle of this floor (1,7 m x 0,5 m) contained quantities of wood shavings, nails and screws confirming the function of this area. It appears to have been separated from the rest of the hall by wire netting, remnants of which are still suspended from the rafters overhead. A plank floor indicates the carpenters work

Fig. 2. The present building on the wagonmaking site with the 1893 extention visible.

Fig. 3. Stencilled name of John Lediga.

Fig. 4. Contemporary photograph showing the interior of the building with the carpentry apprentices at work.
Fig. 5. Floor plan of the wagon-making site with the 1893 extension indicated on the right.

Fig. 6. Heavy duty floor.

area. Four floor boards were removed and woodshavings, nails and screws were recovered.

The remaining section of the floor consists of concrete. It contains five rectangular work areas in which wooden tiles were laid (Fig. 7). These areas formed the bases for the work benches involved with wagon-making (Mr Peters, pers. comm.). The remnants of the walls and door of a partition which served as a storeroom and later as an office are still visible in the south-eastern corner of the main hall. The gable of the eastern wall (before extensions took place), still contains the frames and hinges of a large door (some 3 m wide and 2.9 m high), which must have served as the main entrance for wagons brought into the hall. This door has since been reduced in size to that of the five other doors.

The 1893 extension consists of two rooms added to the eastern end of the building. The larger room was used for storing finished goods while the smaller functioned as an office (Mr Peter, pers. comm.).

Area surrounding the building

The remains of a road (4 m wide) are visible to the immediate south and east of the building. It was used by the wagons entering and leaving the workshop area. To the east of the building are two large wood-presses which were previously mounted on a block of concrete and cut stone (Fig. 8). An area of 18 m by 12 m was cleared around the presses after which a grid of 3 m x 3 m squares was constructed. The clearing of the dense surface grass revealed a number of features associated with the wagon-making, smithery and carpentry activities. A large quantity of iron artefacts were found amongst these features (Fig. 9). The following features are noteworthy.

Stone Circle

This is a circular construction of cut stone some 2 m in diameter with a hole (40 mm in diameter and 350
mm deep) in the centre (Fig. 10). Diagonally at the base of this hole lies a 100 mm thick iron bar with hinges attached. This circular stone was used for fitting iron bars around wagon wheels. A heated iron band was fixed around the wooden wheel lying on the circular stone. Water was then poured over it causing the band to contract sufficiently to become solidly fixed to the wooden wheel (Mr Makalima pers. comm.). A large quantity of iron artefacts were recovered from the central hole in the stone.

The remains of a furnace was recovered approximately 2 m from the stone circle. This is the place where the heating of the bands was undertaken. It consists of a rectangular hole (1.5 m x 0.5 m and 0.5 m deep) built of bricks and plastered. After clearing the fill, which consisted of soil and stones, a chimney pipe, a large iron pipe and broken iron rods, screws, bolts and nails were recovered. Large quantities of ashy soil were found at the base of the pit.

Remains of a Wooden Shed.

According to documentary sources, an open shed used for carpentry before 1886, had been situated to the east of the main building (Lovedale Missionary Institution 1885:20). The broken stumps of the poles supporting the roof and walls of the shed are clearly visible as well as part of a brick floor. Amongst the iron artefacts found from this area are several broken saw blades and two wood-presses.

Concrete Slabs and Foundations

Several concrete slabs and foundations were uncovered. Their purpose is uncertain at this stage but could be revealed by an excavation of the site. Two holes lined with cement occur in the vicinity of the shed area. Both have a diameter of 0.2 m and are 0.4 m deep. Hole No. 2 contained a 5 litre paint tin full of iron artefacts including chisels, a pair of pliers, nuts, bolts, screws and nails. Indications are that this represents a deliberate concealment of tools. When wagon-making and other trades ceased at Lovedale in 1930, students agitating against the decision hid numerous pieces of working apparatus (Mr Jantjies, a building apprentice from 1925-1929, pers. comm.). Hole No. 3 is a disturbance in the ground on the northern side of the cleared area. A large quantity of iron objects were recovered and more are visible in the profile of the hole. This was possibly a discard area.

ANALYSIS OF ARTEFACTS

A total of 613 iron artefacts, numerous pieces of bone (as yet unidentified) and fragments of wood were recovered from the surface collection. The positions of all these artefacts were plotted on the grid. They were then taken
to the University of Fort Hare for analysis but will be returned to Lovedale at the completion of the research. An inventory of all the iron artefacts was drawn up indicating provenance, description of item, function and whether it originated from the wagon-making, smithery or carpentry departments.

Artefacts which were used in wagon-making (63 in all) were identified by Mr Duzi from the Peddie district. They included bolts and flat pieces of iron used for brakes, wagon boxes or body supports (L-shaped), hooks for suspending equipment underneath the wagon and three iron rings that are used to join oxen chains. A part of a brake drum and the rim of a cart wheel were also found. A number of artefacts associated with carpentry, apart from wood shavings and rotten planks, were also recovered. Of the total of 613 iron artefacts found, at least 498 could be linked to the three departments. Forty-eight artefacts associated with smithery were recovered including chisels, bits, a pair of pliers and farm implements. Also associated with smithery were iron tractor parts and their presence points to a later stage when the site functioned as a mechanical workshop.

In addition to the above, numerous nails, bolts and screws littered the cleared area of the three departments. The condition of the iron artefacts varied from good to badly rusted. The artefacts recovered probably represent only a small fraction of the site's actual potential. It is considered that an excavation, especially to the north of the cleared area, will reveal many more artefacts.

ARCHIVAL SOURCES

The history of Lovedale Institution is recorded in the Lovedale Annual Reports which span the years 1878 to 1930. The reports were written by the instructors teaching in the various departments. The records deal with student enrolment, their place of origin and pass rate as well as items made each year and quality of work performed. All of these aspects were affected by social, economic and political factors such as wars, droughts and diseases. Bad droughts were experienced in 1883, 1889 and 1894 while excessive rain fell in 1881, 1886 and 1891. The Institution was closed for three weeks between 1877-1878 because of war. In 1920 a riot by students as a consequence of the rise in fees because of the impact of the First World War, resulted in thousands of pounds worth of damage (Shephard 1971:87). The War is reported to have led to unfavourable conditions at the institution. In 1918 the countrywide Influenza Epidemic affected about six hundred students and four died (Shephard 1971:85).

According to the records, wagon-making, carpentry and smithery were practised on the same site from 1894. The carpentry department provided wagon-making with wagon boxes, cart and carriage naves, hubs for carts and dinner wagons. It also specialized in making coffins, wardrobes, benches, desks, window and door frames and many other items which were sold to the local community and other institutions including the South African Native College (The University of Fort Hare).

The smithery, on the other hand, supplied items like iron mountings, stays, spokes, quarry tools and spindles. The smithery department was also engaged in making farm implements such as ploughs, garden rakes, harrows as well as various kinds of chains. Wagon-making manufactured ox-wagons, horse-wagons, spring-wagons, German wagons, transport wagons and buck wagons. Scotch carts, milk-carts, dust-carts, water-carts, ox-carts, horse-carts and handcarts were also made. A total of 125 wagons and 75 carts were reportedly manufactured in 52 years. The blacksmiths manufactured 180 wheelbarrows, 556 horse shoes, 11 gates, 8 harrows, 42 garden rakes, 216 stays and 98 spiked rails.

Lovedale wagons fetched high prices in the market and bore the name in conspicuous letters (Wells 1905:218). The value of a good transport wagon varied between 70 and 100 pounds (Stewart 1894:76). The wagon-making/smithery department made a total of 22,017 pounds between 1880-1930 while carpentry alone made a reported amount of 91,186 pounds during the same period. One of the reasons for the higher income generated by the carpentry department is likely to have been the greater number of apprentices (1230) which enrolled in this department. Wagon-making and smithery could only attract 534 apprentices because these trades required a greater amount of physical strength than carpentry. In addition carpentry and wagonmaking made use of South African woods such as yellowwood, stinkwood, ironwood, assegai and red pearwood. The sources of these woods have not been documented but they are abundant in the eastern Cape. During times of scarcity oak, pine and gum were also used with the latter favoured for wagon-making (Lovedale Missionary Institution 1918:40).

Lovedale attracted students from all the missions of South Africa as well as from all the races of Botswana, Swaziland, Rhodesia (Zimbabwe) and Central Africa. One of the most interesting enrolments at Lovedale was that of the Galla slaves who arrived at the institution in 1890. Of the 200 slaves rescued by the British ship H.M.S. Osprey from an Arab slave show off the east coast of Africa (Stewart 1894; Shephard 1971), 64 were brought to Lovedale by Dr Paterson and instructed in various trades.

DISCUSSION AND CONCLUSIONS

The wagon-making site at Lovedale is extensive and was the scene of intensive activity over a period of some 50 years (1880-1930) leaving behind features and many other objects of historical archaeological interest. Although the machinery and other equipment necessary for practising the trade are gone, it is still possible to identify activity areas for assembling wagons and carpentry inside the building. Contemporary photographs support these observations. Smithery took place outside the building as the remains of the furnace and other iron artefacts indicate. An analysis of the iron artefacts shows
that the smith, besides making and repairing wagon parts, also repaired farm equipment. One interesting observation which arose from the surface collection relates to the numerous iron objects, such as bolts, screws, chisels etc., which were left around to rust. Even today many of these objects would be of great value in a rural society. One explanation may be that the project was not designed for profit-making. A lack of motivation, because they did not share in the rewards of the work, may have led to carelessness on the part of the apprentices.

The discovery of a cache of tools and other iron objects is significant as it may be linked either to the dissatisfaction of the students with the closing of the wagon-making section or may be due to students hiding objects for later removal (i.e. theft) from the premises.

The archival sources provide annual records of progress in wagon-making, carpentry and smithery and although this cannot be traced in the archaeological record it has been possible to note some of the changes mentioned in the reports. For instance, the site of the first carpentry shed was uncovered and it is also possible to determine where the main building was extended in 1893. Student enrolment records show a mixture of ethnic groups but this was not reflected in the archaeological record.

Oral sources were useful although the informants were not enrolled in any of the departments with the exception of Mr Peter, who was a truck driver in these departments in 1928. The informants did make important contributions. For example, Mr Makalima indicated the existence of the stone circle, Mr Jantjes supplied information about the influence of the wagons on the social life of the community while Mr Duzi had knowledge about different wagon parts.

Documentary and oral sources suggest that production in the departments was slow with the emphasis on teaching and quality. The standard of work noted on the iron wagon parts supports this view and it can be assumed that students obtaining their certificates were able to deliver a reasonable product. The acculturation effect of this training must have been considerable although this was not always viewed in a positive light by the surrounding community (Mr Khethelo who is 96 years old and was at Lovedale from 1915-1917, pers. comm.). Describing the social impact of the training on the apprentices as well as on their respective communities, however, lies outside the scope of this study. The data from the site nevertheless demonstrates that black apprentices (mostly from non-industrialized backgrounds) mastered the trade of wagon-making, carpentry and smithery with some degree of success and it may be assumed that their application of the trades changed their own status considerably in the societies to which they returned.

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KLEIN GANNAHOEK: AN ARCHAEO-ARCHITECTURAL INVESTIGATION OF AN AFRICAN FARMHOUSE*

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ABSTRACT

This research arises out of the general interest that has been shown in the life and work of Olive Schreiner. The role that the Klein Gannahoeck farmhouse played in shaping the fictional landscape of her work seemed to warrant it a closer investigation. The primary aim of the project was to investigate and record the architectural developments of the farmhouse; describe the floor plan of the building for possible rebuilding in Cradock. In addition, photographs of the site were taken for record purposes and for use in the display that is mounted at Schreiner House in Cradock as well as for use in a possible future display at Klein Gannahoeck.

INTRODUCTION

Klein Gannahoeck is situated on the farm Gannahoeck (25.35S; 32.20E), which is 47 km from Cradock and close to Mortimer (Fig. 1). The site is at the foot of Gannahoeckberg and lies north-west of Vanheerdenskop, near the Hugo Kloof Spruit. The well known South African writer, Olive Schreiner, lived at Klein Gannahoeck in 1875 and 1876. The farm was owned by Stoffel Fouché until 1887, when he sold it to W. van Heerden. He in turn exchanged Klein Gannahoeck with Richard Cawood for one of Cawood’s farms, Dooren Kloof, north of Cradock (Cronwright-Schreiner Diary, 12-6-1921). Richard Cawood later renamed the farm York. From 1896 until the present day Klein Gannahoeck has been in the Cawood family.

Fouché employed Olive Schreiner as a governess for his children. The surroundings of the farm set the scene for Undine, A Queer Little Child, and her story Thorn Hill, which later became The story of an African farm. According to her husband, S. C. Cronwright-Schreiner, Olive Schreiner claimed that she had written an early draft of The Story of an African Farm whilst she was staying at Klein Gannahoeck (Cronwright-Schreiner Diary, 11-6-1921). The farmhouse is also in close proximity to Schreiner’s grave, which is situated on Buffelskop a few kilometres distant (Fig. 1).

Increasing visits to the Klein Gannahoeck farmsite by the public, the removal of surface cultural material and the natural deterioration of the site, necessitated an investigation. The purpose of this project was to locate and identify the size and shape of the farmhouse, to date and confirm the identity of the structure, to trace stages of development of the building and to ascertain the methods and materials of its construction. All artefacts found during the course of this investigation were recorded for the purposes of further research, which might be undertaken by cultural historians who could possibly relate the artefacts to the building’s occupants.

THE KLEIN GANNAHOEK FARM SITE

The original farmhouse dates from about 1826 as the farm is listed in the eastern Cape Frontier zone map in the field cornet district of Zwagers Hoek of this year (Bergh & Visagie 1985:37). The site is covered in rubble, natural vegetation, top soil, silt and goat dung. Most of the house was demolished in 1893 when the new owner, Richard Cawood, removed the roof and converted the house into a goat shed (Cronwright-Schreiner Dairy, 11-6-1921).

The site was very overgrown and had to be cleared to reveal the general structure of the homestead. No complete walls are standing and the only really visible features are some stone foundations and steps (Fig. 2). The remains of a small brick wall, some foundations, three sets of stone stairs and broken stone-wall foundations that support a stone-flagged 'stoep' were visible before cleaning (Fig. 3).

The site is in close proximity to a spring and a dry mountain river-bed known as Hugo Kloof Spruit.
There is also evidence of a silted-up earth dam and a stone wall situated north of the homestead. It is believed that a canal system was constructed to lead water into the dam, but this has not yet being located. There is a stone wall that leads from the back of the house to the dam wall.

Other structures in the vicinity of the farmhouse include what might be identified as being a tack or wagon shed, a pig or goat enclosure, a grave site, large stone-walled kraal and a native hut.

**METHOD OF INVESTIGATION**

Before the investigation started, sketches and photographs were taken. Temporary bench marks were set up one metre from the corner post on either side of the grid, one facing north-east and the other facing south-west. A grid system of two-metre square blocks was then drawn up and the architectural features were recorded (Fig. 4). Pencil-sketches were done of the various elevations and photographs of the features from various positions were taken.

Test trenches were then excavated in selected areas to reveal the architectural features, such as doorways, internal walls and floors. (Fig. 4). All artefacts encountered were collected and soil samples were taken. These soil samples helped to formulate the stratigraphy chart (Fig. 5). When the investigation was completed, a floor-plan was drawn up (Fig. 6) and the trenches and test pits back-filled.

At the museum the artefacts were counted, cleaned, marked and sorted into various categories by material (metal, glass, ceramics, wood, etc.). The artefacts have not been studied in any detail.

**STRATIGRAPHY**

The stratification shown in figure 5 indicated a possible accumulation of natural, animal and man-made disturbances on the site of the building. The sketches indicate deposits which can logically be associated with dated occupations. The earliest period can be associated with the occupation of the Fouché and Van Heerden families, dating from as early as 1826 to 1896. This period is indicated by the floor level (earth floor) and building structures: the stone foundation, brick walls and
Fig. 4. Floor-plan before the investigation.

stone-flagged 'stoep'. The second period could possibly be from 1896 to 1921. During this time Richard Cawood acquired the farm and converted the homestead into a goat shed. Some of the shards dating to this period could have belonged to a coloured herdsman and his family, who are mentioned as occupying the house by Cronwright-Schreiner (11-6-1921). This period is indicated by a layer of goat dung found within the actual foundation structure. The third dates from 1921 to the present day.

ARCHITECTURAL RECONSTRUCTION OF THE KLEIN GANNAHOEK FARMHOUSE

There are only five available photographs of the Klein Gannahoek farmhouse. Three photographs are housed in the National English Literary Museum collections (taken by S.C. Cronwright-Schreiner) and the other two belong to the University of Cape Town and Cradock Public Libraries respectively. The first photograph (Figs. 7) was taken in 1893 when S.C. Cronwright-Schreiner visited W. van Heerden. Two later photographs (Figs. 8 & 9) were taken of the farmhouse when he visited Richard Cawood on 13 June 1921. The other two photographs, showing the front stoep of the farmhouse, belong to the University of Cape Town Library (Fig. 10, No. B2D
Fig. 7. Photograph of the farmhouse taken by Cronwright-Schreiner in 1893 with the inscription; "The room in which The Story of an African Farm was written" (Photograph NELM).

Fig. 8. Photograph taken by Cronwright-Schreiner on 13 June 1921 with the inscription; "The same house, northern aspect (facing the mountain). The window of Olive's room was where the coloured girl dressed in white is standing. Compare this photo with that taken by me in 1893 before the house was in ruins. Note the spot where the oven was in the wall on the right. Here Olive began The Story of an African Farm" (Photograph NELM).

Fig. 9. Photograph taken by Cronwright-Schreiner on 13 June 1921 with the inscription; "Ruins of Fouché's house, Klein Gannahoeck, Cradock, where Olive was governess in 1875 and 1876; eastern front. The farm is now owned by the Cawoods, whose father (Richard) was living at Gannahoeck adjoining it on its western boundary; the Cawoods have called Fouché's farm York its outstation, to the east, Olive's Loss" (Photograph NELM).

Fig. 10. Klein Gannahoeck farmhouse front 'stoep' (Photograph University of Cape Town Libraries).

73/5) and to Cradock Public Library (Fig. 11).

There is little available evidence of the structure of the farmhouse. The only reference to the structure was made by S.C. Cronwright-Schreiner in his diary in the entries for 7-15 June 1921 and 8-29 August 1921 and by First & Scott (1989) in their biography of Olive Schreiner.

In the first stages of construction it probably resembled a simple Karoo farm-dwelling. A similar example was photographed by S.C. Cronwright-Schreiner on the neighbouring farm Gannahoeck owned by Richard Cawood. It is possible that the same mason built both houses and therefore probably had similar architectural features. Originally the Klein Gannahoeck farmhouse probably consisted of a livingroom and bedroom with the kitchen adjoining the main structure (Figs. 12a & b). It had a raised stone-flagged stoep, running the full length of the front of the house. The investigation uncovered the foundations of the main structure which had load-bearing walls 330 mm thick and an adjoining kitchen on the west side.

Foundations
The foundations were built of dagha (mud mortar) and of local stone. The shale stone was probably quarried near the building-site as the area has an abundance of smooth flat-sided rocks. The foundations are slightly wider than the thickness of the walls. Within the external walls the foundation has an approximate depth of 250 mm below natural ground level and was
Fig. 11. Klein Gannaheok farmhouse front ‘stoep’ looking north (Photograph Cradock Public Library).

Fig. 12. The assumed plan and possible appearance of the farmhouse between 1825 and 1921.

built up to floor level from where the wall was constructed in brick and clay (Fig. 5). The same stone was also used on the ‘stoep’ area and for the steps. The foundations are laid in undressed specked-rubble style, where rectangular stones are roughly squared and laid without continuous horizontal courses. Specks are small square stones at least 75 mm in diameter.

The ‘stoep’ is made up of large flat stones embedded on top of stone foundations with hard-core packed into the foundations.

Walls
The brick walls appear to be built in 1,5 brick English bond construction style (Barry 1971:19). No full-length or full-height superstructure walls are left standing. Apart from the remains of one small superstructure brick wall, most of the walls are only three courses high and are covered by a layer of goat dung, rubble, silt and soil. The walls are made of red baked-clay brics of various strengths.

The bricks themselves are made up of a clay and gravel mixture which most probably came from the brickfields on the farm Easterstead near the Fish River. The external walls are 1,5 bricks wide (330 mm thick load-bearing walls) and the internal walls are one brick wide (220 mm thick non-load-bearing). The bricks are bound by dagha mortar and are spaced approximately 10 mm apart in both the horizontal and vertical joints. They were probably moulded in a wooden jig and sun-dried and then packed into a clamp and fired. The average size of the bricks is 220 mm x 110 mm x 75 mm and weight approximately 2,65 kg.

Construction of bricks
The bricks at Klein Gannaheok generally consist of red earth, gravel or grog (crushed brics) and sand. This mixture is known as brick earth. Water is added to give plasticity to the brick earth so that it can easily be moulded in a jig or wood mould to give uniformity to the bricks. Gravel is used as it contains iron oxide, which acts as a flux in that it promotes partial fusion and increases the tendency to vitrify, thus producing a much stronger and more watertight brick.

The roof
Stage one: mono-pitched roof
S.C. Cronwright-Schreiner claims that the Fouchés and W. van Heerden added to or altered the homestead (Cronwright-Schreiner Diary, 12-6-1921). At the first stage of construction the roof appears to have been mono-pitched (Figs. 12a & b). Cronwright-Schreiner also refers to the common use of flat corrugated-iron roofing in the Cradock district which he describes in detail in his diary.

Stage two: double-pitched roof
The house at Klein Gannaheok later had its mono-pitched roof removed and replaced by a double-pitched roof (Figs. 12c & e; 7, 10 & 11). The photographs show a thatched double-pitched roof over the livingrooms or bedrooms. A loft is distinctly visible on the north side of the homestead. At either end of the thatched roof is a gable wall. The type of thatch used was possibly a local grass that still exists around the farm
Stage three: the addition of a lean-to roof

Lean-to roofs were later added to the main structure of the farmhouse (Fig. 11e). These lean-to roofs were constructed on the north, west and south sides of the house. The first was possibly constructed on the west side, thereby expanding the kitchen space and providing a pantry/kitchen and spare room. The second lean-to roof was constructed on the north side to accommodate a kitchen, 'stoepkamer', and a room for the governess. A section of lean-to roof was later demolished to allow the loft door to open onto the northern lean-to roof (Fig. 7; 12d & e).

The evidence for a southern lean-to roof over what was possibly the stoepkamer is suggested by the Cradock Public Library photograph (Fig. 11). A structure that looks like the extension wall of the purported stoepkamer is clearly seen branching out from the gable wall which supports the double-pitched roof. An elevation of the outer corner wall of the stoepkamer is clearly seen in the photograph.

No trace of gutters or water tanks can be discerned from either of the photographs. The lean-to roof was made of corrugated iron sheets which were removed by Richard Cawood in 1893 for use in a goat shed on the farm Trelawny. (Cronwright-Schreiner Diary, 11-6-1921).

Floors

The floors are made of a mud/clay substance mixed with cow dung. Three earth floors were located. The core of the earth floor was 140 mm thick compacted fine-grain soil. The present layer of dung floor is approximately 35 mm thick (Fig. 13).

and floors were made of mud; Olive's room was not in the main part of the house but a flat roofed lean-to, and it leaked badly. It contained a primitive bedstead and a box for her books; when the rain was heavy she used to put an umbrella over herself." (First & Scott 1989:73).

Windows and shutters

No trace of the windows is left on the present site. However, four photographs show the type of windows used in the building (Figs. 7, 10 & 11). Three different windows can be identified, namely, sliding sash-windows, single casement windows and a single shutter window. Alterations to the window positions which had been made at various times can be seen in photographs (Fig. 8 & 9). The northern back-wall windows were all bricked up and plastered over by Richard Cawood when he converted the house into a goat shed. Another window was converted to a doorway.

Doors

Apart from two small sections of door-frame, no complete doors or door-frames were located on the site. The samples are in a very serious state of decay, having been buried under layers of goat-dung. Only two short lengths of architraves, measuring 1,28 m and 1,26 m, were found on the site. The material of the doors is unknown.

ARTEFACTS

Artefacts were scattered over a large area and were collected on the surface during the course of the investigation. These consisted of very small broken pieces of pottery, glassware, wood and metal. A few small ceramic items were found and collected in the test trenches (Fig. 14). Among the ceramic finds were three fragments of a flat-topped lid. These were once part of a square pot container used for toothpaste sold under the commercial name White Rose Paste, marketed by S. Man, Son & Sons, Aldersgate, London. The pot lids

Fig. 13. Exposed dung floor and brick wall.

Biographers First & Scott (1989) refer to Olive Schreiner's room at Klein Gannahoeck;

Building materials were scarce in the district

Fig. 14. Designs on the ceramics found at the site.
were used from about 1860 to about 1910. The design is in monochrome black with underglazed printing (Lastovica 1982:70).

Only a small quantity of animal bones was recovered and one seashell located.

Glass

An attempt was made to sort the various types of glass fragments located according to the basic bottle nomenclature. Terms used were the neck, lip, shoulder, sidewall or body, and base (either a kick-up or not). Other fragments had either flat bases or slightly indented bases. Colour and glass-thickness also helped in the identification of the glass fragments.

Most of the glass was not identifiable, either due to its size or simply because it had too little diagnostic value. Many of the fragments appear to be iridescent (multi-coloured opalescent deposit on glass caused by chemical reaction). This is explained by the fact that the artefacts within the homestead were buried in goat manure and urine and those in surrounding areas were buried in the soil and re-exposed by erosion. Only a few shards of glass had embossing.

Round and square bottles

No complete round bottles were found. Fragments of the round type located were used for wine, beer, gin, mineral water and possibly dip. The bottles could only be identified by the bases, necks, colour and fragment thickness of the side walls. Most of the beer-bottle shards were dark olive green or dark brown in colour. Only 65 pieces were located and of these 19 were bases. All were 6 mm thick on average.

One base had TALANA embossed on it. This bottle came from a glass company that operated near Dundee, in Natal, around 1919. There were also embossed fragments from the South African Breweries. One round bottle base was found. There was no embossed lettering but it was light green in colour and had a slightly rounded base. It could have had a marble bottle stopper and was commonly known as a 'codd bottle'. The gaseous liquid in the bottle forced the marble to the top of the neck which made it airtight (Lastovica, 1982:26). Only two fragments were located.

Pharmaceutical bottles

These bottles were recognised by their distinctive neck, collar, colour and thickness. Only one complete bottle of this type was found.

Kitchenware

Fragments located were the necks of preserving jars and chutney bottles, and three light blue bottle stoppers.

Window panes

The average thickness of glass fragments is 2 mm. Most of these were found in the test trenches on the dung floor. Fragments varied in size but no pieces bigger than 60 mm were found.

Buttons

Ten buttons of various sizes were found. One button was made of pearl embedded in a bronze jacket (Fig. 15). The largest brass button found belonged to a railway tunic. It had the Union coat of arms embossed on it.

Fig. 15. Selection of buttons found on the site.

China doll

A single Parian arm of a doll was found. It is of a fine-grain, hard-paste porcelain which is matt white and resembles Parian marble. This type of doll is said to have been made of unglazed white clay. The forearm was attached to the upper arm by cloth so that the arm could bend at the elbow. A band notch is located at the elbow to prevent the material from slipping off the forearm, and to clamp the thread to the forearm (Lastovica, 1982:77).

Stone artefacts

Some slate stone and slate pencil shards were located. These were found near what is believed to have been the room which Olive Schreiner occupied at Klein Gannahoeik. Five slate pencil shards and five pieces of slate were unlocated (Fig. 16).

Fig. 16. Slate stone and pencils located on the site.

Metal artefacts

Most of the metal artifacts were lying near what
is believed to have been the cart or tack cottage, south-west of the house. Artefacts found include saddle supports, horse shoes, a stirrup bar, a riding spur, a baling needle, a metal file and a ploughshare.

Cartridges were found in close proximity to the homestead and cart house. Building equipment found includes screws, nails, square bars, bolts, door locks, window latches and a section of a lantern. Domestic metal artefacts found were a kettle, tin lids, a cooking pot and fragments of a three-legged cast-iron cooking pot and a knife and fork.

Wooden artefacts

Only two wooden sections of a door-frame were located and it is unclear as to what type of wood the door was. As the samples were in a bad state of deterioration no wood grain can be seen. It is also stained, probably after being buried in goat dung for a long period. It is possible that the wood is either yellowwood or Oregon pine. Two short lengths of an architrave, measuring 1280 mm and 126 mm respectively, were located.

Plaster

The plaster is made of mud and cow dung (dagha). It is 18 mm thick and made up of two layers. The first is a coarse layer of 16 mm bonded to the brick structure and the second layer is a finished coat of 2 mm to be covered with white-wash or lime-wash.

CONCLUSIONS

It is believed that Olive Schreiner wrote an early version of *The Story of an African Farm* at Klein Gannahoek. The house and its setting, would we may presume, have profoundly influenced her writing. For this reason a detailed investigation of the documentary and photographic sources pertaining to Klein Gannahoek was combined with an archaeological and architectural examination of the remains at the site. It has been possible to determine the floor plan of the house, as well as the various stages of reconstruction. Cultural material was recovered which relates to the various stages of occupation of the site. Apart from the intrinsic value of the farmhouse because of its association with Olive Schreiner, it is also an example 19th century Karoo architecture.

ACKNOWLEDGEMENTS

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REFERENCES


RESCUE EXCAVATIONS AT PRAMBERG, JACOBSDAL, SOUTH-WESTERN ORANGE FREE STATE*

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ABSTRACT

Rescue excavations of an eroded alluvial terrace between Pramberg and the Riet River yielded information about a long and narrow site with at least eleven cairns. Excavation of two cairns revealed human burials. Three excavated skeletons and other human material from the surface has been tentatively identified as Khoisan. Material from an in situ refuse midden as well as surface finds suggest that the site was not only a burial ground but also a living area. It is not clear whether the burials and the habitation remains are contemporary, but stone tools and pottery from the Pramberg site are similar to those found at other Riet River sites, most of which have been dated to the late Later Stone Age. Of particular interest is the faunal evidence from the midden which indicate that the hunting of blesbok and black wildebeest was of primary importance in the economy of the inhabitants, while domestic stock was less utilised. This provides independent support for early nineteenth century eye-witness accounts of Riet River San who practiced both hunting and pastoralism.

INTRODUCTION

More than half (236 mm) of the average annual rainfall (420 mm) for the Jacobsdal area fell during the five days between 18 and 22 February 1988. During the same period excessive rains fell throughout the southern Orange Free State, including the catchment area of the Riet River. Not surprisingly the river rose to at least 10 m above its normal level causing unusual damage along its banks. Some 15 km south of Jacobsdal, water from the river flooded a donga on the south-eastern base of a conical hill called Pramberg (29.14.38 S, 24.45.15 E), exposing bones and artefacts.

Mr I.P. Maas, the concerned owner of the farm Doornhoeck, invited us to inspect the site in August 1988. We found three exposed human skeletons and 25 surface concentrations containing animal bone, worked stone and a few potsherds. Two human skulls were also visible on the surface.

Although the area and the archaeological material fall outside the research interests and projects of the National Museum, we decided to conduct a rescue excavation of the site between 5 and 9 September 1988 to prevent any further damage to the exposed material. We also anticipated that excavations would reveal the stratigraphic relationship between the skeletons and surface finds. A fortunate by-product of our work was the recovery of faunal remains from an undisturbed refuse dump (Area T).

In this paper we describe the features and finds from Pramberg in general, and consider the significance of the faunal remains in greater detail. Although no definite stratigraphic associations could be made between the burials, the surface material and the remains of a refuse midden, we conclude by showing that the material probably is not contemporary in the strict sense, but homogeneous enough to suggest a single cultural entity.

THE SITE

The site is located on a terrace of relatively soft, alluvial sandy silt. It is directly north-west of the Riet River and has eroded into gullies and depressions (Fig. 1). Overgrazing and the recent floods have accelerated erosion, exposing bedrock shale (Ecca) in the deeper gullies, covered by approximately 2 m of alluvial deposit.

Judging by the distribution of stone-piles or cairns and surface scatters of bone and cultural material, the site appears to be long and narrow, stretching from south-west to north-east. It is difficult to establish its exact size since a donga runs down the centre. The south-eastern portion of the site occurs south of the donga and is heavily overgrown. Because of the dense vegetation and a time limit we managed to map only the portion to the north-east of the donga (Fig. 1).

We recorded eleven cairns on the site, eight north of the tributary and at least three to the south. Dolerite boulders from the adjacent hills have been used to stack the cairns. The cairns are badly preserved and only three appeared to be relatively intact, whereas stones from the others have become scattered. The biggest cairn occurs close to the northern edge of the site and is just
Fig. 1. A locality map of the Pramberg site.

over a metre in diameter. A smaller, conical mound nearby is about 500 mm in diameter. To the west of these is a stone wall with a large stone on its eastern side. The rest of the cairns, or stone clusters, each contain four stones on average. Human bones protruded from below two of the small clusters of stones in an eroded depression (Burials 1 & 2). Burial 3 was found about 10 m north of Burial 1 on the opposite bank of the depression with no covering stones.

Scattered among the cairns are 25 concentrations of stone artefacts, bones, ostrich eggshell fragments and a few potsherds. These areas have been labelled alphabetically for collection and analysis. Most of the surface finds appear to have been concentrated by water deflation in pockets no bigger than 500 mm in diameter. The pockets occur on sandy knolls downstream from shrubs. Higher up the slope, however, two fairly intact middens, called Area R and Area T, survived the floods. Whereas Area R is an undisturbed mound, some 3 m in diameter on the northern side of the site (Fig. 1), Area T (Tables 1 & 2) is a portion of a midden preserved in a bedrock depression.

According to the evidence the northern and elevated portion of the site is generally better preserved than the lower reaches closer to the donga. But even in the eroded area there are indications that some cultural deposit remained intact. A notable example is Area L where a clear horizon with stone tools, about 100 mm under the surface, is visible in the eroded wall of the donga.

On a small ridge about 100 m north-east of the site is a stone circle. Stones were removed from the circle to build a nearby road and square stock pen. The intact stone wall of the circle is similar to those found at Type R sites in the area (i.e. stacked outer casing with rubble infill).

**EXCAVATIONS AND SURFACE COLLECTIONS**

**Method**

Following the procedure adopted by Humphreys & Maggs (1970:116), we recorded both the plans and sections of the excavations. We started by clearing the vegetation from the stone mounds and then laid out a grid of four one metre squares, with the centre being approximately the centre of the mound. The grids were orientated on a magnetic north-south bearing. After recording the surface features we removed the stones and other features. The matrix was quite hard due to the high clay content of the soil and detailed excavation proved to be time-consuming. We carefully exposed and partly uncovered the human remains, after which the skeletons of Burials 1 and 3 were removed in blocks of sediment.
Burial 2 was too disturbed for such treatment. The burials were subsequently cleaned in the laboratory.

Burial 1

The top of a sun-bleached human skull was exposed beneath a cluster of stones on the southern edge of a big depression (Figs. 2 & 3). Unlike the observations made by Humphreys & Maggs (1970), these stones were directly above the burial and no upper layer of stones were found. If the burials described by these authors can be taken as a norm, it follows that approximately one metre of deposit would have been washed away from the original land surface above Burial 1. About 100 mm below the bottom of the burial an older land surface could be followed to a limited extent. This surface provided limited faunal remains (Table 2). There was no association between these remains and the burial. Except for the occasional presence of some fine mudstone gravel which may have been accidentally included at the time of inhumation, it was not possible to distinguish between the infilling of the burial and the sediment in which the grave shaft was dug.

![Fig. 2](image)

Fig. 2. An approximate north-south section of Burial 1(A) and plan (B), showing the position of the covering stones in relation to the exposed skull.

The human skeleton was complete and no evidence of bio-turbation was found, possibly due to the compactness of the soil. Only minor post-depositional sediment compaction occurred as evidenced by the slight distortion of the skull. The remains are those of a young adult female and some of the epiphyses of the long bones and vertebrae are still unfused. The possible solution from plant roots on these young bones caused them to become friable.

A remarkable feature is the presence of an extra row of incisors in both the upper and lower jaws due to the non-replacement of the milk dentition. The skeleton was lying on its left side with the arms and legs pulled up tightly against the body. The direction of the length of the body was approximately north-east so that the head was facing east (Fig. 4). No grave goods were found.

![Fig. 3](image)

Fig. 3. A photograph of the donga showing the skull and covering stones of Burial 1 in section.

Burial 2

The remains of another burial were found partly exposed below a stone cluster some 3.5 m north-east of Burial 1 and about 700 mm below it (Fig. 5), on the southern slope of the depression (Fig. 1). As in Burial 1, we could find no traces of an upper stone layer. The burial was displaced by erosion and slumping, but probably originated from the same level as Burial 1. Very little remained of Burial 2. The skull was absent and only a few limb bones and some ribs were preserved. A small undecorated bowl with gritty temper was found with the skeleton (Fig. 6).
stone artefacts, we did not recover any plant material.

**Surface scatters**

We collected archaeological material from a number of surface scatters. These included a complete human skull (Skull 1) and a partial human skull and mandible (Skull 2) (Fig. 1). It is uncertain at present whether these skulls belong to Burials 2 and 3. Other human remains from the surface include the right and left pelvis and right femur of an adult male (probably associated with Skull 1). A proximal femur and a well worn upper molar from Area W presumably came from other burials which had been destroyed by the floods.

**FINDS**

**Human Remains**

The burials and human remains from the surface were send to A. Morris (Department of Anatomy, University of Cape Town) for further study. We tentatively identify these remains as Khoisan. This is in agreement with previous work on Riet River human remains by Morris (1984).

**Stone Artefacts**

In our analysis of the stone artefacts we used the scheme devised by Deacon (1984). The basic division of the material into categories of waste, utilised pieces and formal tools is sufficiently similar to the system used by Humphreys & Maggs (1970) to allow comparison.

Although Area T is probably less disturbed than the other surface scatters, it is clear from Table 1 that no great differences exist in terms of raw material and proportions of tool types between Area T and the surface scatters. A noteworthy feature is the total dominance of hornfels as raw material in Area T (96.6%) and in the surface scatters (88.5%) (Table 1). This is in agreement with the situation at OFD 1 (Humphreys & Maggs op. cit.) where hornfels became progressively more important through time (Humphreys 1972b).

The proportions of tool types from Area T and the surface scatters are also broadly comparable with
OFD 1. Of special interest is the high percentage of scrapers in both assemblages, 6,2% in OFD 1 and 8,6% in the Pramberg collections. We have not included the category 'notched scrapers' in the calculations from OFD 1, since we included this artefact type under 'miscellaneous retouch' in our classification. A grooved stone was found in Area T and is depicted in Figure 8 with examples of scrapers.

Fig. 8. A grooved stone and some scrapers from Area T.

A further point of interest is the low proportion of utilised pieces observed at Pramberg (6,1%) when compared with OFD 1 (10,3%). In the analysis we attempted to distinguish between trampling damage and utilisation. Artefacts from Area T were clearly less exposed to trampling and the edges of the artefacts are in good condition. In the case of the surface scatters, it was usually possible to distinguish between trampling and use-wear, as trampling damage often displays less patination than flake scars or damage to an artefact as a result of human action. This was, however, not always conclusive and some specimens remained doubtful. This measure of uncertainty seems to be reflected in the lower proportion of utilised pieces in the sealed Area T (3,5%) compared to the rest of the surface scatters at Pramberg (6,5%). In the light of this, we tentatively suggest that the high percentage of utilised pieces from OFD 1 may have been caused by post-depositional trampling.

Due to the similarity between Pramberg and OFD 1 in terms of raw material and artefact composition, we suggest that the Pramberg site probably relates to the most recent phase of the Later Stone Age in the region (Humphreys & Maggs 1970).

Pottery
We collected eight pieces of plain and unburnished potsherds from the site. Apart from the in situ bowl from Burial 2 (Fig. 6), the sherds at Pramberg are highly fragmented.

Five sherds are 7 mm thick and the rest are 10 mm thick. Six sherds, two of which were excavated from Area T, have grit temper mixed with the clay.

Negative impressions in two relatively thin sherds from the surface of Area R show that short sections of grass were used as temper. According to Maggs (1971:53), similar pots elsewhere in the southern Orange Free State date to final phase of the Late Stone Age. This supports the date ascribed to the stone tools from Pramberg.

Faunal Remains
Table 2 provides a summary of the recovered faunal remains per collecting area. Area T, the sealed excavated sample, is again taken as a norm against which the surface scatters are evaluated.

Area T
Analysis of the faunal remains shows that this assemblage is untransported and in primary context. Several bone flakes could be refitted, while the edges of fossil brakes were sharp. There is some plant root etching on the bones and limited evidence for solution due to possible higher river levels in the past. Breakage patterns typical of marrow extraction activities (Brink 1987) is illustrated by the refitted cattle first phalanx (Fig. 9). This pattern of maximal use of animal remains applies to both the wild and the domesticated component of this assemblage. With the exception of some sieving damage and the evidence from the effects of marrow extraction, there is little evidence for other agencies of attrition. This supports the impression that the faunal material from Area T represents an uncontaminated sample of food remains.

From Table 2 it is evident that both wild and domesticated animals were utilised. About one fifth (20,7%) of the number of identified specimens (NISP) belong to domesticated animals with cattle and sheep/goat almost equally represented. An outstanding feature is the dominance of large-medium sized wild bovids (66,7% NISP) in the fauna and the relative paucity of springbok remains (6,7% NISP). These figures may, however, give a slightly skewed impression of the importance of the different animals in the diet of the inhabitants of the site.
It is known that archaeological bone mass (weight) gives a better approximation of meat value rather than number of specimens (Boessneck 1982). If bone mass (Fig. 10) is taken as a measure of meat value, then the sheep/goat category contributed 4.4%, springbok 1.2%, cattle 20.2% and large-medium sized bovids (wildebeest and blesbok) 72.3% of the meat to the diet of the people. This clearly points to a subsistence strategy with an emphasis on the hunting of large-medium sized bovids. Cattle were less important by comparison, but still utilised more frequently than sheep or goats.

![Fig. 10. Faunal remains from Area T: a comparison of the relative frequencies of bone mass and number of identified specimens per taxon.](image)

**DISCUSSION**

Although the site between Pramberg and the Riet River has been badly disturbed, it is clear that people with Khoisan features chose to bury their dead in this area. The site was also inhabited presumably by the same people, although we cannot be sure that the burials, the surface material and the midden are contemporaneous. The exact stratigraphic and chronological relationships of the recovered material has not been securely established. This is illustrated by the fact that Burial 1 post-dates an earlier horizon with faunal remains, which includes domestic stock (Table 2). It could be, therefore, that the burials are later than the rest of the material. However, the close spatial association between graves and middens may suggest that the San inhabited the site as well. The broad similarity between the artefact and faunal assemblages from Area T with that of the surface material, supports the idea that these remains represent a single cultural entity. However, we cannot be sure that this applies to the burials as well. The complex stratigraphic succession at Pramberg could be elucidated by further excavations of intact features, such as the grave tool concentration at Area L, the Area R midden and the stone cairns at Area 10.

The excavations of Fowler (Humphreys 1970), Humphreys (1970), Humphreys & Maggs (1970) and Mason (1954) showed that similar sites occur elsewhere along the Riet River. Morris (1984:221) identified human remains from these sites as representing "a single relatively homogeneous population" with Khoisan features. This agrees with our tentative identification of the Pramberg skeletons.

The Pramberg graves show certain similarities with published accounts. Maggs (1971:56) states that the evidence from the well-documented Riet River burials suggests a distinct tradition of internment. Humphreys (1972a:140) observed that in all cases the burials were marked by stone cairns. Usually below the first pile of stones another pile was placed in the shaft as part of the grave infill. The skeletons are flexed and in many cases grave goods or ornaments occurred either in the grave or on the body. The Pramberg burials were exposed by erosion and only Burial 1 and Burial 2 had covering stones. It is most likely that the upper layer of covering stones had been washed away in these cases and there is reason to believe that the Pramberg burials fall within the range of variation of burials along the Riet River. The presence of grave goods, in the form of a pot in Burial 2 and ostrich egg-shell adornment in Burial 3, supports this contention.

The Riet River sites seem to be limited to specific localities. Judging from Van Riet Lowe's 1926 map of the area (Goodwin & Van Riet Lowe 1929, Plate XXXVII), burial sites are located on terraces between hilly areas and the river. Furthermore, the number of stone cairns at Pramberg is not significantly different from the other burial grounds. Van Riet Lowe (1931) recorded twelve from a site near Koffiefontein and Humphreys & Maggs (1970) found fifteen at OFD 1. These considerations, together with the long narrow shape and south-west to north-east orientation of the sites at Pramberg and OFD 1 (Humphreys & Maggs 1970:117), suggest that the sites have a similar pattern.
The possibility of a recognisable site layout needs further investigation, which, in conjunction with the relevant ethnography, may provide clues about the world-view of the local San.

The question of the association of Type R stone-walled sites in the area with sites on the banks of the Riet River, such as Pramberg and OFD 1 (Humphreys & Maggs 1970), can be addressed by the information derived from the faunal remains of the Area T midden. At present only two faunal collections have been published. Faunal lists for OFD 1 (Maggs 1971) and Kharotum 1 (Voigt in Humphreys 1972a) show a very limited taxonomic range and probably give a distorted picture of the subsistence strategy adopted by San in the area (Humphreys 1972a:153). Although the sample from Area T is small, with only 150 identifiable pieces, the patterns are quite clear-cut. Hunting was of great importance as wild species comprise three-quarters of the identifiable bone remains (mass). Most of this category consists of large medium-sized bovid remains (wildebeest and blesbok). In general, the Pramberg faunal remains suggest an essentially hunting economy, supplemented largely by cattle and to a lesser extent by sheep/goat. This is in contrast to the findings of Maggs (1971) at OFD 1 where he suggested that cattle and small stock supplied the majority of the protein food. The Pramberg sample indicates that wild game was not supplementary to the diet of the Riet River people but indeed an important, if not the dominant, source of meat. This conclusion agrees with the descriptions of early travellers in the Riet River area. Of particular note is the observation by W. Burchell, quoted by Humphreys (1988: 8), that "Bushmen" were living in orderly villages with cattle, sheep and goats, but that they were still hunting and foraging. A similar observation was made by T.L. Hodgson who saw a party of Bushmen returning with game to their village, where sheep and cattle were kept (Op. cit.). These observations can be regarded as further circumstantial evidence for the association of the Type R structures with the habitation and burial sites. However, this cannot be seen as final proof. It remains uncertain whether the people referred to by the early travellers were living in association with Type R structures. Also the spatial separation between the stone structures and the habitation areas, which is more than 100 metres at Pramberg (Fig. 1), raises doubt about this issue. A further cause for doubt is the clear indication that Burial 1 postdates an in situ occupation horizon. Even though the river bank settlements and Type R stone-walled sites show certain similarities in time and space (e.g. Maggs 1971:56), the river bank sites could be slightly earlier. We feel that sites on the banks of the Riet River, such as Pramberg and OFD 1, are still insufficiently understood to allow definitive comparisons with Type R stone-walled sites in the area.

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REFERENCES


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**Cover Illustration**

Handaxes from Wonderwerk Cave, northern Cape; p. 92.

**Logo**

Decorated pot from Kulubele, the first *in situ* Early Iron Age site discovered south of the Great Kei River, eastern Cape, and a painting of a ‘trance figure’ from the same region.
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OPINIONS

The second number of SAFA contains a variety of contributions, from reports on the stone age, iron age and rock art to historical archaeology. The encouragement, both public and private, which we have received from our colleagues since the first number was presented to the Southern African Association of Archaeologists in Cape Town in July has confirmed that SAFA can and will play an important role in the dissemination of archaeological knowledge.

The name of our Editorial has been changed to that of Opinions. In future issues of SAFA we will be approaching our colleagues for their opinion on a wide variety of archaeological issues of concern to us all. We hope that this will stimulate some lively debate in this column.

We will start the ball rolling by raising the thorny issue of access to database systems. Our professionally executed, archaeological site recording forms at the Albany Museum cover much of the eastern Cape and have been built up over a period of 30 years, although much of our information pre-dates this. A large percentage of the funding for the research which generated these site records has been forthcoming from the Museum itself or from institutions like the CSD, and therefore indirectly from the South African tax-payer. We recognise the rights of bona-
fide researchers to this material and encourage them to make full use of it. We have no quarrel with them. Our concern is with those engaged in contract-type research. They have negotiated an agreement with a company or government agency to provide information on archaeological matters for financial gain. They approach museums or archaeology departments at universities with requests to provide them with this information. Should we make our records freely available to them when they have been paid handsomely for their efforts?

There are two issues at stake here. One is that of making data freely available to individuals who in turn benefit financially from them. The other is that our records, be they of archaeological sites or the result of any other scientific endeavour, constitute a body of knowledge generated by our institution. Once this information has been passed onto other institutions and becomes freely available, it will not be necessary for future developers in the eastern Cape to consult our institution. They may store all our data themselves and make use of it as they see fit.

We believe that access to our records should be channeled through, and a consultancy fee negotiated with, our museum. Our museum must be acknowledged in all publications which result from this consultancy. Some may accuse us of placing a monetary value on research; this is not our aim. But we believed that a value should be given to the time and space-consuming component of keeping a collection available for researchers.

There appears to have been some disagreement on the free distribution of information in database systems to users among a variety of museums and a meeting at the annual SAMA conference in Durban has not resolved this dispute entirely. We know there is a wide range of opinions on this issue among our archaeological colleagues and we look forward to hearing from you.
MAKING SENSE OF SPACE AT DUNEFIELD MIDDEN CAMPSITE, WESTERN CAPE, SOUTH AFRICA*

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* Accepted for publication October 1992

ABSTRACT

Presented here are the methodological approaches to and provisional results from, excavations at the Dunefield Midden site. We discuss the spatial patterning of features and material remains, showing that the site offers a rare opportunity to investigate the nature of domestic organisation of what we believe to be a hunter gatherer camp site.

INTRODUCTION

Since 1988 we have been excavating, mapping and analysing the remains of what we think are a series of very briefly occupied campsites from the late pre-colonial period (Nilssen 1989; Henshilwood 1990; Vermeulen 1990). These sites, which we refer to collectively as Dunefield Midden (DFM), are located some 2 km north of the mouth of the Verlorenvlei and about 600 m from the present shore (Fig. 1). There are, in fact, lots of shell scatters along the top and just below an abandoned coastal dune cordon which is a relict feature of a probably mid Holocene slightly higher sea level (Miller et al. in prep.). In the area where we are working the shells are partly exposed at the surface but mostly covered by up to 2 m of pale aeolian sand totally without archaeological content. The sites lie on an older yellow sand with quartz pebbles that is clearly waterlaid.

Our excavation strategy has been to expose as large a continuous area of occupied surface as possible by removing the aeolian overburden in metre squares, mapping as much of the debris as is possible and sieving all removed sand through a very fine (1,5 mm mesh) sieve. All shell, bone and artefactual material is then returned to the laboratory in Cape Town and sorted, weighed, measured and identified or classified. So far an area of 506 square metres has been excavated in a series of short visits, although not all materials from this area have been fully analysed. Because many of the ostrich eggshell beads and quartz chips are extremely small (less than 0,5 mm) the inventory of mapped items is better for bones, potsherds and anvils than it is for beads and chips. These latter are all provenanced to metre square. The map of hearths and other ashy features is complete.

Radiocarbon dates from DFM, all processed through John Vogel in Pretoria, are listed in Table 1. We have recognised that several partly overlapping but apparently quite brief visits to the area are reflected in the archaeological trace. We suggest that the northern part of our mapped surface reflects a single occupation about 650 years ago. We support the conclusion that the visit was brief by showing the coherence of patterning in a wide range of items and the ephemeral nature of the shell scatter over much of its area. We have tried to extend the excavation laterally so as to reach and then exceed the boundaries of reasonable scatter. Obviously radiocarbon dates with error margins of 30-50 years cannot demonstrate absolute contemporaneity but we are encouraged by the extent to which dates on charcoal and
Table 1. Radiocarbon dates from Dunefield Midden

<table>
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<tr>
<th>DFM NORTHERN AREA</th>
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<th>REFERENCE</th>
<th>DATE</th>
<th>MATERIAL</th>
</tr>
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<tr>
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<td>Pta</td>
<td>5277</td>
<td>600 ± 40</td>
<td>charcoal</td>
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<td>5276</td>
<td>620 ± 50</td>
<td>charcoal</td>
</tr>
<tr>
<td>KIR 050</td>
<td>Pta</td>
<td>5062</td>
<td>640 ± 40</td>
<td>charcoal</td>
</tr>
<tr>
<td>PET 027</td>
<td>Pta</td>
<td>5280</td>
<td>650 ± 50</td>
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<td>Pta</td>
<td>4082</td>
<td>680 ± 50</td>
<td>charcoal</td>
</tr>
<tr>
<td>KIR 026</td>
<td>Pta</td>
<td>4799</td>
<td>710 ± 45</td>
<td>charcoal</td>
</tr>
<tr>
<td>FRA 052</td>
<td>Pta</td>
<td>5070</td>
<td>1130 ± 40</td>
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<tr>
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<td>5011</td>
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<table>
<thead>
<tr>
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<td>5061</td>
<td>580 ± 50</td>
<td>charcoal</td>
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<td>SHA 033</td>
<td>Pta</td>
<td>4807</td>
<td>510 ± 40</td>
<td>charcoal</td>
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<tr>
<td>FRA 026</td>
<td>Pta</td>
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<td>Pta</td>
<td>4801</td>
<td>1350 ± 70</td>
<td>shell</td>
</tr>
</tbody>
</table>

General Patterning

During the course of the excavation all ashy features were mapped and removed separately. From the field notes and a retrospective analysis of sizes it has been possible to divide these features into hearths; roasting pits; large in situ processing fires; and ashy patches that appeared to be secondary ash disposal heaps. The roasting pits have deep and extensive charcoal whilst the processing fires are large, crusted, ashy patches with white ash cores. None of these ashy features have much search for a 'social' rather than an 'environmental' archaeology. In order to phrase our histories of pre-colonial people in more social terms we need methods that focus on social issues and processes. But the generation of method has been difficult because most archaeological sites are palimpsests, blurred overprinted images of repeated occupations. We suggest that social interpretations depend on our ability to resolve person as well as time and place; to see social groups as riven by internal divisions that provide the latent energy to initiate change with or without any associated change in environmental contexts. Excavations at DFM are an attempt to derive a resolved episode in the history of western Cape settlement. Many more such will clearly be required.

Fig. 2. Dunefield Midden (North): Radiocarbon dates. Shell dates corrected -450 years.

shell overlap so neatly (Fig. 2).

Our justification for expending so much time and energy in this exercise relates to the currently fashionable
shell within them although there were also ashy dumps where various kinds of refuse, including both ash and foodwaste, were thrown.

Before considering the distribution of these ashy features, it is useful to note the general pattern of dumping at the site, best reflected in the most voluminous of the foodwaste, the shellfish remains (Fig. 3). Shells are very unevenly, and certainly not randomly distributed across the 426 square metres for which we have processed the figures. Looking only at the northern site it is clear that there is a massive contoured heap of shell running approximately S.E. to N.W. and about 25 m by 5 m in extent. Because about 80% of all shellfish waste is in this area, and because of the considerable ash and bone material mixed with it, we refer to this as a dump. We presume it to be a secondarily accumulated heap in a zone designated by the occupants as a dumping ground.

Ash features are drawn on Figure 4, which begins to reveal the general layout of this campsite. Hearths and ashy patches form a swathe approximately parallel to the long axis of the dump and about 5 m east of it. Roasting pits and processing areas are also roughly aligned along this dimension on the other side of the dump. These alignments give a rough linearity to the overall pattern, and suggest a structuring of the site for more detailed analyses. It is clear from recent maps of modern Kalahari hunter gatherer campsites that, although many approximate Yellen's ring model, others are linear or less easily defined (Yellen 1977; Kent & Vierich 1989; Bartram et al. 1991). We interpret this as revealing a widespread domestic front-back patterning organised around the hearth-windbreak nexus, but with considerable flexibility as to how the domestic units situate themselves as a set.

In pursuit of the edge of occupation, so as to be able to estimate camp size, we have in most areas reached shell densities of only a few grams or tens of grams per square metre. Additionally, on these edges the contribution of fragments of the white mussel, Donax serra, to the shellfish mass has increased dramatically. We know from inspection of the local landscape that these fragments are actually a component of the pebbly yellow sand that underlies the site. Using estimates for the areas where we are not yet at the edge we would give a figure of about 300-350 square metres for the size of the northern 650 year old camp.

**ARTEFACT DISTRIBUTION PATTERNS**

The stone artefact assemblage from DFM is respecatably large (>5000 pieces) but remarkably limited in the range of behaviours reflected. Almost all of the flaked pieces are quartz (96%), almost all of the cores are bipolar (88%), small pitted anvils of quartzite are common and almost all of the retouched tools are tiny backed microliths (73%), scrapers being rare (9%) and adzes
completely absent. It is inescapable that the intention of toolmakers was the production of these tiny backed tools by bipolar technique, using anvils brought into the site and locally abundant quartz pebbles or crystals.

Because most of the quartz chips are extremely small (<5 mm) and would be virtually impossible to detect in soft sand, their spatial distribution probably pinpoints the location of toolmaking. There is little doubt (Fig. 5) that this took place next to hearths in the swathe of features that mark the domestic area of the site. Most of the chips and tiny bipolar cores came from within the ash or in the same square as an ashy hearth, suggesting a role for fire in the toolmaking process. As there is little value in pre-heating quartz, our view is that this reflects the heating of mastic mounts to replace small quartz inserts with newly made ones. There were at least three such episodes, probably four, in the course of the occupation, undertaken, we would suggest, more or less simultaneously by different toolmakers at each of their own fireplaces. These may not have been the only hearths in domestic ash-windbreak locations, but, rather, special purpose hearths.

Retouched pieces and anvil fragments are rather more widely dispersed than the tiny chips, which is to be expected given their potential for re-use or re-implementation in other contexts. Refitting of quartz has not been attempted but anvil refits link the hearths across the site, at least circumstantially, into a single overall system. The absence of adzes, arguably digging stick maintenance tools, is consistent with the absence of grinding surfaces and woodshavings. Gathered foods appear not to have included underground plants.

Ceramics are not particularly common but rather neatly distributed in the dump and domestic areas (Fig. 6). In the latter the sherds appear as small ‘puddles’ near to but never in the hearths. Inspection of fabric and refitting reveal that the ‘puddles’ are essentially self-contained with some refitting between hearth and dump but almost never between hearth and hearth. Although orienting a ‘puddle’ to its proper hearth is obviously not simple, we note a clear tendency for ceramic hearths not to be quartz chip hearths.

Refitted sherds constitute a fairly high percentage of the total (61%) but never emerge as complete vessels. This, along with the observation that almost all of the ‘puddled’ sherds refit, makes us wonder whether broken but still useful pots were not kept and stored in the windbreaks between visits. This would make the puddles of potsherds the best evidence for windbreak location. There is also evidence on two of the refitted pots for use of sherds as scrapers rather than as vessels.

Ostrich eggshell fragments have also been refitted on a substantial scale and plotted here along with beads. Once again there is a tendency for neighbouring pieces to refit but the circumstantial end result is not easy to interpret. What is clear is that OES fragments smear
Tell a different tale, especially when viewed along with the barnacles (*Austromegabalanus maxillaris*), because they are not common even that close to the site. On many occasions barnacles were found still attached to mussel hosts, on almost all others the negative shapes of mussel shells are still clearly visible. Mussels of the size found at DFM (mean size > 100 mm) and with large attached barnacles are never available in the intertidal, but live subtidally. Our suggestion is that the mussels and barnacles at DFM were gathered as washups after being wrenched from their subtidal environment by stormy seas. They could easily have been gathered, ironically, along the sandy shore opposite the site where mussel beds are massively represented offshore.

We have measured all whole limpet shells and feel that the pattern of sizes by metre square is not random and not homogeneous (Fig. 7). Patches of very large individuals of both species are common in the dump, particularly at the southern end, and are not characteristic of the satellite dumps. In these latter, by contrast, we have found some of the smallest mean sizes for both species in the site. Consistent with this pattern are differences in the relative proportions of the two limpet species. Some of the highest proportions of the smaller species, *P. granularis*, are found in the satellite dumps and some of the lowest in the main dump.

This circumstantial pattern of structured limpet disposal is not crystal clear and is complicated by the
most northerly end of the dump. We do not doubt, however, that there is a relationship between mean sizes of limpets and species proportions. We currently favour the view that the pattern of sizes and proportions reflect the time span of the visit, with larger animals and the larger species preferred in early collections and smaller animals gathered as the visit progressed and the shellfish population impacted. Such an interpretation supports the notion that the satellite dumps are phenomena of the final days of occupation in the sense referred to by Fisher & Strickland (1989).

Whelks and barnacles almost never make it to the satellite dumps. By contrast they are superabundant in the centre and to the west of the main dump very close to what we think are processing features. At the moment we have no strong evidence upon which to interpret the processing behaviour, but smears of burnt and fragmented whelk and barnacle shell on these in situ features may be of significance. We have the impression that the internal and external parts of barnacles are not similarly distributed and will investigate this further. The important question as to whether shellfish were processed collectively or not is still unresolved.

The calcareous mandibles of the rock lobster (*Jasus lalandii*, known locally as a crayfish) are very common at the site (n > 1500). These can be sided and measured (Grindley 1967) to give a good estimate of the numbers of animals and their sizes. Crayfish were almost certainly collected in the bay along with limpets, as previous analyses in the locality of Elands Bay have shown a strong correlation between the two (Buchanan 1988). Most animals are fairly small with a modal total mass of about 200 gm, interestingly about the same as in near contemporary assemblages from the Elands Bay Cave.

**PATTERNING OF FAUNAL REMAINS**

The bones of DFM are dominated numerically by those of seal, tortoise, small bovid, bird, eland, dassie, fish and microfauna in approximately that order (R.G. Klein pers. comm. 1991). Seal bones are substantially chewed, probably by either jackals or domestic dogs, but also by the brown hyena (*Hyaena brunnea*). Many of them may have been completely deleted from the assemblage. Small and large bovid bones, mostly the steenbok, *Raphicerus campestris*, and the eland, *Taurotragus oryx*, respectively, are less chewed and more frequently marked by impact fractures. These have presumably been processed for marrow and can be refitted and carcasses re-assembled. Tortoise skeletons have been dispersed through the consumption process but are frequently burnt, especially the plastron bones which probably lay directly on the coals. In the northern campsite there are virtually no bones of domestic animals (fewer than 12 bones out of a total of more than 1800 identified to species), allowing us to say with certainty that the vast

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*Fig. 6. Dunefield Midden (North): Distribution of potsherds.*
bulk of the food came from wild species of plant and animals.

We have paid particular attention to the eland bones, being interested in the number of individuals represented as well as the processes of consumption, distribution and disposal. We have measured 23 modern eland in the South African Museum hoping to be able to assess the chances of any one archaeological eland bone belonging to the same individual as another (Nilsson 1989) by differences in measurement ratios between individuals. The value of such a procedure lies in its ability to predict which bones could not belong to the same animal. Similar work is in progress at the late Magdelenian site of Pincevent (Enloe & David, in press). Looking at the measurements on the eland from the DFM northern site, as well as the pattern of body part representation, we are sure that only one eland, an adult, is represented. As might be expected in the case of a large animal, body parts are widely distributed about the camp including rear satellite and main dump areas, a pattern we think relates partly to the distribution of meat but mostly to the disposal of bone already processed for marrow. We ascribe some considerable significance to the presence of an eland not only because by its size it is the equivalent of 50 steenbok or 20 seals, but also because as a meat parcel it would obviously have been obtained at one single moment. We make the assumption that hunters would not leave camp the day after obtaining such a large bounty. Informal inspection of other sites along the dune cordon shows that eland bones are found on most, if not all, sites. It may well be that a prime reason for occupying this piece of the landscape was the good chance of taking an eland.

Steenbok bones are fairly common and probably reflect about 12 or 15 individuals. We have measured 47 modern skeletons but are not yet in a position to 'refit' carcasses metrically. Our impression is that this might be difficult because most of the steenbok are adults of more or less the same size. Compared with the seal bones there is remarkably less chewing on either steenbok or eland bones, but more evidence of butchery and marrow processing probably because seal bones are spongy and do not have marrow cavities. As with the quartz chips, the tiny flakes detached in bone processing are probably a very good indicator of the location of this behaviour.

Seal bones are abundant at DFM, include all body parts and are remarkably heavily chewed. Although this could result from people it is probably more likely to be the scavenging of greasy bones either by domestic dogs during the occupation, or by jackals after people had left. The incidence of chewing is matched in our experience only by that at Kasteelberg (Klein & Cruz-Uribe 1989; Smith pers. comm.) The seals were clearly all first or second year animals and measurements of mandibles compared with modern animals of known age at death suggests to us a winter occupation at DFM.

What is interesting about the distribution of the tortoise bone is the concentration of plastron fragments and limb bones in the domestic area among the swaths of hearths. Carapace fragments are more often in the dump,
a distinction which may reflect the use of carapaces, but not plastrons, as bowls. We believe the patches of tortoise bones near to hearths are drop or ‘drool’ zones which have remained as debris from the consumption of tortoises. Tortoise bones do not seem to have been very attractive to dogs or jackals that roamed the site.

We are not sure yet whether the host of bones from small animals such as fish, frogs, snakes, small birds, rodents and shrews, are the result of human food consumption or the debris from disaggregated animal faeces. Collections of modern faeces from the area will help to solve this.

WHAT DOES THE PATTERNING MEAN?

At this early stage in the analysis we can only list the range of questions we have about the site and the kinds of issues that might be approachable from the results. Crucial to the whole enterprise will be our ability to demonstrate successfully the existence of a series of distinguishable briefly occupied campsites with resolved spatial patterning. We believe this is already apparent, although even partial overlaps are evident. In the long run overlaps will not be a serious obstacle, nor even will poorly established edges, because the repetition of features and associations will allow us to generalise about the location of behaviour and the regularity of patterning across different but comparable sites. The challenge beyond that is to find more of these sites from earlier time periods and other environmental contexts so that these behaviours and regularities can be set in regional and temporal perspective. Ultimately such observations will meld with others into regional histories.

We can at DFM already dimly discern issues such as the duration and season of occupation. Counting calories against the number of hearths, we find it hard to believe in a visit of less than 10 days or more than 2 months. This would be long enough to account for the suggested impact on shellfish, since some tens of thousands of animals would have been collected. At the same time the numbers of people would have ensured shellfish loads well within the bounds of ethnomorphic observation (Meehan 1982).

Our measurement of seal mandibles (Woodborne et al. in prep.) and analyses of dassie mandibles against modern eruption schedules lead us to believe the visit to the northern campsite was no earlier in the year than March and no later than October, almost certainly a winter visit coincident with the rough winter storms.

As for the reason for the visit we propose that it was based on the reasonable expectation of killing an eland at a seasonal water pan in the nearby high, active dunesfield. The stone toolkit may well reflect a rather restricted range of tooling up behaviours as stone tipped arrows were primed for use. Other hunting and gathering was then wrapped around the consumption of the eland carcass which may well have attracted more people than the original occupants. Gathering at the site was focussed on shellfish, though after a month or so even the fat-rich diet derived from lots of seal meat may have palled. The site was, we suggest, a month in the lives of pre-colonial hunter gatherers, but a month in which we can discern some detail and of which we can ask rather specific questions.

ACKNOWLEDGEMENTS

We would like to thank Cedric Poggenpoel and a large number of the University of Cape Town Archaeology students for help in the field and laboratory. James Enloe, Graham Avery, Richard Klein and Royden Yates also made significant contributions to the research.

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THE AMSTERDAM BATTERY: A LATE 18TH CENTURY DUTCH MILITARY INSTALLATION IN TABLE BAY*

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* Accepted for publication September 1992

ABSTRACT

The partial excavation of the Amsterdam Battery yielded data pertaining to the construction and occupational phases of the fort and people who were stationed or visited there. The archaeological results verify and complement the archival documents. Three stages in the construction and modification of the Amsterdam Battery were identified. The first stage is represented by the original Dutch yellow clay floor. The second stage consisted of a sand/bog iron floor level, representing the remodelling phase of the early 1850s. A third, uppermost floor level of soft brick rubble and cement can be assigned to the 1890s, when a last attempt was made to modernise the battery.

HISTORICAL BACKGROUND

The Amsterdam Battery was one of a string of coastal defence works erected along the shores of Table Bay to protect the Dutch settlement and later the English Colony of the Cape against a possible attack from the sea. When in 1806 the English forces advanced from Blauwberg on the other side of Table Bay during the second occupation of the Cape, the heavy defence works of the Castle and the Amsterdam Battery were a major factor in deciding the direction of this invasion.

The Amsterdam Battery was built between 1781 and 1786 when the Cape settlement was over 100 years old. During this time it had grown from a small military village and supply station for the ships of the Dutch East India Company (hereafter referred to as the VOC) to a town of just under 20 000 people.

As the settlement prospered, its value as a gateway to the East increased enormously. In the second half of the eighteenth century however, the maritime power of the Netherlands and the VOC declined. The influence of their rivals, mainly the English East India Company, increased however, creating the need to improve defences.

The coastal defence provided by the Castle (built between 1666 and 1676) was considered adequate until the Dutch Governor van Imhoff visited the Cape in 1743. His report resulted in far-reaching changes being implemented (Chavonne, 1918). The only other defence work already in existence was the Chavonne Battery, built between 1715 and 1726, also known as Waterkasteel. During 1743 a fort, known as Fort Knokke was built to the east of the Castle. A line of batteries and redoubts, connected by a network of breastworks and trenches, called the Sea Lines, was erected during the following years between the Castle and Fort Knokke. These included the redoubts Elizabeth, Helena, Charlotte, Tulbagh and Riebeeck. In the mid 1750s the Imhoff Battery was added to protect the face of the Castle. Between the Castle and the Chavonne Battery on the dunes of Rogge Bay a small earthen fort, called the Heeren Hendricks Kinderen or Groote Battery had been erected in 1744. This was the forerunner of the Amsterdam Battery and it is recorded that six guns were mounted on it (Mentzel, 1784).

A few days after the outbreak of the fourth Sea War in 1781 between the Netherlands and England, the VOC Directors (Heeren XVII) ordered the Political Council at the Cape to remodel and modernise the Heeren Hendricks Kinderen Battery, which had fallen into disrepair. The battery was to be totally reconstructed and renamed the Amsterdam Battery according to an undated plan (given as 1725 by the Cape Archives) which was amended in 1780 by Col. P.H. Gilquin (Cape Archives, E3505) (Fig. 2).

Work on the Amsterdam Battery commenced in 1781, directed by Lieutenant Colonel P.H. Gilquin, an English engineer in the service of the VOC, who was director of fortifications in Table Bay.

By 1786 the Amsterdam Battery’s casemates had been built and cladded with dressed stone to form the front ramparts. These faced the sea, with embrasures for the armament of 66 twenty four-pounder cannon and 6 twelve-pound mortars (Cape Archives, plan M1/337). These embrasures on the right hand flank (facing the sea) were bricked up after 1803 and made into windows to ventilate the rooms which were then used to house the convicts (Fig. 3).
The guns were mounted on the upper floor of the casemates, the lower floor was to have cellars and corbelled ceilings for storage of cannonballs and for housing about 200 gunners. The walls were over 2 feet thick. Arched teak doors led into the bomb proof chambers. In the body of the front rampart were two rooms used for the storage of explosives. The roofs were strengthened with iron bars, and in one corner of each was a circular well or "shoot" (hoist), serving for communication with those in the magazines beneath and for raising ammunition (De Smidt, 1910).

Two powder magazines of massive construction were located in the courtyard. The doors were arched "being turned in concrete and constructed of yellow or Batavian bricks" (De Smidt, 1910). The outer walls of the powder magazines were buttressed with small ventilation...
apertures between the buttresses.

The entrance to the battery was from the rear and just wide enough for a Cape Cart to pass through it. The inner rampart wall was continued around the powder magazines where it was higher in order to protect them from artillery fire. The rear rampart walls had been built very low, about one to two meters high and their width was adequate for the installation of mobile cannons if required. "The crest of the rampart rose to 57,5 feet and the cannons were 41,5 feet above the median waterline", noted de Smidt (De Smidt, 1910), (Fig.4).

Fig. 4. Amsterdam Battery, frontview, 1870, showing the original gun ports (Cape Archives M1/851).

The finished battery was, according to surviving records, an excellent example of late eighteenth century defence works, where military architecture and the knowledge of ballistics combined to make a forceful architectural statement.

In 1791 Captain L.M. Thibault, a French engineer in the service of the VOC and later the British Colonial Administration, devised a plan for remodelling the Amsterdam Battery (Fig. 5). This was the first of many. The projected Dordrecht/Kerkhoven entrenchment (Cape Archives, plan M1/1081) was to run from the rear of the battery up the Vlaeberg. These plans were, however, evidently never carried out.

![Fig. 5. Proposed remodelling plan of the Amsterdam Battery, L.M. Thibault, 1791 (Cape Archives M1/1080).](image-url)

During the last years of the Company's rule the economy declined drastically and a large part of the garrison was withdrawn from the Cape. In 1795 a British force took command of the Castle, having advanced from the direction of Muizenberg, mindful of the strong defence works around Table Bay. This was the only time that the Amsterdam Battery saw action when Admiral Elphinstone sent HMS Echo around the Peninsula to sound out the defence works.

By 1806 over thirty forts, batteries and redoubts had been built to protect the Cape Peninsula. During and after the transitional period no money was spent on the upkeep of the batteries and forts in Table Bay. By 1827, with the world at peace, many of Cape Town's defence works had become obsolete and were partly or wholly dismantled in order to reduce expenses. However, the Amsterdam Battery was amongst those spared. The only addition to the defence works in Table Bay during the British period was Craig's Tower on Milnerton beach, built in 1795/6.

By 1838 the casemates on the northern side of the Amsterdam Battery had been converted to powder magazines to hold the Colony's military supplies. The Amsterdam Battery's gun powder continued to be stored in the powder magazines in the courtyard.

The first comprehensive remodelling phase of the Amsterdam Battery seems to have taken place after 1849. It is documented by a building plan with interior stockading (Fig. 6). The right flank of the fort was converted into a convict station. Since the beginning of the century the casemates had been used as cells for military offenders. They now housed the overflow of convicts from the Breakwater Prison and the Chavonne Battery.

![Fig. 6. Plan of proposed works, converting the right flank of the Amsterdam Battery for the reception of 300 convicts, 1849 (Cape Archives CO 585).](image-url)

The Amsterdam Battery was taken over by the Cape Volunteer Artillery as their headquarters in the early 1850s. The gunners occupied the left flank of the fort and trained throughout the remainder of the nineteenth century on the Amsterdam Battery's guns. In 1862 modern 7-inch 6.5 ton RML guns on sliding carriages were mounted on top of the outer flanks of the front ramparts (Commander W.M. Bisset, SAN, pers. comm.) (Fig. 7).

The Amsterdam Battery Reserve was seen as an obstruction to the further development of the Table Bay commercial harbour area. Roads and buildings encroached upon it (Fig. 8). Although it had begun much
earlier, the dispute between the civilian and military authorities as to the future use of the land and fortifications thereon, broke out in earnest. The matter was not, however, resolved for another twenty years. In the meantime the land in front of the Amsterdam Battery was reclaimed by the deposition of surplus material from the breakwater quarry. Dock Road was extended to run between the Amsterdam Battery and the sea and a railway line was put through.

In 1905 the War Department handed the Amsterdam Battery Reserve over to the Cape Town City Council. The guns were sold for scrap as were the beautiful teak vaults and windows. Although it was thought that the original loopholed walls were no longer effective against modern artillery, 3 charges of dynamite failed to make an impression upon the front rampart walls. About three quarters of the fort was destroyed between 1905 and 1912.

ARCHEOLOGICAL INVESTIGATION

The excavation

The remains of the Amsterdam Battery are situated at 11-13 Port Road, Cape Town (Fig. 9). Development proposals for the Cape Town's waterfront/old harbour area which included the Amsterdam Battery locality began to emerge in 1987. The University of Cape Town Archaeology Department saw the need to establish the
historical and archaeological potential of the site and allocated the project to the writer.

From an architectural drawing by the Royal Engineers in 1895 (Fig. 10), the caretakers house, the back ramparts and the entrance were located (Fig. 11). It was decided to excavate between the caretaker’s house and the right hand rampart wall and inside the ordnance store on the left hand rampart wall (Fig. 12). A grid system of 2 metre squares was established. It was expected that, being confined spaces, these areas would be rich in artefacts. As it turned out the caretaker’s house area yielded far fewer artefacts than were expected.

The remains of a posthole, cobbled area, a large ash heap with some horse and mule shoes as well as nails seems to indicate a smithy or its dump in the area between the caretaker’s house and the inner rampart wall at the most recent occupation level. Some iron parts of a Cape cart were also excavated.

**STRATIGRAPHY**

Three distinct floor levels (Fig. 13) could be distinguished throughout the inner courtyard area:

**Unit 1**

The lowermost unit was a ‘yellow clay floor’ of 0,25 to 0,40 m thickness. This was laid on the original beach sand level with the foundations of the rampart walls. Yellow clay floors were a common feature of Dutch building practise at the Cape (M. Hall, University of Cape Town, Department of Archaeology, pers. comm.). Although artefactually almost sterile a clay pipe dated to 1775-1790 was found on the foundations on the inner rampart wall.

**Unit 2**

Overlaying the yellow clay was approximately 0,05 m layer of beach sand. This was followed by a floor level, securely dated to 1852-1854 by uniform buttons indicating that it was a new surface laid down during the remodelling phase of the early 1850s. The floor level of ‘sand with pebbles’, consisted of grey-brown sand with an abundance of bog iron (ferricrete) nodules, found in riverbeds and on the slopes of Table Mountain. Remains of a cookhouse area between the caretaker’s house and the inner rampart wall were exposed. The remains of a water pipe dated to before 1860 (E. Paetzold, pers. comm.).
Unit 3
A third, uppermost floor level, of yellow stamped earth with soft brick rubble, possibly from demolished store houses, can be assigned to the end of the nineteenth century. This unit was the richest in artefacts particularly in the ordnance store area. The nature of the artefacts, two shale platforms/paving, a groove and water run-off channel along the wall, a circle of upright stones holding a nail e.g. attests there to the use of the area as workshop/store rooms. On the right hand side of the battery a large quantity of fencing material was recovered. Subsequently, further archival research revealed that the excavation had stopped just short of the convict area (Fig. 6).

Unit 4
At the workshop area the layer ‘yellow stamped earth’ was overlain by a hard worn cobbled floor of small beach cobbles and sand.

Unit 5
The courtyard area of the Amsterdam battery was more or less filled with rubble up to the height of the inner rampart walls. This had accumulated since about 1905 when the battery was abandoned. The artefacts for this unit are all dated to the twentieth century.

No remains of the Battery Heeren Hendricks Kinderen have been found so far. It might be reasonable to assume, in keeping with common practice at the time, that the builders reused the dressed stone from the earlier fort for the rampart walls. In addition the excavation area was possibly too small to cover a sufficient area and cut across earlier remnants of this feature.

It was not possible to locate the Amsterdam Battery’s rubbish dump, which could have provided valuable clues about the people working and living there.

ARTEFACTUAL REMAINS

Glass
85% of the glass fragments came from bottle glass of carbonated beverage, beer, wine and some case bottles. All the bottle glass was imported. Wine glass and cut-glass fragments suggest that persons of higher status such as officers stayed at the fort. The majority of the glass was collected from the two upper layers and can therefore be assigned to the second half of the nineteenth century (Lastovica & Lastovica, 1982).

Ceramics
Most of the porcelain and other ceramics collected were of inexpensive ware imported from England; a few Chinese porcelain fragments were recovered from the lower units. Layer ‘sand with pebbles’ of unit 2 contained the most reliable and consistent collection of ceramics and porcelain, all dated to 1820-1860 (Fig. 14). This date is also confirmed by military artefacts.

Fig. 14. Ceramics from Unit 2, layer ‘sand with pebbles’.

Bone
Over 90% of the bone sample was of sheep. The soldiers were fed on mutton for breakfast, lunch and dinner (Theal, 1908). Very little beef or pork was served and then only the better cuts. Some remains of small game and birds were recovered: a rabbit, small antelope and a heron or stork were amongst the total sample from all occupation levels. Fish was poorly represented, each excavation unit contained a single snoek.

Clay pipes
In the lowest unit, layer ‘yellow clay floor’, at the foundations of the inner rampart wall near the caretaker’s house, a Dutch claypipe bowl dated to 1775-1790 (Duco, 1982) was recovered. In unit 3, layer ‘yellow stamped earth’ an Irish pipe stem marked CORK S on both sides was found. This was a type of pipe stem manufactured before 1860 (Ayto, 1979).
Bead and coins

In the second unit, layer ‘sand with pebbles’ one glass trade bead, dated to the early 1850s, was collected. It is round, of aqua/green colour, with shining lustre (Karklins, 1985). Two coins, both from the upper unit 3, ‘yellow stamped earth’ were recovered. One was a 1918 George V Half Penny and the other a 1894 Queen Victoria “tickey”, or three pence.

Military artefacts

The most important finds are two brass officer’s uniform buttons, one from the 2nd and one from the 89th Regiment (Ripley, 1971) (Fig. 15).

The 2nd Regiment of Foot (Queens Royal) or Anglo-German Legion passed through Cape Town in 1853 and 1854 (Cape Archives, CO 641). Brinton (1977) mentioned them stationed in the Colony from 1852 to 1860. As the button was recovered from the top of the lowest unit, ‘yellow clay floor’, the earliest remodelling phase of the Amsterdam Battery could be dated to 1852. The 89th (the Princess Victoria’s) Regiment of Foot button from unit 2, layer ‘sand with pebbles’ with makers name: Firmins, London on the back, was worn by officers from 1855-1866 and by other ranks from 1855-1871. Brinton (1977) writes that the full regiment was stationed in Cape Town from 1856 to 1857. In 1857 part of the regiment remained behind, while the majority of officers and men embarked for India. The evidence of the buttons provide a terminus post quem date of before 1857.

Several cartridge cases were collected from unit 2, ‘sand with pebbles’ and unit 3, ‘yellow stamped earth’ in both excavation areas. From unit 3, ‘yellow stamped earth’, there was a .45 rifle cartridge case for an Enfield rifle, which was in use from about 1861-1900 (Cape Archives, CO 780, 25.7.1861). A .45 cartridge from unit 2, ‘sand with pebbles’, was fired from a Martini-Henry rifle, first issued in 1854 and used up the early 1870s (Cape Archives, CO 956, 19.11.1872).

One Sam Browne Belt loop, several brass shoe eyelets, a badge pin, an eyelet from inside a pith helmet, several plain blazer and shirt buttons, a few artillery shell parts, lead shot, part of a brass cartridge case and office stationary completes the collection. They were all recovered from unit 3, ‘yellow stamped earth’.

The military artefacts therefore date to the second half of the nineteenth century. Manufacturer’s marks and the arrow sign on the cartridges and other material point to War Department property. No remains of any military gadgets from the Dutch period were recovered.

Miscellaneous artefacts

A broken ostrich egg shell fragment was recovered from unit 2, layer ‘sand with pebbles’, dated from 1850 to ca 1890. This supports the possibility that the fragment originated from a Khoi-San person living or working in the Amsterdam Battery.

Various artefacts connected with the supply of gas and gas lamps, water, surveying, office stationary and writing on slate boards were excavated from unit 2, layer ‘sand with pebbles’ and unit 3, layer ‘yellow stamped earth’. They are all dated firmly to the second half of the nineteenth century.

One small Christmas tree bauble in glass, a pink mother-of-pearl lady’s blouse button and a small porcelain hat of a lady figurine in unit 3 are not unexpected in a military establishment.

SUMMARY

With this project I was able to verify, on a practical level, that the documentary and artefactual evidence is an adequate reflection of the chronology and the range of activities at those parts of the Amsterdam Battery that survive.

Evidence for the three development phases of the Amsterdam Battery was highly visible in the various units excavated in the courtyard:

Phase 1: a ‘yellow clay floor’, built in 1781, a common feature of Dutch building practise. This layer is almost sterile.

Phase 2: layer ‘sand with pebbles’, dated to 1852-1857 was necessitated by the remodelling phase to accommodate a large number of convicts and upgrade the battery.

Phase 3: layer ‘yellow stamped earth’ can be assigned to the 1890s, when a last attempt was made to modernise the Amsterdam Battery.

Finally, the uppermost unit relates to the period after the dismantling of the Amsterdam Battery, i.e. after 1905. The artefacts from layer ‘rubble infill’ are all dated to the twentieth century. The range of artefacts excavated and the independent dates they produced are compatible with those provided by documentary evidence.

ACKNOWLEDGEMENTS

This paper is based on my BSc (Honours) dissertation in archaeology at the University of Cape Town. I should
like to thank my supervisor, Prof. Martin Hall and volunteers, students and members of the Archaeological Society for their assistance. Jan Seemann contributed the drawings. I also thank the many others who assisted with my historical research and helped with the analysis of the artefacts.

REFERENCES


A REPORT ON THE ARCHAEOLOGY OF THE QWAQWA MUSEUM SITE*

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ABSTRACT

The work originated from the building of a Southern Sotho Open-air Museum in Qwaqwa. The presence of stone-walled archaeological remains at the site seemed to warrant a closer investigation. The aim of the project was to describe the settlement pattern and to obtain a sample of the pottery assemblage and other material. These were limited and no final conclusions can be offered. The site represents the most easterly location of Late Iron Age archaeological work undertaken west of the Drakensberg escarp and produced material for comparison with future work.

INTRODUCTION

The Qwaqwa Tourism and Nature Conservation Corporation is establishing an open-air museum outside Phuthaditjaba. The aim is to display in a contemporary settlement layout, the development of different hut structures used by Southern Sotho peoples. The first stage of the museum depicts a traditional Basotho village (motse), with the huts and other structures of a headman with three wives. The buildings are planned to include several domed grass huts (mohlongwafatse), rondavels, an oval house (rolloheisi) and various rectangular homes. To the rear of the settlement square houses will exhibit the well-known wall decorations, or ditema, made by farm labourers in the Orange Free State.

The site also contains remnants of a prehistoric occupation which clearly predates contemporary settlement in Qwaqwa. According to officials the site complex is claimed neither by the Tlokwa nor the Kwenza as an ancestral living place. It is speculated locally that the site could have been a settlement of the Kgolokwe, the people of Oetsie (Witsie), who occupied Witteeshoek before their dispersion by the Free State Boers. Although several papers examine aspects of the later history of the region and its inhabitants, ethnographic information about the Kgolokwe remains scanty. The investigation is further hampered by the lack of archaeological descriptions of the area and the absence of a survey of sites. This investigation must therefore be regarded as a pilot venture, with efforts also made to put the site into a wider archaeological and historical context.

An archaeological survey was recently done at the site. The aim was to investigate certain visible features on the surface, to find and describe huts and to obtain a sample of the pottery. This paper describes the finds in general and also highlights the differences from and similarities with other known archaeological sites in the Free State. It also describes the settlement pattern and in the discussion attempts to place the site in an historical context and to identify the occupants. It is presented as a description of a settlement in this specific ecological and geographical region.

EARLY HISTORY

Early references to the history of the region are closely related to the arrival of the Kgolokwe in the area (Fig. 1). These people are of Kgotla origin and therefore related to the Pedi, Tlokwa, Phuting and Sia. The history of the Kgolokwe is interwoven with that of other tribes in the region, but from the writings of Ellenberger (1912), Steytler (1932), Mapena (1970), Kriel

Fig. 1. Locality of names mentioned in the text.
(1976:182-83) and Maggs (1976) it is possible to trace their movements as part of the early occupation of Witsieshoek.

The Kgolokwe lived at Thaba Kgolokwe near the present-day town of Standerton for several generations, up to the end of the 17th century. Due to over-population and the lack of grazing they gradually moved to the area east of Ntsuanatsatsi (Tafelkop) where Type N and elongated Type V settlements are located (Maggs 1976:315-6). In 1853 Sekonyela of the Tlokwa and Gert Taalbosch, a Koranna chief, joined forces and attacked the Kgolokwe of Oetsi at this locality. After this the Kgolokwe settled at Witsieshoek where they lived for some time. Their persistence in raiding stock from neighbouring farms led to their dispersal by a combined Free State and Tlokwa force in 1856.

In 1858 a group of Kgolokwe under Hlomise, the son of Oetsi, moved from Aasvoelkrans (Thaba Kholo?) near Bethlehem to Swartklip 162, a farm of the well-known Commandant De Villiers (Mazothanyane) at the Meul River. They later joined the Commandant when he moved to Rietvlei near Nelsomskop, and from here gradually spread out as labourers to neighbouring farms. Another section of the Kgolokwe, who were living under Mota at Moteng, joined Lewatle, a grandson of Oetsi at Nqutu in Natal, while a third group went to Phosa Moletsi, near Standerton.

During the second Basotho War in 1865 some of the Kgolokwe of Hlomise served the Free State forces. They had to wear pieces of white cloth on their chests to identify them from the Basotho and were aptly called "Rinkhalse". The people under Paulus Mopeli Mokgatjhanu arrived in Qwaqwa in 1867. Koos Mota came into the region in 1875 and settled at Matswakeng (also called Tsheseng) and Makgemeng. To the north of Matswakeng near the Namahali (Elands) River at Moediing another settlement was occupied mainly by Kgolokwe, probably from as early as 1839 (Steytler 1932:45).

THE SITE

The complex is situated on the farm Korfshoek 193 in the district of Kestell (Fig. 2). It lies to the south of the prominent ridge of Witkrans, adjacent to Silasberg, with Rondawelkop further to the west. The archaeological remains are located against a sandstone hill on a north-facing plateau (28.29.23S; 28.44.34E) on the 1800 m contour (2828BC 1987). Due to the topography, the soil surface slopes towards the north.

The site contains several large boulders, probably originating from the hill above the living area. Indigenous shrubs and trees (e.g. Euclea, Rhus, Grewia, Cassonria, Olea spp.) grow around the rocks.

The remains of stone walls can be seen on the surface but there is no clear indication of the presence of huts or midden. Soil mounds which could be either huts or middens are visible in certain places on the surface, but the site complex lacks surface scatters of pottery and lower grindstones.

Fig. 2. Locality of the Qwaqwa Museum and study area.

EXCAVATIONS

During September 1991 I conducted a preliminary survey, recording most of the visible features in the immediate building area of the proposed museum. This was followed in March and April 1992 by a series of excavations. Squares were laid over middens, as well as possible hut and stone features. The sizes of the individual excavations were adapted as necessary and all deposits were removed in arbitrary layers to bedrock, in this case sterile black clay. Excavations were numbered individually and are shown on the site plan (Fig.3).

FEATURES

Stone Walls

The stone features consist of isolated stone-walled enclosures and clusters of up to three enclosures, in some cases linked together by short connecting walls (Fig.3). A number of these enclosures have floor levels below the surrounding surface. These concave floors indicate trampling by livestock and the removal of dung for fuel (Maggs 1976:60,133,175; Pistorius 1984:177). Their locality and size (>10 m diameter) indicate that they were stock byres. In some cases an additional stone wall forms a major enclosure with its ends abutting the cattle byres (Fig. 3). It is notable that these additional enclosures do not have concave profiles but appear to have been levelled (cf. Maggs 1976:214).
Soil samples (14-17) from outside and inside the stone enclosures (Fig. 3) were submitted for chemical analysis to the Glen Agricultural College. The results are summarised below (Table 1).

Table 1. Soil analysis

<table>
<thead>
<tr>
<th>SAMPLE</th>
<th>PH</th>
<th>CA</th>
<th>K</th>
<th>P</th>
<th>ZN</th>
</tr>
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<tbody>
<tr>
<td>14</td>
<td>4.9</td>
<td>1055</td>
<td>293</td>
<td>19</td>
<td>4.3</td>
</tr>
<tr>
<td>15</td>
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<td>641</td>
<td>370</td>
<td>3</td>
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<tr>
<td>16</td>
<td>4.6</td>
<td>708</td>
<td>314</td>
<td>17</td>
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<td>17</td>
<td>4.9</td>
<td>1055</td>
<td>314</td>
<td>21</td>
<td>5.7</td>
</tr>
</tbody>
</table>

Stone mounds and paving

Stone paving is found at various places on the surface away from the stone walls, and raised circles of paving occur as part of the additional walls (Fig. 3). At two locations (G & P) the stones were cleared of vegetation and cleaned for inspection (Fig. 4). The walls were built in the traditional way (Fig. 5) of piled stones with rubble infill (Walton 1958:135; Maggs 1976:51), but no indication of the function of these paved surfaces could be found. They could have been bases for grain-storage containers as suggested by various authors concerning other sites (cf. Van Hoepen & Hoffman 1935; Maggs 1976; Taylor 1984).

Soil mounds

Several squares (A-F) were excavated to investigate the soil mounds (Fig. 3). The finds were embedded in a hard matrix of solid black clay which crumbled into coarse pellets when loosened. The process of excavation resulted in the breaking of the already highly fragmented potsherds. Block A produced potsherds, pieces of a charred mealie cob and some rusted netting wire. In Blocks E and F the deposit was similar but produced only a few fragments of pottery and bone. The soil in these mounds was clearly not indicative of midden deposits and the finds indicated a more recent occupation.

Middens

Middens clearly fall into two periods as judged by the finds. The later phase is represented by wire, nails, glass beads and cartridge shells from Blocks A and M. Blocks B, C and D produced potsherds and bone, as did Blocks H, M, K and J which were clearly in the remains of an ash heap (Figs 6, 7 & 8).

**FINDS**

**Fauna**

The faunal analysis was done by J.S. Brink of the Quaternary Research Station at Florishad. Domestic cattle and sheep/goat were present and Cape hare, dassie, aardwolf, grey duiker and various bovids represented the non-domestic species (Brink & Holt 1992, this issue).

Block M is part of the more recent occupation and produced bone material of a wider range of animals, indicating an extended utilisation of resources compared
to the older localities. The presence of a small goat in the sample is noteworthy. These animals were of small stature, possibly similar to the dwarf goat from Ndondondwane in Natal (Voigt & Von den Driesch 1984:98). There is no direct evidence for the presence of sheep, although certain indeterminate examples could be either sheep or goat. Numerous bone specimens show damage due to carnivore chewing, probably indicating the presence of domestic dogs. The intensity of damage on some specimens also points to the presence of dogs,
although no dog remains were found.

Pottery

Potsherds were recovered from all the excavations (Fig. 9). In a few instances sherds were collected on the surface. The distribution and decorations of the pottery finds are discussed below.

which included finger-pinching on applied band and in parallel rows "forming corrugations" on the body of the vessel. Three (4%) of the sherds were comb-stamped in rows or in pendant triangles. Eighteen (24%) were stylus incised and 36% (27) ochre burnished. Out of a total of 105 rim pieces, 36 (34%) were decorated. From the surface collection none were decorated and only six rim pieces were retrieved.

Similarities in pottery decoration with sites excavated by Maggs (1976) and Dreyer (1990) are compared below.

Table 3. Comparison of pottery decoration

<table>
<thead>
<tr>
<th></th>
<th>TOTAL DEC</th>
<th>NAIL/ FINGER</th>
<th>COMB STAMP</th>
<th>INCISED STYLUS</th>
<th>OCHRE STYLUS</th>
</tr>
</thead>
<tbody>
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<td>TYPE V</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ODI</td>
<td>38,6%</td>
<td>42,0%</td>
<td>24,0%</td>
<td>10,0%</td>
<td></td>
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<tr>
<td>OD2(2)</td>
<td>11,6%</td>
<td>37,0%</td>
<td>7,0%</td>
<td>53,0%</td>
<td></td>
</tr>
<tr>
<td>OND3</td>
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<td>24,0%</td>
<td>62,0%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TYPE N</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OUL</td>
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<tr>
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<td>69,0%</td>
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<td>CALEDON VALLEY</td>
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<td>24,0%</td>
<td></td>
</tr>
</tbody>
</table>

Fig. 9. Pottery finds and decoration.
There is a preference for finger decoration over combstamping/incision at the Qwaqwa Museum site, which is in accord with finds at Type V, Caledon Valley (Maggs 1976) and the Doornpoort sites (Dreyer 1990). Similarities in pottery decoration exist between sites excavated by Maggs (1976) and Dreyer (1990). Certain modes of decoration, such as finger-pinching on applied bands and in parallel rows “forming corrugations”, also corresponds with the Type V, Caledon Valley and Doornpoort, sites excavated by Maggs (1976) and Dreyer (1990). Incisions as found in Block H, layer 4 (Fig. 9), could be an interesting variation but are still different from Type Z.

Clay figurines

Block D produced two broken pieces of tapered clay objects resembling the horns of cattle. The pieces were less than 15 mm long and were clearly from different figurines. Nothing concerning the size and characteristics of the figurines could be derived from the fragments.

Beads

A total of 121 glass beads was recovered in Blocks G and M. Table 4 displays the distribution and description of the glass beads in more detail.

The glass beads of various colours ranged from 1-10 mm in diameter. It should be stressed that the term "round" as used in the description could be misleading as oblate could also be applicable. The ends could have been worn to create this shape. The glass beads came from Blocks G and M together with burnt mealie cobs, pieces of wire and cartridge shells, suggesting a recent date. It is also notable that no ostrich eggshell beads were found on the site.

Glass beads are described by Maggs (1976) from his OOl (Lindley) and OND3 sites and are associated with the Type V occupation. It is argued that they represent a later date during the 18th or 19th century and are accepted as part of the trade between the Sotho occupants and people from east of the Drakensberg. Glass beads were totally absent from Caledon Valley (OND2) (Maggs 1976:211-) and the occupation at Doornpoort, near Winburg (Dreyer 1990).

Five metal beads of 4.5 mm diameter, together with one bead made out of a tooth (8 mm diametre), came from Block M.

Metal objects

Pieces of rusted barbed- and netting-wire were located in Blocks A and M. A 60 mm nail and two pieces of thin metal, 24 mm and 27 mm in length respectively, came from Block M. A 40 mm long, corroded tapering shaft was found in Block H.

Four .303-calibre cartridge shells, of which some were unfired, were collected on the surface at the site. Headstamps indicated Mark II with Cordite driving powder, manufactured by the Royal Laboratory, Woolwich, and the Birmingham Metal Company. Another three Mark II shells of .303-calibre, recovered from the excavation in Block M, were manufactured by Royal Laboratory and Kynoch. The Mark II shells are known to date from the Anglo-Boer War. One fired-shell from Block M was of Mauser origin, 7x54mm-calibre, manufactured by Kynoch.

Table 4. Distribution and description of glass beads

<table>
<thead>
<tr>
<th>LOCALITY</th>
<th>No.</th>
<th>COLOUR</th>
<th>SHAPE</th>
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<td>mustard</td>
<td>cylinder</td>
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</table>

Bone and shell

Bone fragments were retrieved from all excavations excluding Blocks A and G. One bone point (24 mm) was found in Block H. This excavation also produced four spatulate fragments of worked bone ranging from 7-23 mm in width and 35-62 mm in length. A flat piece of bone resembling the former objects, 17 mm in length and 14 mm wide, came from Block D. One complete freshwater mussel shell of 68 mm length was found in Block H.

Other finds

A split half of a slate-pencil, the tip of a pipe stem and two fragments of dark translucent glass together with a piece of white porcelain were found in Block M. A broken upper grinding stone (55 x 40 mm) was found in Block K and a complete one (90 x 70 x 35 mm) in Block P. Two pieces of burnt mealie cob were recovered from Block A. Burnt hut plaster with impressions of reeds and
grass came from the excavation in Block K and on the surface nearby. This is probably an indication that some of the huts were burnt down.

**DISCUSSION**

From the finds it is clear that there were at least two different phases of occupation on the site. The wire, glass beads, cartridge shells and mealie cobs found in Blocks A, G and M clearly indicate a more recent occupation. The presence of cartridge shells dating from the Anglo-Boer War does not contribute much to the chronology of the more recent occupation of the site. The .303-calibre, Mark II shells on the surface and from the excavations only indicate that shooting took place in the vicinity probably during or after the War. The shells could also have been collected and carried to the site at a later date, especially as some of the cartridges were still unfired. The occupation of the site could therefore be either contemporary with or just after the War.

Blocks B, C, D, H, J, K, N and P produced finger-pinched and combstamped pottery, bone, clay figurines and burnt hut plaster, representing an earlier settlement. A charcoal sample was recovered from Block B but was not considered sufficient for radiocarbon dating. It is accepted that the early habitation of the site fits in with the general Late Iron Age occupation of the Free State during the 16th to 19th centuries. This assumption, however, does not bring us any closer to a date for the site, and clarification will have to await further work in the area.

To link the site complex with other known Later Iron Age settlements of the central Highveld on the basis of surface observations would be premature. Nevertheless, the basic layout from the Qwaqwa Museum site can still be contrasted with the standardised arrangement of structures at sites characterised by connecting walls at Type V, outer walls at Type N and bilobial courtyards at Type Z settlements (Maggs 1976). The site complex can also be contrasted with settlements with a less characteristic and repeated arrangement of structures in the Caledon Valley, as found at OND2 (Maggs 1976) and Doornpoort, Winburg (Dreyer 1990).

The significant information to identify the settlement pattern could be the position of the entrances to the various enclosures. However, due to wall-robbing and the collapsed state of the stone walls the entrances to the byres could not be located. If it should appear that the added enclosures did not have an entrance from the outside, this could indicate a protective wall for huts as found at Type N sites, providing that the byres do have openings to the outside. An outside entrance into the added enclosure, with access through to the other structures, would resemble a Type V settlement and might have been for handling stock (lepatlelo, see Ashton 1967:141).

An analysis of the Qwaqwa soil samples do not support the assumption that the enclosures were used as cattle byres. In this case it is only the obvious low count of phosphate in sample 15 from the additional enclosure, that is of interest. It could be argued that most of the dung had been removed or that this type of enclosure had another function, probably as the milking area (lepatlelo). As this site bears no direct resemblance to other previously described sites, it is very tempting to conclude that the pattern found at the Qwaqwa Museum site could represent a new and undescribed type of settlement layout.

Pottery decoration appears to support the classification of sites based on settlement patterns (Maggs 1976:288, 290). An analogy with other sites is therefore essential, but in this case, the absence of an adequate ceramic sample prevents such a comparison. The sample of decorated sherds is small at 5%, of which 32% are finger decorated, 4% combstamped and 24% incised ware. This differs from the bigger sample at Doornpoort, near Winburg, which produced 6.6% decorated, with 50.8% finger decorated and a combined total of 32.2% combstamped and stylus incised pottery (Dreyer 1990). The pottery sample is clearly Sotho/Tswana but needs a finer division.

One of the main aims of the project at the Qwaqwa Museum site was to find and describe huts on the site. Unfortunately no hut locations were discovered. The burnt clay in one area clearly indicates that there were huts of perishable materials on the site. This conforms with finds at Late Iron Age sites elsewhere (cf. Maggs 1976, Dreyer 1990).

The pattern of ash disposal could not be determined. It was also not possible to ascertain from the ethnographic record whether the middens would have been placed in front of or behind the huts.

Group identity is reflected in hut type, settlement layout and ceramic style. These aspects can be used to trace, identify and follow large-scale ethnic units (Huffman 1982, 1989). From the written records it is clear that the ancestors of the contemporary groups in Qwaqwa could have been responsible for the erection of the site but nothing can be confirmed by the archaeological investigation due to the lack of detailed comparative information on the Kgolokwe. Although there is still a strong possibility that the Kgolokwe could have been the early occupants of the Kestell and Witsieshoek area, no final conclusions can yet be made.

No huts have been found, and a larger pottery sample is needed for comparison. Further work could correlate the settlement pattern as described at the Museum site. The sites mentioned by Kriel (1983:46) which are situated inside Qwaqwa, or any other locality connected to the Kgolokwe historically, could be important to extend the research. At the moment the Museum site represents the most eastern archaeological site yet investigated west of the escarpment. It could produce crucial information on the influence of people and animals from east of the Drakensberg, on Lesotho and the surrounding area.

**ACKNOWLEDGEMENTS**

The work was financed by the Qwaqwa Tourism Corporation and was undertaken as an official project of
the National Museum, Bloemfontein. Thanks are due to the Qwaqwa Museum Advisory Committee for the opportunity to do the survey and for permission to publish the report. I am also indebted to Johan Meiring and Melinda Bekker of the former Department of Development Aid for their involvement and valuable discussions on the site.

I was assisted by Klaas and Daniel Mphafi during the fieldwork and processing of the material and by Sharon Holt who was also responsible for the illustrations. The faunal analysis was ably done by James Brink. Tom Huffman, Sandra Bishop and Zoë Henderson are thanked for comments on the script.

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A SMALL GOAT, \textit{CAPRA HIRCUS}, FROM A LATE IRON AGE SITE IN THE EASTERN ORANGE FREE STATE*

J.S. BRINK & S. HOLT

* Accepted for publication November 1992

INTRODUCTION

Archaeological faunal remains can provide a wealth of information on breeds of domesticated animals (Von den Driesch 1983; cf. Boessneck 1985). Of particular interest is the spread of various kinds of breeds from domestication centra into various parts of the world. It is well-known that most of the animals domesticated in the Middle- or Near East were present in southern Africa at the time of the European colonisation during the middle of the 17th century (Boessneck 1985; Deacon 1986). However, little is known of the nature of the breeds associated with indigenous Khoisan people, apart from descriptions and depictions by early travellers and missionaries. The same applies to domesticated breeds associated with Iron Age people in southern Africa. These domesticated animals were not introduced by Europeans and represent the results of breeding practices through time in southern Africa and further to the north.

In her work on the Mapungubwe faunal remains, Voigt (1983) demonstrated how archaeological faunas can provide detailed information on cattle breeds. In this paper we report on a small faunal assemblage from the QwaQwa Museum, a Late Iron Age site in the Eastern Orange Free State. These remains included a small form of domestic goat, which we illustrate and describe here (see also the report by Dreyer in this issue for further information on the site).

THE FAUNA

The results of the analysis are given in summary form in Table 1. A skeletal part analysis was not done on account of the small size of the sample. A noteworthy feature of the assemblage is the faunal diversity in locality M, which is also considered to be more recent than the others (Dreyer 1992). The localities from the older phase show a generally more restricted pattern of utilization in which cattle was a persistent feature. The presence of a wide range of wild species is not uncommon for the Late Iron Age in the Orange Free State (Plug 1989) and also for the Iron Age in general (Voigt 1983; 1986).

Table 1. Faunal remains from the QwaQwa museum site, according to minimum number of individuals (MNI) and number of identified specimens (NISP)

\begin{tabular}{lcccccc}
  & B & C & H & J & K & M & P \\
  
  \textit{cf. Lepus capensis} & & & & & & 1/5 & \\
  (Cape hare) & & & & & & & \\
  \textit{Procavia capensis} & 4/30 & & & & & & \\
  (dassie) & & & & & & & \\
  \textit{Protea cristata} & 1/2 & & & & & & \\
  (aardwolf) & & & & & & & \\
  \textit{Bos taurus} & 1/2 & 1/1 & 1/5 & 1/1 & 1/1 & 2/2 & 1/3 \\
  (cattle) & & & & & & & \\
  \textit{Capra hircus} & 2/4 & & & & & & \\
  (goat) & & & & & & & \\
  \textit{Ovis/Capra} & 1/1 & 1/1 & 1/1 & 2/6 & & & \\
  (sheep/goat) & & & & & & & \\
  \textit{Sylocapra grimmia} & 1/2 & & & & & & \\
  (grey duiker) & & & & & & & \\
  Bovidae indet. & & & & & & & \\
  Small & 1/2 & 1/3 & & & & & \\
  Small-Medium & 1/1 & 1/4 & 1/3 & 1/2 & & & \\
  Large-Medium & 1/4 & & & & & & \\
  Large & 1/4 & & & & & & \\
\end{tabular}

THE GOAT REMAINS

Anatomical elements that were positively identified as domestic goat include a proximal phalanx (Fig. 1) and
two medial phalanges (Fig. 2). Distal metapodial fragments and other similarly fragmented material that tentatively can be identified as goat have not been included in the small goat category in Table 1, but are listed as sheep/goat.

**Phalanx proximalis** (Fig. 1)

The relative slenderness of the specimen suggests that it may belong to the hindlimb, as phalanges from the hindlimb are usually less robust than those from the forelimb. However, this is not certain as overlap in size can also occur due to variation between individuals and because the inner phalanges tend to be more robust than the outer (Boessneck et al. 1964; Boessneck 1969). The goat characteristics of this specimen can be summarized as follows:

1. On the proximal end, the leading groove for the distal metapodial is quite deep, giving the impression of a sharp incision when viewed from the volar/plantar side.
2. The tubercle for the axial ligament on the plantar/volar side near the proximal end is relatively prominent.
3. The points of attachment for ligaments on the volar/plantar side of the distal part of the shaft are prominent.
4. The proximal edge of the distal articulation on the volar/plantar side is sharply indented, forming an acute angle.
In addition the volar/plantar side of the shaft of the phalanx is slightly concave, which is suggestive of goat rather than sheep.

**Phalanges mediae (Fig. 2)**

It is particularly difficult to distinguish between the individual medial phalanges of front- and hindlimb in dwarf forms of sheep and goat (Boessneck et al. 1964). The specimen in Fig. 2b is somewhat more robust than the one in Fig. 2c, which may suggest that that the former is anterior and the latter posterior. This is contradicted by the fact that in both specimens the dorsovolar/plantar length of the proximal end is smaller than its mediolateral width (10.6:11.1 and 9.2:9.6 respectively), which is a feature typical of goat anterior phalanges (Boessneck et al. 1964). If the two specimens are both from the front limb, it can be assumed that the difference in size reflects sexual dimorphism in the living population. However, this is still uncertain and more material is needed before reliable statements can be made on sexual dimorphism in southern African dwarf goats. Normally dwarf forms of sheep and goat do not show marked sexual dimorphism (Boessneck et al. 1964).

The two phalanges show the following characteristics typical of domestic goats:

1. The proximal edge of the distal articulation on the volar/plantar side is sharply indented in both specimens.
2. On the volar/plantar side of both phalanges the distal articulation extends proximally to form a ridge on the peripheral part of the bone.
3. The axial part of the distal articulation is relatively small compared to the peripheral part.

**DISCUSSION**

The process of identifying a bone specimen to a given taxon rests on the consideration of a number of characteristic features as a whole. In closely related species such as sheep and goat it is usually necessary to use more than one of the known criteria for distinction (Boessneck et al. 1964). In the present case all diagnostic features point to the specimens being domestic goat.

Very little is known of the domestication history of goats associated with Iron Age communities. Voigt (1986) states that southern African Iron Age goats have primitive hornscores resembling the hornshape of the ancestral bezoar goat of the Near East. Unfortunately no positively identified goat hornscores were found in the QwaQwa assemblage. However, Voigt & Von den Driesch (1984) mention the presence of small domestic goat remains in the Early Iron Age assemblages from Ndondondwane, Natal. We could not compare our specimens with the Ndondondwane material, as no measurements were published in the preliminary report (Voigt & Von den Driesch 1984), but we were fortunate enough to obtain a female Cameroon dwarf goat from the Bloemfontein Zoological Gardens and the measurements of this specimen and the fossil specimens are provided in Tables 2 & 3. It is clear from these measurements that the specimens from the QwaQwa Museum site are similar in proportions to the phalanges of the Cameroon dwarf goat.

**Table 2. Comparison between the standard measurements of a proximal phalanx from the QwaQwa Museum site and the proximal phalanges of a female Cameroon dwarf goat**

<table>
<thead>
<tr>
<th>QwaQwa specimen (Fig.1b)</th>
<th>Cameroon dwarf goat (front)</th>
<th>Cameroon dwarf goat (hind)</th>
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<tr>
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<td>29.1</td>
</tr>
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<td>12.7</td>
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</tr>
<tr>
<td>Bd</td>
<td>11.6</td>
<td>11.6</td>
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</table>

**Table 3. Comparison between the standard measurements of medial phalanges from the QwaQwa Museum site and the medial phalanges of a female Cameroon dwarf goat**

<table>
<thead>
<tr>
<th>QwaQwa specimen (Fig.2c)</th>
<th>Cameroon dwarf goat (front)</th>
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An important question is whether the small size of these dwarf goats from archaeological contexts in southern Africa are due to poor stockkeeping practices or to selective breeding. In the case of the Cameroon dwarf breed (Fig. 3), its small size is genetically fixed through selective breeding, since feeding has had no effect on the size of the animals over several generations (S. van der Merwe pers. comm.). According to J. Spence of the Tygerberg Zoological Gardens (pers. com. 1992), some Cameroon dwarf goats were imported into South Africa.

![Fig. 3. A photograph of a male Cameroon dwarf goat in the Bloemfontein Zoological Gardens.](image)
via Germany by the East London Zoo, from where the specimens found their way first to the Tygerberg Zoo and later also to the Bloemfontein Zoo. These animals are apparently prolific breeders and in some instances specimens even found their way into private hands. If the QwaQwa Museum site is indeed Late Iron Age (Dreyer 1992), this would mean that small goats were present throughout the Iron Age in southern Africa and that they occurred over a wide area, including Natal and the Eastern Orange Free State. This and the fact that they were kept with normal-sized sheep and goats throughout the Iron Age suggest that the size of these small goats were not due to poor keeping conditions, but rather that these small animals represent a specific dwarf breed.

It is possible that this breed may have occurred in areas further to the north and west of Natal and the Orange Free State in the Iron Age sensu lato, but unfortunately the archaeological record is not clear on this issue at present. A further question is whether there are living descendants of these small goats today in southern Africa. Voigt & Von den Driesch (1984) mention the presence of some dwarf goats in Ingwavuma, northern Zululand. However, according to Voigt (pers. com.) these animals tend to increase in size when feeding is improved. As such they probably do not represent the descendants of a local dwarf breed.

Dwarfism in domestic bovids is not an uncommon occurrence. It is known that Iron Age cattle in central Europe were markedly smaller than those of the Romans, who practiced better breeding methods than their Iron Age neighbours (Boessneck 1985; Von den Driesch 1983). It appears that size reduction was one of the first results of the domestication process due to conscious selection for smaller animals and/or poor keeping conditions (Boessneck 1985). If poor husbandry practices can be ruled out to explain the small size of the goats from Ndondondwane and QwaQwa, then the origin of the southern African Iron Age dwarf forms probably lies further to the north in Africa, as these animals were small from the time when they first appear in the archaeological record at Ndondondwane. Dwarf goats probably accompanied the first Iron Age immigrants into southern Africa.

ACKNOWLEDGEMENTS

The authors thank Mr J.J.B. Dreyer for making the faunal remains from the QwaQwa Museum site available to them for study. Mr J. Spence, director of the Tygerberg Zoological Gardens, Mr S. van der Merwe and Mr B. de Wet, Bloemfontein Zoological Gardens, are thanked for information on Cameroon Dwarf goats. We are also indebted to Mr. S. van der Merwe, director of the Bloemfontein Zoological Gardens, for donating the female Cameroon goat to the National Museum, which we have used for comparison. Zoë Henderson, Jannie Loubser and Rick Nuttall commented on a draft of the manuscript.

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USE-WEAR ANALYSIS OF TWO ACHEULEAN HANDAXES FROM WONDERWERK CAVE, NORTHERN CAPE*

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ABSTRACT

Wonderwerk Cave, in the northern Cape, is one of few cave sites in southern Africa to contain a Stone Age sequence ranging from the Acheulean up until historic times. The Acheulean artefacts are associated with well-preserved bone remains and calcified plant material. Two chert handaxes, predating ca 350 000 BP, were selected for the examination of use-wear traces. The indications are that the handaxes were used to process vegetal materials.

INTRODUCTION

Acheulean handaxes are found throughout southern Africa in virtually every geographical region and environment (Sampson 1974, Fig. 40). Unfortunately, these implements are found mainly in the open and are heavily patinated, which prevent any microscopic examination to determine their possible function. Although a few cave sites in southern Africa do contain Earlier Stone Age implements, these are usually manufactured of local quartzites or other raw materials which are not suitable for microscopic investigation. However, recent excavations at Wonderwerk Cave in the northern Cape yielded Acheulean handaxes manufactured of chert which are suitable for microscopic examination. Together with techniques developed in recent years mainly by Keeley (1980), it is now possible to examine and study the wear traces on stone tools to gain some insights into possible functions of stone tools. Keeley established from experimental use of stone tools that different materials, such as wood, bone, hide, antler and meat leave distinct wear traces on the surfaces of stone tools. These wear traces can be identified between 200x and 400x magnification.

Handaxes were first discovered in Wonderwerk Cave during excavations by B.D. Malan & L.H. Wells in 1943 (Malan & Wells 1943). Excavations with the aim of investigating the Acheulean levels were resumed in 1978 by Peter Beaumont.

THE MIDDLE PLEISTOCENE LEVELS AT WONDERWERK CAVE

Wonderwerk (Miracle) Cave (27.50.47S; 23.33.19W) is situated on the farm Wonderwerk, about halfway between the towns of Kuruman and Danielskull, in the Kuruman District of the northern Cape (Fig. 1). The tunnel-like cave runs for 139 m horizontally into the base of a low ridge which is part of the Kuruman Hills. Descriptions and previous investigations at Wonderwerk Cave are detailed in Thackeray (1981), Humphreys & Thackeray (1983) and Beaumont (1990).

The Middle Pleistocene sequence has been probed by Peter Beaumont in two excavations in different areas of the cave (Excavations 1 & 2). At Excavation 1 the sequence is approximately three metres deep and is divided into eight handaxe strata (Beaumont 1979, 1990). The second-youngest handaxe stratum in Excavation 1 is Uranium-Thorium dated to greater than 350 000 BP and is tentatively linked to the Kathu Pan phase of the Acheulean. Amino acid assays on three unburnt ostrich eggshell pieces from Excavation 2, indicate that the uppermost handaxe level there, associated with the Fauresmith phase of the Acheulean, predates 200 000 BP (Beaumont 1990).

The Fauresmith phase of the Acheulean refers to aggregates produced prior to 200 000 BP, distinguished by handaxes which tend to be small and broad, a variety of refined prepared cores, and a flake component that
includes end-struck irregulars, narrow blades and convergent points. The Kathu Pan phase of the Acheulean refers to aggregates produced prior to 350 000 BP, that are distinguished by very refined 'classical' handaxes, the absence of any form of prepared core, and a flake component that is limited to approximately 'square' irregulars with a modest incidence of dorsal cortex.

The dates from Wonderwerk Cave, especially the one from Excavation 1, could suggest that the base of the sequence, which is approximately 2.5 m further down, may extend back to before the onset of the Bruhnes Chron at 720 000 BP (McElhinny 1973). This may possibly permit the bottom strata to be dated by means of palaeomagnetism applied to the exotic iron oxide-coated quartz grains of aeolian origin (Putzer et al. 1979), which forms a major component of many of the Acheulean levels.

The Acheulean strata in Excavation 1 & 2 have produced vestiges of vegetation and perfectly preserved macro- and microfauna (Beaumont 1979). The plant remains consist of charred or calcified grass stem and shrub branch tip fragments which sometimes cover extensive lenses (greater than 10 square metres) that are best interpreted as 'bedding' areas (Beaumont 1990).

Large mammal bones are present throughout the succession and are invariably very fragmented, with a preliminary study showing little or no evidence for rodent or carnivore damage. This suggests that the fragments were brought in mainly by people. The range of prey taxa (Beaumont 1990) indicates that predation was directed at essentially the same spectrum of species as that represented in the Holocene levels. Evidence for the regular manufacture of fire in the cave, has been recovered throughout the Acheulean sequence in the form of diffuse ash, distinct ash levels, charred-calciised bone and fire-shattered stone.

**USE-WEAR ANALYSIS**

Of the four Acheulean handaxes initially received for analysis, two from the Kathu Pan phase predating ca 350 000 BP, were selected (Fig. 2) for analysis. The techniques used have been detailed elsewhere (Binneman 1982).

![Fig. 2. The two Acheulean handaxes from Wonderwerk Cave examined for use-wear traces.](image)

**Handaxe No. 1. Excavation 1. Layer 8.**

The handaxe is manufactured of chert and is ovate in shape; the obverse face, (face displaying secondary retouch along the lateral edges) is relatively flat in comparison with the reverse face which is more rounded in section. Both faces are extensively flaked, displaying large flakes removed to obtain the desired shape of the handaxe (Fig. 2a).

Both lateral edges of the obverse face are retouched, the right lateral edge in particular displays a series of large, steep, interlocking step-flaking scars and a second
set of small half-moon breakages or ‘crushing’ along the immediate working edge. These macrowear patterns are similar to those found on Later Stone Age adzes (Binneman & Deacon 1986). Crushing of the working edge is a characteristic of stone hammer retouch and it is therefore difficult to establish with any certainty whether the crushing originated due to utilisation or from retouch.

Handaxe No. 2. Excavation 1. Layer 8.

This handaxe is also manufactured of chert and is inclined to be slightly more triangular in shape (Fig. 2b). Step-flaking occurs along most of the left lateral edge of the reverse face. A large notch, lined with small, step-flakes and crushing along the direct edge, occurs near the point. Little secondary retouch and/or utilisation damage are present along the lateral edges of the reverse face.

Wear traces

Both handaxes display a high degree of microwear traces on both faces, but these are best developed along the lateral working edges and on the higher microtopogaph, such as the ridges of the flake scars on the reverse faces. The microwear polish is well developed on both handaxes with abundant striae running across the polished areas at different angles. It is apparent that the implements were used extensively over a relatively long period of time. The striae range from short, broad, deep, U-shaped to short, long, shallow V-shaped (Figs 3 & 4). The ridges between the flake scars and working edges are well rounded (Fig. 5).

The microwear polish is relatively bright, but ‘rough’ in appearance. The reason for this may be that the numerous striae which were created continuously by dirt and other abrasive agents during use, probably prevented the microwear polish from forming smoothly and evenly. There are, however, a few patches of smooth ‘undisturbed’ polish visible.

Fig. 4. Microwear polish and V-shaped striae running at different angles to the working edge. 200x.

Fig. 5. Microwear polish, striae and rounded working edge. 200x.

DISCUSSION

Despite the ‘roughness’ of the polish present on the implements, it closely resembles that of experimental polish resulting from working plant material. The microwear polishes present on both the implements are notably different from experiments which were conducted under ‘clean’ conditions. For example, the microwear polishes which resulted from working 'clean' plant materials such as wood, reed and sedge tended to form smooth areas while striae tend to be absent (Binneman 1982; Binneman & Deacon 1986). Experiments
conducted on 'clean' plant materials with hornfels collected from the Ecca Formation near Matjiesfontein, produced microwear polishes which varied in appearance. Dry plant materials produced a smooth 'dull' polish (Fig. 6) and fresh plant materials a smooth 'greasy' polish (Fig. 7).

Similar experiments conducted under 'dirty' conditions, where abrasives were artificially added, produced a microwear polish visibly different from that obtained under 'clean' conditions (Figs. 8 & 9). In this case it is not possible to distinguish between fresh and dry plant material. Polish resulting from 'dirty' conditions, however, is still bright, though rough in appearance and similar to polishes found on adzes from Later Stone Age contexts (Binneman 1982, 1983; Binneman & Deacon 1986).

There are at least three experimental plant material polish types which closely resemble the microwear polishes present on both the handaxes. The first type of polish, which most clearly resembles the microwear polish present on the handaxes, is that of sedge worked under 'dirty' conditions (Fig. 10). When Figure 10 is compared with Figure 3, the similarities between the experimental polish and that on the handaxes are remarkable. The second type of polish is that which resembles 'clean' plant polishes. Compare Figures 11, 6, and 12. Figure 11 is a patch of smooth polish present on handaxe No. 2. Figure 6 is an experimental, dry wood polish created under 'clean' conditions and Figure 12 is an experimental fresh sedge polish also created under 'clean' conditions. Reed also produces a similar type of polish. Of the two experimental plant polishes, sedge polish resembles the polish on the handaxe the closest. The wood polish, even though smooth, generally has a pitted appearance which is absent from the archaeological polish. The third type of polish is that of wood produced in the presence of abrasive materials. If Figures 8 & 9 are compared with Figure 5, the similarities between the experimental and archaeological polishes may not be apparent at first glance. However, if the micrographs are examined closely along the rounded edge of the
implement where the contact was more intensive than further back, it is clear that the experiment polish is very similar to the archaeological polish. The experimental implement was used for only 20 minutes, but even after this short period of use the experimental polish shows marked similarities with the polish present on the handaxe.

From the orientation of the striae it would appear that the handaxes were used in many different ways and directions. The striae run at all angles and parallel to the lateral edges. From this it may be assumed that the handaxes were used for shaving/planing activities and possibly also for the cutting/sawing of plant materials.

**CONCLUSIONS**

The sample of handaxes examined for use-wear traces is too small to allow general statements to be drawn regarding the function of all handaxe types. However, both handaxes examined in this study displayed similar macro-morphological use-wear features; these closely correspond to those found on Later Stone Age adzes of the Wilton Industry, which were actively used in working vegetal materials, such as wood. It is therefore not surprising to find that the micropolishes present on the two handaxes closely resemble those of Later Stone Age adzes. On the basis of this analysis, one of us (JB) would, although the sample is very small, propose that handaxes could be devided into different classes by means of edge use-wear characteristics.

At least two types of vegetal material were processed with the handaxes, notably wood and sedge. The plant material associated with the handaxes may be an indication that the cave was used during the Middle Pleistocene as a home base, to which the occupants returned on a regular basis. Some of the plant remains may represent sedge types which were cut with the handaxes and transported to Wonderwerk Cave and used as bedding material or for other, unknown purposes. Although it is not possible to ascertain whether wooden tools were manufactured with the handaxes, we may speculate that the implements were most probably used in the manufacturing and maintenance of pointed sticks and spears. An example of possible worked wood comes from the excavations of H.J. Deacon at Amanzi Springs near...
Uitenhage in the eastern Cape (Deacon 1970:152, Fig. 15).

ACKNOWLEDGEMENTS

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REFERENCES


A REPORT ON THE RESULTS OF A TEST PIT IN STRATHALAN CAVE B, MACLEAR DISTRICT, NORTH-EASTERN CAPE*

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Department of African Studies,
University of Fort Hare,
Alice, 5700

* Accepted for publication October 1992

ABSTRACT

A 2 sq. m test pit in the deposit of Strathalan Cave B revealed a sequence of Middle Stone Age (MSA) occupation floors characterised by the presence of grass bedding materials. Radiocarbon dates indicate that the site was inhabited continuously between approximately 28 000 and 22 000 years ago, after which occupation ceased. Slender blades are prominent amongst the lithic artefacts and wooden tools were also used. The subsistence system was based on the hunting of medium-large antelopes and the gathering of plant foods.

INTRODUCTION

Strathalan Cave B (30.59.22S; 28.23.19E) is situated in the southern Drakensberg foothills, approximately 10 km from Maclar. The site consists of a series of adjacent caves cut into a large sandstone overhang (Figures 1 & 2). During the period 16 June-13 July 1987 a 2 sq. m test pit (Figures 3 & 4) was excavated in the deposit of Cave B, which is located towards the southern end of the overhang. Since then work at the site has continued, leading to a detailed study of the youngest occupation floor (Opperman & Heyderych 1990) as well as the excavation of two older floors (Opperman in prep.). The material from the test pit was kept separate from materials recovered during follow-up excavations. A report on the data from the test excavation is considered important because it represents samples of a sequence of occupation floors dated to the Last Glacial Maximum (LGM), a period on which very little cultural information has been documented in South Africa.

EXCAVATION

A trench dug through the deposit in recent years by youngsters showed in its profile thick patches of grass in association with Middle Stone Age (MSA) artefacts. This observation led to the excavation of a test pit in squares A6 and B6 in order to recover material to determine the age and content of the deposit. Extensive excavations later revealed that the test pit was located in an area repeatedly used by the site's occupants as a sleeping area.

The test pit was dug in 50 mm spits independent of the stratigraphy which was afterwards detected in the profile (Fig 5). It was therefore possible to correlate the approximate stratigraphic unit for each spit. The following layers were identified from bedrock upwards:

Layer VBP.

This layer is 0,2 m thick, ashy black in appearance and represents the result of the partial combustion of a thick layer of compressed grasses. Preservation of organic materials is very good due to the extremely dry conditions in the cave and includes corm scales and corm bases, grasses, charcoal, bone fragments and some interesting needle-like artefacts manufactured from wood. A charcoal sample from near the rock floor was dated to 27 600 ± 420 BP (Pta-4642).
Layer WIT.
This is a white ashy layer approximately 50 mm thick. A date of 26 900 ± 450 BP (Pta-5040) was obtained for this layer from square A7.

Layer SWA.
Layer SWA is less than 50 mm thick and consists of partially burnt plant materials. It is one of the major occupation layers in the deposit covering most of the cave's floor.

Layer VSL.
Overlying SWA is a layer of grey sand varying in thickness from 50 mm to 100 mm. It has a limited
distribution of approximately 4 sq. m and has been dated to 25700 ± 400 BP (Pta-4644). Compressed grasses and twigs are present.

Layer BPL.
This layer is composed of grass bedding remains 100 mm thick and represents the end of human occupation of the site. A series of six radiocarbon dates indicates that layer BPL developed between 20000 and 24000 years ago (Opperman & Heydenrych 1990).

Layer GES.
This is a very dry sterile off-white sand layer (200 mm thick) that has effectively sealed and preserved the cultural remains in the underlying deposit.

CULTURAL REMAINS

Wooden artefacts
Worked or utilised artefacts from wood are rare in Middle Stone Age contexts and the discovery of two needle-shaped artefacts is remarkable and the first of its kind. One of the needles is a slender artefact, 144 mm long and 3 mm thick in the middle (Fig 6). It is slightly curved, which may reflect on its function, and is pointed at both ends. The other needle is a slender straight twig, 110 mm long and 3 mm thick, sharpened to a point at one end with the other end snapped off.

![Fig. 6. Strathalan Cave B test pit. Wooden needle.](image-url)

![Fig. 7. Strathalan Cave B test pit. Stone artefacts. 1 & 2: unretouched flake-blades; 3: retouched flake-blade; 4: scraper.](image-url)

<table>
<thead>
<tr>
<th>LAYER DEPTH(m)</th>
<th>BPL 0.25-0.30</th>
<th>BPL 0.30-0.35</th>
<th>BPL 0.35-0.40</th>
<th>BPL 0.40-0.45</th>
<th>VSL/SWA 0.40-0.45</th>
<th>VWA/SWA 0.45-0.50</th>
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Table 2. Strathalan Cave B test pit. Mass of unidentified bone fragments

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Table 3. Strathalan Cave B test pit. The minimum numbers by which the fauna are represented (analysis by J. Brink)

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<th>BPL 0.25-0.30</th>
<th>BPL 0.30-0.35</th>
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Table 4. Strathalan Cave B test pit. Quantitative analysis of plant remains (weight in Gram)

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<tr>
<th>LAYER DEPTH (m)</th>
<th>BPL 0.25-0.30</th>
<th>BPL 0.30-0.35</th>
<th>VSL/SWA 0.35-0.40</th>
<th>SWA/WIT 0.40-0.45</th>
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<td></td>
<td>1.8</td>
</tr>
<tr>
<td>TOTAL</td>
<td>1.1</td>
<td>134.8</td>
<td>3.6</td>
<td>16.8</td>
<td>27.3</td>
<td>67.0</td>
<td>99.4</td>
<td>21.1</td>
<td>371.1</td>
</tr>
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</table>
PLANT REMAINS

Considering that the Strathalan deposits are more than 20,000 years old the preservation of plant remains is remarkable throughout the deposit (Table 4). There is an increase in the quantity of grasses from the lower to the top units, which contrasts with a decrease in the quantities of twigs through time. Corm scales (Watsonia sp.) and bases, although present in low quantities, indicate that plant foods formed part of the diet (Fig. 8).

Strathalan Cave B test pit. Corm materials.

DISCUSSION AND CONCLUSIONS

Middle Stone Age hunter-gatherers began visiting the Strathalan site some 3,000 years before the onset of the LGM, which is seen as ranging from approximately 24,000 BP to approximately 17,800 BP and reaching its climax around 18,000 BP (Deacon 1990). The reasons for occupation were probably varied although the need for increased protection against the deteriorating climate seems one possibility. Evidence for colder conditions prior to 30,000 BP comes from the Lesotho caves of Melikane and Sehonghong (Carter 1976). Palynological analysis of six pollen samples from layer BPL and layer BES indicates that for the period between 24,000 BP and 21,000 BP the environment in the vicinity of the cave was cold and moist after which the climate became colder and drier (Opperman & Heydenrych 1990). A considerable increase in the quantities of grass materials used for bedding during the last stages of the cave’s occupation relative to the quantities used during earlier times was possibly linked to the deteriorating climate. The presence of wooden needles, perhaps for sewing skin garments, may also indicate an attempt to cope with the cold.

The decline in plant and animal remains through time could be evidence of reduced environmental productivity but the quantities are too low to interpret with confidence. However, considering that the pollen evidence from the site indicates an extreme climate after 21,000 BP (Opperman & Heydenrych 1990) plus similar evidence from palaeoenvironmental research elsewhere (Deacon & Lancaster 1988) severe constraints on the production of food resources is not unexpected. The effect of such an environment on the maintenance of the local human population forms part of a more extensive investigation at the site (Opperman in prep.).

The decreasing frequencies of stone artefact through time, possibly reflect a scaling down of food processing activities as the food resource base weakened. Furthermore, the location of the test pit in the bedding area most probably influenced the composition of the assemblage. Consequently the frequencies of formal tools, for instance, which usually concentrate close to hearth areas, are very low.

To conclude, the data from the test pit emphasises Strathalan’s potential for providing valuable glimpses into the lifestyle of Middle Stone Age hunter-gatherers approaching a critical threshold for survival.

ACKNOWLEDGEMENTS

I thank the University of Fort Hare for financial support, Dr. J.C. Vogel for supplying radiocarbon dates and J. Brink for the analysis of the faunal remains. I am grateful to Mr. & Mrs. A Macdonald and Mr. & Mrs. D. Macdonald for their hospitality and allowing me access to the site. I would also like to thank Mr. M. Ngqola and Mr. G. Tutu for assistance during the excavation.

REFERENCES


UNUSUAL PAINTINGS OF WILDEBEEST AND A ZEBRA-LIKE ANIMAL FROM NORTH-WESTERN LESOTHO*

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*Accepted for publication November 1992

ABSTRACT

Recordings of a painted panel threatened by increased human visitation in the Hololo River valley of north-western Lesotho show depictions of at least seven wildebeest and a zebra-like animal. Rock paintings of these animals are unusual not only due to their scarcity in rock shelters of the Drakensberg-Maluti Mountain region, but also in terms of the painted details associated with them. Considering San attitudes towards wildebeest and trance experience among the San, it is possible to make sense of the unusually low and dark location of the wildebeest paintings.

INTRODUCTION

As a result of tunnel construction activities across the Hololo River in north-western Lesotho, the northern perimeter road between Butha-Buthe and Moteng Pass has been upgraded and the numerous painted shelters in the formerly isolated Hololo River catchment area have become more accessible to outside visitors. Following the directions of T. Tsele, one of us (J. Loubser) traced and photographed ten threatened shelters in the area. Chance discoveries of unusual paintings often result from exploratory investigations of this nature (e.g. Dowson & Holliday 1989; Loubser et al. 1990) and in this report we describe, identify and interpret unusual paintings from a shelter near the Hololo River (Fig. 1).

DESCRIPTION OF THE SHELTER AND PAINTINGS

The shelter is located at the base of a sandstone cliff on the northern side of the Hololo River. It faces in a south-westerly direction and extends about 16 m into the cliff (Fig. 2). Due to its aspect and depth, the shelter never receives direct sunlight and it is fairly dark inside throughout the year.

All the paintings are on the inner side of a big boulder, most likely the darkest spot in the entire shelter. Two main panels can be distinguished; a relatively crude but fairly visible collection of black paintings on the upper right-hand side and a cluster of faint but extremely detailed paintings in the lower left-hand corner. Being only 500 mm from the ground, the lower panel has unfortunately been damaged by cattle which scrape their legs against the rock. This has left fatty residue and abrasion marks on the painted surface, and it is only when tissue paper was applied to the paintings with distilled water that they became more visible.

Recording of the panel was further complicated by bad light and two torch lights had to be directed at the paintings to enhance them for tracing. A day-long session of painstaking tracing in an uncomfortable crouched position yielded depictions of ten animals, three humans and two C-shaped motifs (Fig. 3). A natural crack in the rock separates the animals from two human figures in the upper right-hand corner. The original panel almost certainly contained more detail than is depicted in the tracing, but we feel that the tracing contains sufficient detail to show that the painter took extreme care while

Fig. 1 Location of the site considered in the text.
painting. Because of bad light the painter must have used an artificial light source, most probably a fire, to illuminate the surface. Even the fresh paintings must have been difficult to see without artificial light.

All the paintings are done in black and white pigment, the animals showing traces of an additional red infill. The animals face right and have distinctive zigzag, herringbone, stripe and dot motifs on their bodies. All the human figures face left. The one in the upper right-hand corner of the panel has a row of herringbones along the back of its head and neck, while the other figure directly below has a series of inverted U-shapes on its head. A line of dashes is painted in front of the face of the upper figure which holds what appears to be a stick-like object. On the extreme left-hand side of the panel is an animal holding a stick as well. Its thin red tail is painted on top of the two C-shaped motifs. Slightly below and to the right of this animal is a human figure holding a zigzag line which runs along the back of a zebra-like animal. The belly of human figure is serated.

Due to the weathered condition of the paintings it is difficult to determine the sequence of superpositioning. It is clear, however, that the animal with the stick and the human figure holding the zigzag were painted on top of the same two animals. We maintain that the significance of these and other features can be better understood once the animals are identified.

IDENTIFICATION OF THE PAINTED ANIMALS

Most animals painted by the San are sufficiently naturalistic to help researchers identify them with confidence (e.g. Willcox 1963:37; Lee & Woodhouse 1970:21-34; Vinnicombe 1976:151-228; Lewis-Williams 1985:54-56). Researchers can even identify diagnostic features in "imaginary" animals. For example, serpent-like features are present in some rain-animals while others have clearly identifiable eland or hippo-like features. Even in instances where a single animal represents a conflation of two or more animals it is still possible to identify features of the different animals. At Melikane, for example, there are animals with the heads and necks of eland, but with the genitalia, buttocks and tails of horses (Campbell 1987:86, 90). We are not suggesting here that every single painted animal is identifiable, but merely that San painters tend to faithfully reproduce the outline and diagnostic features of animals (e.g. Loubser et al. 1990). Although we propose that at least eight of the ten animals considered in this paper have sufficient detail to assist us in their identification, we submit that the motifs on their bodies are modifications of actual markings.

The animal on which the human figure is superimposed can be identified as equid without much doubt. It has no horns and the general proportions of the body are certainly not typical of bovids. The hind legs are particularly zebra-like, giving the impression of being rather plump and having transverse stripes across the area of the thigh. The zigzag lines on the neck also resemble the markings of a zebra (cf. Smithers 1983). It is, however, not possible to know whether the mountain zebra, Equus zebra, or the plains zebra, E. burchelli, is depicted. From early records it appears that mountain zebra did not occur in the Lesotho highlands (Smithers 1983), which could mean that the paintings are of plains zebra. However, the weathered traces of horizontal zigzag lines on the body of the animal, the zigzag line along its back and its zigzag tail are clearly not diagnostic features.

To the right and below the zebra-like figure, seven ungulates show varying degrees of resemblance to the black wildebeest, Connochaetes gnou. The five with intact horns look particularly like black wildebeest; the horns showing similar forward and upward torsion. The figure furthest to the right shows what could be a prominent mane and shoulder hump, features very typical of the black wildebeest.

The two animals painted above and to the left of the zebra-like animal do not have sufficient diagnostic features for identification. The one holding the stick has a human-like arm and a "hollow" body, partially enclosed by a thick black line.

If the identifiable animals are indeed depictions of plains zebra and black wildebeest their association in the panel could be seen as further support for the identification. It is commonly known that both plains zebra and black wildebeest are shortgrass grazers (Smithers 1983; Von Richter 1971) and that they usually occur in the same kind of habitat, often in the company of each other. However, in the next section we argue that the association between wildebeest and zebra in the painted panel is not necessarily a literal one.

SIGNIFICANCE OF THE PAINTINGS

Nineteenth century eye-witness accounts (e.g. Arbouset
Fig. 3. Tracing of the panel with wildebeest, zebra, therianthrope and human figures. Black is blocked in; red is stippled and white is left blank. The crack in the rock is represented by a broken line.
& Daumas 1846:367) mention that numerous wildebeest and zebra roamed the southern Highveld and it also seems that the Maluti San hunted and consumed the wildebeest on a regular basis (How 1962:11). But wildebeest was not only an important source of meat to the San, San painters also used the hair as brushes (Ellenberger 1953; Stanford 1910). Bearing these observations in mind, it is perhaps not surprising that researchers have commented on the paucity of wildebeest and zebra paintings in the region. Whereas Vinnicombe (1976:364) found only three wildebeest paintings in the southern Natal Drakensberg, Lewis-Williams (1981:20) found none in the north-eastern Cape. So far we have located only three shelters out of 200 shelters in the Caledon River valley region with wildebeest paintings. There are even fewer paintings of zebra in the Drakensberg-Maluti region; Vinnicombe (1976:212) has reported only one in a shelter with wildebeest paintings and we have found none in the Orange Free State yet. It is also interesting that no apparent detail is afforded to wildebeest paintings; they are done either as black or white monochromes.

To our mind Vinnicombe (1976:194) rightly proposes that the paucity of wildebeest paintings shows that the paintings are not a direct reflection of either the faunal population in the area or of San diet. Referring to a story /Xam San told W. Bleek and Lloyd in the previous century (Bleek, D. 1924:12), she suggests that the omission of wildebeest and zebra could be an expression of social avoidance. In the story a wildebeest does its utmost to protect some zebra against a hunter: it first blunts the hunter's arrowheads and finally crushes the hunter and his screen. !Kung San call this 'angry' behaviour (Lewis-Williams & Dowson 1989:127) and 'angry' people are sometimes referred to as wildebeest. Moreover, Biesele (1975:153-154) recorded !Kung notions that all wildebeest are 'black meat' animals and that such animals have less potency than 'red meat' animals such as eland and hartebeest.

The San believe that eland contain more supernatural potency than any other creature (e.g. Lewis-Williams & Biesele 1978), and Dowson and Holliday (1989) have argued that the rare depiction of zigzag lines attached to eland paintings near Clarens signifies the release of strong potency by the eland. Although the zigzag motifs in the north-western Lesotho panel are generally similar to those from Clarens (the sites are only 25 km apart), they do not surround the animals but, together with the herringbones, are mostly painted on their bodies. Only in the case of the zebra does the zigzag trail off the body in the form of a tail (Fig.3).

Although the San believed that wildebeest and zebra contained less supernatural potency than eland, they nevertheless had some potency. This is mentioned, for example, in a folklore San told Megan Biesele in Botswana in 1972 (Dowson 1992:99). According to the tale the zebra was the first animal to receive supernatural potency in the form of stripes burnt all over its body. The wildebeest was the next animal to be branded with supernatural potency from the same fire.

Looking at painted details in the Lesotho panel, it is clearly not a straightforward depiction of this or any other recorded San story. We suggest that it is a depiction of trance experience instead. Firstly, the double C-shape, the zigzag lines, herringbones and dots associated with the animal and human figures are not real but are similar to entoptic mental imagery perceived during trance (e.g. Siegel 1977:138). Secondly, the animal holding a stick can best be seen as a therianthrope. Its posture is similar to that taken by the black figure immediately below it; the angle between their respective torsos and legs resembles that of San medicine-people before they enter trance (Lewis-Williams & Dowson 1989:40). The serated markings on the stomachs of both figures could indeed signify the boiling sensation experienced by medicine-people when entering trance (Katz 1982). The black figure is apparently holding the zigzag line along the zebra's back, perhaps signifying the harnessing of potency running along the zebra's spine (e.g. Lewis-Williams & Dowson 1989:76-77).

The combination of entoptic and iconic imagery in the panel suggests a later stage of trance (Siegel 1977:134). It could even be that because the entoptics experienced during early stages of trance resembled the zebra's stripes and the wildebeests' hair, the painter was reminded of these animals during the later stage of deeper trance experience (see Dowson 1992:54 suggesting a similar relationship between an entotically experienced grid and markings on an engraved giraffe).

But the decision to paint wildebeest and zebra, animals without much potency, suggests that something else influenced the painter as well.

CONCLUSION

The rock paintings of wildebeest and zebra in north-western Lesotho are unusual in terms of subject matter, their detailed execution and their placement in a low and dark location. Judging from the ethnography the San seldom painted wildebeest because they apparently saw it as an 'angry' animal without much potency. But it is clear that wildebeest and zebra did at least have some potency which could be harnessed by medicine-people. The fact that the zigzag motifs are restricted to the bodies of the wildebeest and zebra and are not outside as in the case of eland paintings some 25 km to the north-west, could be indicative of this limited potency. Nevertheless, the detailed execution of the animals and the associated entoptic motifs suggests that their potency was important to the painter. But it seems that by placing his/her paintings in an obscure location the painter was not keen to show them to other San. We suggest two likely reasons for this. Firstly, limited wildebeest potency was probably insufficient to share with the whole community. Secondly, the potency from 'angry' wildebeest may in any case have had anti-social implications. A more thorough ethnographic investigation to verify these conclusions, however, is beyond the scope of this article.
ACKNOWLEDGEMENTS

We are grateful to Taole Tesele who found the site and Phatswane Namani for valuable assistance in the field. We also thank the Lesotho Highlands Development Authority for permission to publish this material. Johan Nortje did the re-drawing.

REFERENCES


NOTES

PRELIMINARY NOTES ON AN EARLY IRON AGE SITE IN THE GREAT KEI RIVER VALLEY, EASTERN CAPE.

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and

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4920

Until recently the most southerly limit of Early Iron Age settlement was thought to be along the Transkei coast, with Mpame dating back to as early as AD 540 (Cronin 1982). There has been some speculation, however, that Early Iron Age (EIA) populations may have spread well south of the Transkei into the Ciskei, possibly up to the Great Fish River. These areas are on the very outer limits of the summer rainfall region on which the EIA people were dependent for cultivating their crops. It is commonly accepted that an ecological boundary restricted these populations in their southward migration. The question is just how far south do EIA settlements occur?

Some two years ago decorated pottery was found at the confluence of the Kulubele River and the Great Kei River by Victor Biggs (Fig. 1). A visit to the site a year later by the first two authors confirmed that a large number of decorated sherds were scattered over a small area next to a large erosion gulley, the nature of the decoration on the pottery suggested that it was of Early Iron Age origin. The site is situated on the southern banks of the Great Kei River Valley some 200 metres below the plateau and 60 km inland from the coast. The site was visited again several months later together with Tom Huffman and Simon Hall of the Archaeology Department at the University of the Witwatersrand. They confirmed that the pottery belongs to the Msuluzi Phase of the Early Iron Age (Fig. 2). Closer investigation revealed several pits and a dung lense in the side of the erosion gulley. One of the exposed pits was cleaned (leaving the most of the contents in the wall for later excavation), surveyed and charcoal collected for dating. A date of 1250 ± 40 BP (Pta-5865), with a most probable calibrated age of AD 799 (Vogel, pers. comm), was obtained for the sample. In addition to the potsherds, fragments of bone and a shell pendant were also recovered from the side of the pit. Pieces of daga containing vegetation impressions confirm the presence of a settlement, which, from our preliminary survey, appears to have covered a large area.

Reports of another EIA site south of East London suggests that the Ciskei region of the eastern Cape may well provide important information on the movements of EIA populations. Cronin (1982) was of the opinion that EIA settlements would have been restricted to the coastal regions; these findings clearly belie his conclusions and
Fig. 2. Decorated pottery from Kulubele.

indicate that further research in this area may substantially increase our knowledge of the Early Iron Age.

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REPORTS

REPORT ON THE FIFTH SOUTHERN AFRICAN ROCK ART COLLOQUIUM

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The Rock Art Department at the National Museum, Bloemfontein, recently hosted the fifth rock art colloquium at the Modderpoort Conference Centre near Ladybrand in the eastern Orange Free State. Twenty nine delegates attended the colloquium which lasted three days (Monday 14 to Wednesday 16 September 1992). Thereafter, twelve delegates stayed on to participate in a two-day practical workshop on graffiti removal (Thursday 17 and Friday 18 September). We were well looked after at the conference centre, a former mission school, where basic accommodation and three square meals, plus teas, cost an unbeatable R40 per person per day, and can recommend it as a venue.

THE COLLOQUIUM

The colloquium comprised three sessions of informal presentations, one general discussion period and a one-day visit to painted shelters north of Ladybrand. Posters, showing various ways of recording paintings and engravings from all over southern Africa, were on display in the lecture hall and we had the opportunity to see videos on rock art, ethnography and conservation in the evenings after supper, and to visit various local bars in Ladybrand and at the Lesotho border.

The early session on Monday mainly concerned theory and practice. Two of the first papers were by Professor Meg Conkey, visiting from the Department of Anthropology at the University of California at Berkeley, and by Professor David Lewis-Williams of the Rock Art Research Unit at the University of the Witwatersrand. They had been asked to summarize the main issues in current rock art research in Europe and southern Africa and did this task well, highlighting the need to put theory into practice.

The papers presented during the rest of the day summarized current rock art research projects in South Africa, ranging from ethnographic support for trance among pastoralists (Frans Prins) and recent ethnographic information on rock paintings in the Transkei (Pieter Jolly), to engravings of Nguni settlements in Natal (Tim Maggs), Koranna rock paintings in the central Orange Free State (Geoff Blundell) and the symbolic significance of rhino engravings on a hill in Bophutatswana (Sven Ouzman), to chronological issues concerning engravings along the Riet River (David Morris), the potential of gender studies in rock paintings (Anne Solomon) and the application of theory drawn from art history (Annie Batchelor).

On Tuesday morning most of the papers dealt with the deterioration, conservation, management and curation of rock art. Papers ranged from the monitoring of deterioration mechanisms in the Natal Drakensberg (Ian Meiklejohn), to the management of Cederberg sites (Steve Bassett), the northern Cape (David Morris) and the curation of rock art in museums (Jannie Loubser and Peter Jolly). Leon Jacobson raised the controversial ethical issue of repainting damaged sites and Janette Deacon presented draft guidelines for recording rock paintings and engravings that could be distributed to interested members of the public. The session closed with a discussion introduced by Peter Jolly, with support from Frans Prins and David Lewis-Williams, on the interviews conducted with ‘M’ in Transkei in the 1980s, confirming their authenticity and the reliability of the information obtained.

In the final session on the Tuesday afternoon, Ingrid Coetzee and Janette Deacon presented proposals for the organization of Environment Week in 1994 for which rock art conservation has been proposed as a theme. Although they had hoped to establish a steering committee, this was not possible as some lively debate arose over two main issues. The first was the perception that political problems could ensue if the rock art
Delegates to the fifth southern African rock art colloquium.

conservation programme was funded by government. The second raised doubts about the desirability of linking rock art with a programme that usually promotes environmental issues because the public could perceive rock art as an environmental rather than as a cultural phenomenon. In response, it was pointed out that the Environment Conservation Act specifically includes the man-made environment and that archaeologists were already making full use of the Act in archaeological impact assessments. The purpose of choosing rock art as a theme for Environment Week was to promote the view that people are an integral part of the environment in which they live.

As no clear conclusion could be reached before supper, the delegates met again the following morning before breakfast. Ingrid Coetzee and Janette Deacon volunteered to gauge opinion by networking with non-government agencies on (a) whether rock art conservation as a theme for Environment Week would de-emphasize the cultural character of the art in the public eye; and (b) whether a significant section of the South African population would not wish to be involved in the campaign because of its government base. The results would be conveyed to delegates and if they were satisfied that these issues were resolved, we should proceed with the campaign and emphasize public outreach, particularly with non-governmental organizations.

Participants spent Wednesday visiting rock art sites in the vicinity of Ladybrand. The first was the Plantation Site where the Ladybrand Municipality erected a wire fence around the site some years ago to prevent people from getting too close to the paintings. As a result they are relatively well preserved. We stopped off at the Ladybrand Museum to see copies the Abbé Breuil made of paintings from Rose Cottage Cave in the 1940s. Those of us who had not seen the site previously quickly went to Rose Cottage. The next stop was Tandjiesberg. This painted rock shelter was declared a national monument towards the end of October 1992, the tenth rock art site in South Africa to receive this honour. The landowner, Mr Angelo Liguori, erected a sturdy wire fence in the 1970s and the National Monuments Council and the National Museum financed the building of a boardwalk to direct the flow of pedestrians in the shelter. We had a picnic lunch and then sat for a group photograph on the 'Abbé Rock' where the Abbé Breuil painted in the 1940s. Another site behind Mr Liguori’s farmhouse, Tripolitania, is known for its paintings of women with digging sticks. The last stop was Orange Springs, another well-known site where Helen Tongue made tracings at the turn of the century.

THE WORKSHOP

During an introductory session at the rock shelter behind the Modderpoort Conference Centre, declared a national monument on account of its paintings in the 1930s, Jannie explained the principles of graffiti removal and stressed that it should be done only under supervision of qualified and experienced specialists. It is also necessary to have a permit from the National Monuments Council to remove graffiti from a rock art site. We spent most of Thursday morning recording the paintings, the graffiti and their location on the shelter walls, both by tracing
and photography. Next, we proceeded with removing charcoal signatures and experimenting with techniques to reduce incised graffiti. We are currently preparing a more thorough account of this exercise which had some interesting consequences.

Proceedings came to an end on Friday at noon, after a few die-hard graffiti busters spent a morning experimenting with different techniques to remove enamel paint from sandstone. This was at the St Assisi Mission, now a maternity home, where a painter had idly cleaned the excess off his brushes and painted over some rock paintings on the walls of a boulder next to the mission buildings.

In summary, the colloquium and workshop were enjoyed by all and we succeeded in providing a forum for detailed discussion on rock art research and demonstrating the care and expertise needed to remove graffiti from painted sites. We recommend this kind of informal colloquium to stimulate the exchange of ideas amongst specialists.
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Manuscripts of original research undertaken in southern Africa will be considered for publication. These may include reports of current research projects, site reports, rock art panels, rescue excavations, contract projects, reviews, notes and comments. Students are encouraged to submit short reports on projects. *Southern African Field Archaeology* also welcomes general information on archaeological matters such as reports on workshops and conferences.

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## OPINIONS

Employment, and the prospect or lack of prospect of employment, is a major concern of archaeologists and those wishing to pursue archaeology as a career. A functional classification of archaeologists could be based on their employment status: permanent teaching staff at universities and research staff at museums; researchers working at universities and museums on relatively short-term contracts, bursared post-graduate research students; unpaid undergraduate students; and amateurs.

Amateurs may struggle to get permission to conduct research involving excavation and university staff may struggle to raise research funds to finance their endeavours, but to their good fortune they are not confronted by the question that perpetually plagues the others - when and where, if ever, will I get an archaeology job?

We all know that there are fewer than fifty permanent professional posts in archaeology in southern Africa, and that most of them are occupied by relatively youthful people, mostly with decades of employment ahead of them. We also know that the global recession makes it very unlikely than many professional archaeologists will leave for posts overseas. And we tacitly acknowledge the need to keep student numbers up, if not increasing, in universities to justify the continued employment of those paid to teach and direct research at those institutions. With the employment bus apparently stalled, is there sense in piling more people on board? What real employment prospects do students, from undergraduate to post-doctoral level, face?

Many students who may have an interest in archaeology avoid it at university because of the lack of employment prospects. This may explain the dearth of black student enrollment in undergraduate archaeology courses. Glossy pamphlets promoting careers in archaeology are not likely to succeed if the honest answer to the question "Will I get a job when I qualify?" is "Probably not". Many undergraduates respond to the perceived employment crisis by abandoning archaeology after an introductory course - sensible but disheartening for their lecturers. Post-graduate students and contract researchers thrash around, consuming increasing proportions of their productive energy on job hunting, writing applications, wringing yet another year's grace out of a shrinking pool of research funding, and contemplating alternative careers like housewifery, computer programming, gemmology, and goat farming in Venezuela.
Southern African Field Archaeology

Realistically the availability of permanent employment for archaeologists cannot be expected to increase. Nor will the shrinking sources of research funding suddenly erupt in plenitude. The employment crisis for undergraduates and contract researchers is real and deserves recognition. By relieving the sense of personal failure, recognition of the global nature of this crisis is in itself beneficial for graduates who are unemployed or about to be unemployed. Young graduates should be appraised of the reality of the situation and consider if it is wise to gain yet further qualifications that will not necessarily improve their prospects. The available financial resources for full-time but short term research appointments are spread very thin and senior postgraduates and contract researchers may be wise to hone whatever alternative skills they may have or actively explore the new prospects emerging in the field of contract rescue archaeology and development consulting. At present this enterprise tends to be dominated by the universities and the transition to a competitive market may be rough going for independent individuals or small consultancies.

If tinkering with the engine and trying to push the bus both fail then it is sensible to consider walking. One could consider putting the bus to novel uses. A training in archaeology should equip one to more than excavation, sorting, analysis, and the production of research reports. That is the legitimate domain of academic archaeologists but another chronically underpopulated field of enterprise exists which archaeology graduates should be well placed to occupy. This field encompasses journalism, popular authorship, and non-university education.

The popular demand for access to the fruits of largely government-funded scholarship is hard to ignore and many academic archaeologists in this country have striven to make their output more accessible. But it is unreasonable to expect highly qualified and specialised academics to fulfill the role of popular educators and simultaneously maintain a high level of research output. There is an almost total lack of trained writers and illustrators who concentrate on communicating technical and academic discoveries to the public in ways that are appropriate and factually accurate. Students need to be trained in writing and communication skills that will not only enable them to produce arcane and abstruse theses but will also equip them to convey the substance of scholarship in popular contexts without dismal corruption of the content.

Academic archaeology is well placed to play the necessary catalysing role of providing a broad education. Archaeology students are exposed, or should be, to the full spectrum of human enterprise. They study human social behaviour, technological endeavour, biological development, and interaction with the environment, and should have a sufficiently sound understanding of anthropology to be able to relate knowledge of the past to current human concerns. Archaeology should be an exciting and profoundly civilizing study and it should inspire its graduates to communicate their knowledge. The demand for popular education could be met with the conscious response of aiming to equip at least some archaeology students as educational writers or illustrators.

This would relieve some of the pressure on academic researchers to popularise their work personally, would address the growing need for factually accurate but readily accessible accounts of academic research (not only in archaeology), and provide new avenues for potential employment for archaeology students.

I suspect this could be accomplished relatively easily with the introduction of courses such as "Writing and Communicating Archaeology", setting out explicitly to teach clear verbal and written expression, a variety of styles of presentation, skill in appropriate choice of illustration, text and display layout, word processing, lecturing to non-academic audiences, exhibition presentation - in short, communicating archaeology and human science outside as well as inside an academic context. This involves real skills training with the clear objective of enhanced employability. We probably could all benefit from such training.

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* * * * *

This issue of Southern African Field Archaeology marks a departure from our editorial policy of publishing site reports and research notes. The debate regarding the archaeological identity of hunters and herders which readers may have been following in the South African Archaeological Bulletin is continued in this journal with a critique by Yates & Smith followed by a response from Schrire. We are publishing these papers in Southern African Field Archaeology because the South African Archaeological Bulletin is only able to publish them in the June 1994 issue.

* * * * *

The Editors of Southern African Field Archaeology are running a competition for the best report by an archaeology student. The winner, as well as his/her Archaeology Department, will each receive one year's subscription to Southern African Field Archaeology, absolutely free! The majority of post-graduate archaeology students will have either excavated a site or undertaken an archaeological related project at some stage of their university careers. Although students are required to write theses or reports on their research most of this material is never published and professional archaeologists often find it extremely difficult to trace this material. By publishing a summary of your thesis or report you will be contributing to the wider dissemination of archaeological knowledge. You will also be learning new skills in writing scientific papers. This type of experience is vital for those students wishing to pursue a career in archaeology. So we urge university lecturers to encourage students to submit articles and we hope students will be motivated to participate. Remember, the deadline is the 30 November 1993, but may be extended to mid-January on request.
LATE HOLOCENE AND HISTORICAL BONE MIDDEN DENSITY IN ROCK SHELTERS OF THE UPPER SEACOW RIVER VALLEY*

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ABSTRACT

Many different taxa are represented in the faunal remains from upper Karoo rock shelters. However, meaningful frequency changes in individual species cannot be detected. An alternative approach is to measure changes in bulk faunal mass per unit volume of deposit. When the faunal contents of nine shelter fills were processed in this way it was found that at least two densely packed layers of mammal remains occurred at the same levels in all shelters. The lower midden, dating to ca 800 BP is usually the smaller of the two. It may be compressed with an even earlier midden of ca 1100 BP in a few shelters. The uppermost midden is better defined, with peak densities at ca 400 BP. As the three midden dates coincide with marked increases in grass over scrub pollen in local hyrax dung accumulations, and with small temperature fluctuations in the Cango speleothems these events may reflect increased Bushman hunting activity during spells of greater carrying capacity. Historical levels coincide with a sharp drop in faunal density in all but one shelter.

INTRODUCTION

None of the several Late Holocene faunal assemblages from Upper Karoo rock shelters (Sampson 1967:58-60, 1970:67; Deacon 1976:230; Klein 1979:42-3) show significant species fluctuations through time. Although some assemblages are quite large, the range of species present is considerable and few taxa are represented by more than a dozen specimens per sample. Some are represented only by solitary specimens. When an assemblage is divided into stratified or (in most shelters) arbitrary spit-based subunits, numbers of even relatively well represented taxa are reduced to a few specimens per layer. Typically, tables of percentages contain many columns of taxa, each filled with very low values. Visible fluctuations in frequencies of taxa through the layers (or spits) are rendered trivial or meaningless on account of low sample sizes. Consequently it is impossible to determine whether or not there were fluctuations in the procurement patterns of non-domestic mammals by upper Karoo hunter-gatherers.

Here, we present a promising alternative approach designed to bypass the problem posed by small sample totals. It also overcomes the effects of excavating by arbitrary spits in deposits without visible stratigraphy. The methods of recovery and analysis are briefly described, and the results from a cluster of nine rock shelters in the upper Seacow River valley (Fig. 1) are compared. Finally the shared patterns of fluctuating bone midden density are compared with palynological data from the same area, and with paleotemperatures estimates from the more distant Cango speleothem record.

METHODS

Our recovery and recording methods are a compromise between the expense and slowness of point-plotting and the faster, cheaper procedure of removal in metre squares...
with no recording control of horizontal provenience within the square. We divide the square into 16 blocks, each removed and bagged separately. Where no micro-stratigraphy is visible for depth control, the thickness of the removed block is kept between 25-30 mm (Sampson et al. 1989:7). The block’s volume is ca 1.6-1.8 litres, between a third and a half of an average bucket. Although not precisely standardised as a unit volume of deposit, it has proved adequate for our purposes. Where the deposit contains abundant roof spalls, rock removal forces the depth of the unit to increase, although the volume of sediment is about the same.

As the dimensions of each block is recorded, 250 mm wide slices through the shelter fill can be reconstructed from superimposed blocks, resembling the stone masonry in a wall. As an example, two contiguous slices through Abbot’s cave (Fig. 2 top) are illustrated (Fig. 2 center), showing a rocky roof fall zone where block thickness are greater.

When the number of non-domestic mammal fragments is plotted for each block in each slice, the density and packing of bone is found to be highly variable. Next, in order to remove the clutter in these data, blocks containing >100 fragments are plotted alone to isolate patches that can be reasonably termed bone middens. In the example shown here, a lower patch is clearly separated from an upper sheet. (Fig. 2 bottom).

Further synthesis was achieved by projecting blocks with >300 fragments on to composite sections comprising the back eight slices (Fig. 3 top) and the front eight slices (Fig. 3 bottom). Also on to these were projected the positions of blocks with 200-299 fragments and 100-199 fragments. The resulting plots were smoothed to form isopleth lines that reveal density variations within midden seen to comprise different areas and phases of faunal dumping. Without visible interfaces in the deposit, it was impossible to excavate these as discrete units.

The positions of chronological markers can also be projected on to the composite section to assist in estimating the dating range of individual middens. Again using Abbot’s cave as the example (Fig. 4), the faint outlines and dense centers of the bone middens are plotted in relation to: the deepest and therefore earliest European artifacts (Saitowitz & Sampson 1992; Crass & Sampson 1993a & b; Moir & Sampson 1993; Sampson in press; Westbury & Sampson 1993); to the earliest European livestock (Plu et al. in press; Voigt et al. in prep.); to available radiocarbon dates; to the earliest ceramics (Hart 1989:225; Sampson et al. 1989); and to sherds with decorations known to have very narrow dating ranges (Vogel & Sampson in prep.).

Although the mammal remains are quite fragmented throughout, there are no significant differences in the median size of bone fragments (ca 18-20 mm) from densely packed lenses or from bone-poor horizons. This holds for all the sites in this study. From this we assume that changes in midden density reflect changes in accumulation rate rather than changes in bone particle size.

**THE BONE MIDDENS**

**Abbot’s cave**

A small midden accumulated in the front half of the cave and must have reached peak density at ca 800 BP, given the associated radiocarbon date (Sampson & Vogel 1989:1). There is a small patch of high density bone below this, but above the line of earliest sherds that mark the ca 1100 BP horizon (Fig. 4 bottom).

The large, dense upper midden is separated from the
Fig. 2. (Top) Plan of Abbot's cave showing positions of two adjacent slices A and B; (center) side views of the two slices A and B, showing dimensions of excavated blocks; (bottom) slices A and B showing blocks containing >100 mammal fragments. Handwritten numbers in blocks are x100 fragments.

Fig. 3. Abbot's cave composite sections of (top) eight slices through the back half of the fill, and (bottom) eight slices through the front half.

Fig. 4. Abott's Cave composite sections with chronological markers superimposed. European items include artifacts (circles) and livestock remains (squares. The conjoined blocks labelled 300-200 bp contain sherds with a decorative motif of that dating range.

lower by a bone-poor zone. There are hints of density fluctuations in the lower part at the upper midden, particularly at the back of the cave, and the two main concentrations within its core may be of different ages. The range of species present is given in Plug (1993). Four charcoal samples through the rear sequence have been submitted to obtain a refined chronology, and a date of ca 400 BP can be expected for its center. The line of deepest European artifacts in the front (Fig. 4 bottom) includes items not made before the 1820s, but some have been thrust down from above. Livestock were being stolen by local Bushmen after 1870 and were being given to them soon after 1800 (Voigt et al. in prep.). The radiocarbon date of 240 ± 50 BP (Pta-5183) from the back raises the
possibility that midden density may have begun to diminish even before European contact.

Lame Sheep Shelter

Increases in bone fragments per block could be the result of increases in bone smashing and fragmentation rather than increases in game input to the midden. The most efficient way to demonstrate that bone fragmentation rates are not a contributing factor is to weigh (rather than count) the limb bone shaft and other splinters as well as fragments of tooth enamel and other undiagnostic pieces. This has been done for the adjacent Lame Sheep Shelter.

Lame Sheep is not really another site, but an extension of Abbot’s Cave, with its rear exit linked to Abbot’s through a short, low tunnel that joins the two deposits. The occupation history of Lame Sheep was quite different, however. The first sherds to appear are soon followed by a large dense bone midden well represented at the back (Fig. 5 top) nearest Abbot’s, and also at the front (Fig. 5 bottom). Block depths in this very stony deposit were too deep to allow finer stratigraphic subdivisions of the lower midden, but it may be the equivalent of Abbot’s lowermost two patches compressed into one. Associated charcoal has been submitted for dating. The large upper midden in Abbot’s is reduced to a vestigial trace at the back of Lame Sheep closest to the link tunnel. Evidently the shelter roof disintegrated, making Abbot’s the more attractive cavity for occupation. The dense patches in the post-Contact levels of Lame Sheep include some livestock remains, so they are not comparable with the Abbot’s record where all livestock had been removed before analysis. Plug (1993) lists the frequency of wild species present.

Haaskraal Shelter

These samples were treated in identical manner to Volstruisfontein, and more charcoal dates are available (Hart 1989:156). Although overall faunal density is much higher at Haaskraal, two middens emerge if the density isopleth values are raised (Fig. 7). Faunal density is clearly very low before 1200 BP. The core of the lower lens of the lower midden dates to ca 1100 BP, and a

Fig. 6. Volstruisfontein (a, b) adjacent composite sections of two slices each through the fill. Rear shelter wall is to the right; (c, d), same, with chronological markers. Key to marker items in Fig. 4.

Fig. 7. Haaskraal composite sections of four slices through part of the shelter fill. Rear shelter wall is to the right. Key to marker items in Fig. 4.
younger lens of ca 500 BP. has been compressed into it in places. As the layering is not perfectly horizontal, the projected elevations of some dates appear misplaced. The top part of the upper bone midden is inflated by numerous livestock remains, including cattle (Plug et al. in press).

Leeuhoek Shelter

This very shallow, compressed fill yielded a rich fauna, but the separation between the upper and lower middens cannot be clearly resolved (Fig. 8). Leeuhoek has exceptionally well defined upper and lower marker horizons. There is a small high density patch in the preceramic level, of uncertain date.

Van Zyls Rus Shelter

The Late Holocene midden is on a visible disconformity separating it from Lower Holocene deposits in which very little fauna has survived (Fig. 9). Here, total non-domestic mammal fragment counts were used to construct the composite section. Like Leeuhoek, the bone midden is too compressed between the two marker horizons to show subdivisions. There is a dense patch of game remains above the earliest European markers.

Boundary Shelter

Small patches of high density fauna rest on the Lower Holocene deposits but the patches are capped by the deepest sherds and could be preceramic in age (Fig. 10). Until associated charcoal dates are obtained it remains uncertain whether they represent the ca 1100 BP. midden seen at Haaskraal. In spite of the paucity of fauna and the highly compressed sequence between the two marker horizons, there is a well defined separation between the

Fig. 8. Leeuhoek composite section of all eight slices through the fill. Key to marker items in Fig. 4.

Fig. 9. Van Zyls Rus composite sections of all 12 slices through the fill. Rear shelter wall is to the right. Key to marker items in Fig. 4.

Fig. 10. Boundary composite section of twelve slices through main part of the fill. Rear shelter wall is to the right. Key to marker items in Fig. 4.

Fig. 11. Driekoppen composite section of four slices through central part of the fill. Rear shelter wall is to the right. Key to marker items in Fig. 4.

Bloubos Overhang.

Only ca 100 m along the same slope as Driekoppen, the Bloubos sequence conforms not with its large neighbour but with the rest of the shelters in the upper valley. Although only a 1 x 1 m test pit (Fig. 12), the
results show a high-density patch on bedrock. It is followed by a second patch, followed by a low density zone then a very dense midden underneath the deepest European marker horizon. Although the sample is too small to allow us to see the deepest ceramic marker horizon, lithic analyses show beyond reasonable doubt (Pease 1993) that this is the same sequence seen elsewhere.

**DISCUSSION**

The first question to be settled is the accumulating agent responsible for these middens. The frequency of punctate tooth marks and porcupine gnawing is so small (Plug 1993) that the contribution of scavenging animals may be safely dismissed as trivial (Plug & Sampson in prep). By contrast the large samples of hornfels artifacts (Pease 1993), ceramics (Sampson *et al.* 1989), ostrich egg shell fragments (Sampson in press), and charcoal hearths directly associated with the bone accumulations can leave no room for doubt that they are mainly human discard. No attempt is made here to exclude the the small sample damaged by carnivores or porcupines from the analysis.

The next question is not so easily settled, namely the anomalous Driekoppen sequence. This may be connected to several other differences already noted at the site (van der Merwe 1990; Crass & Sampson 1993b) which hint that it may have been a major ritual centre. If, as suggested, its floor was a platform frequently used for trance dancing during post-Contact times, then aeolian lagging (the site is fully exposed to prevailing northwesterlies) and fragmentation underfoot may have combined to cause the post-Contact accumulation. The unprotected aspect of this site and its porous doleritic fill probably account for the paucity of older fauna.

The case for accelerating rates of mammal bone accumulation in all other shelters over a period centered on ca 400 BP is well supported. Implied in this statement is the untested assumption that rates of sediment deposition and roof fall remained constant before, during and after the midden forming event. It also assumes that the rate of sediment removal by wind scouring remained constant over the same period. Competing hypotheses are that bone accumulation rates remained constant while pseudo-middens formed because of lowered sedimentation rates and/or wind lagging of fauna. Independent cross-checks are needed from other sources to refute the rival hypotheses.

Although some 700 km to the southwest of the upper Seacow (Fig. 1 inset), the outstanding speleothem record from Cango Caves (Talma & Vogel 1992) is of particular value. The later part of their radiocarbon dated δ18O record suggests relatively brief warmer episodes centered on ca 1150 BP, 850 BP, 450 BP and 50 BP (Fig. 13) with intervening colder episodes, particularly those centered on ca 1350 BP and 750 BP. Although the temperature fluctuations are relatively small, they reflect changes in deep cavern air temperature, several km from the cave system entrance. This implies a far wider range of ground surface changes. It would seem, on the basis of available evidence, that bone accumulations rates in the Upper Seacow River Valley shelters accelerated during warmer episodes. However, such episodes could promote slower roof spalling without any increase in carrying capacity. Spalling is very marked in the levels of the lower middens, but not in the upper ones, so other lines of evidence should be considered.

The radiocarbon dated pollen sequences from hyrax dung latrines at Oppermanskop and Meerkat shelter on the east rim of the upper Seacow (Fig. 1) are also useful as an independent check on potential processes that cause the middens to form. The ratio of grass to Karoo scrub pollen in hyrax dung appears to be a reflection of the local rainfall regime (Hubbard & Sampson 1993). The pollen diagrams from both sites show complementary fluctuations in grass and scrub pollen (Scott & Bousman 1990) over the last 1300 years or so. The Oppermanskop sequence gives adequate coverage for the earlier half of the sequence, but sampling intervals are too broad in the upper part of the compressed dung to be of much use. However the later portion is covered in excellent detail by the Meerkat latrine which overlaps with the top of Oppermanskop. Bousman (1990) has derived mean annual rainfall estimates from these data, based on comparisons between modern grass/Composite ratios from different parts of the Karoo. His reconstructed rainfall estimates are plotted in Figure 14, together with a summary curve of the Cango Cave temperature estimates.

The warm episodes centered on 1150 BP, 850 BP and especially 400 BP, appear to coincide with increases in
effective moisture, as reflected by increases in grass pollen output. Both the timing and the scale of these events suggest a link between climate, grass cover and bone midden accumulation.

The very marked decline in grass pollen output after ca 100 BP breaks the formerly cyclic association. This is reasonably interpreted as a reflection of the overgrazing by European stock farmers after ca AD 1850, rather than an extreme decline in rainfall. By this time most bone midden accumulation had already ceased abruptly after the systematic game slaughter by Europeans, briefly reviewed by Skead (1987), was under way. In shelters where game remains continued to accumulate rapidly in the post-Contact levels, there are also signs that the occupants possessed muskets (Westbury and Sampson 1993), suggesting that they too had joined in the general extermination.

In other shelters, there are hints that the decline in bone accumulation may have begun some time before the European arrival, but it is impossible to be more precise about dating. The rapid increase in ostrich egg intake by the surviving Bushmen during this period (Sampson 1993) also seems to have begun before the appearance of the first European livestock and artifacts. Precise timing again eludes us.

Fig. 13. Temperature estimates based on Cango Caves speleothem δ¹⁸O data for the last 1500 years, after Talma and Vogel (1992:208).

Fig. 14. Cango Caves temperature estimates (solid line) compared with rainfall estimates of Bousman (1990) derived from pollen diagrams at Oppermanskop and Meerkat hyrax latrines (see Fig. 1).

CONCLUSIONS

Driekoppen aside, a shadowy case can be made for two periods centered roughly on ca 1100 BP and ca 800 BP when the rate of mammal bone accumulation increased in upper Seacow valley shelters used by forebears of the Bushmen. A strongly supported case exists for a very marked increase in bone accumulation in all shelters for a period centered on ca 400 BP. Accumulations rates decline sharply at about the time of European Contact, with hints in some shelters that the decline started slightly earlier. There is a reasonably good fit, both in timing and scale, between these results and the temperature estimates from the Cango Cave speleothems and between both data sets and the rainfall estimates from Oppermanskop and Meerkat pollen diagrams. Bone middens formed during warm-wet episodes and stopped accumulating during cool-dry episodes. The European onslaught disrupted the whole pattern of associations by killing off the game and overgrazing the veld.

These results lend support to a simple climate-driven model in which carrying capacity fluctuates in response to modest, medium-range changes in rainfall and temperature. When carrying capacity reaches a critical
level, the frequency of game animals taken by ancestral Bushmen hunters also increases. When they decline, so the frequency of kills decline. The model lends itself to further testing along several avenues of archaeological, archaeozoological and isotopic enquiry.

ACKNOWLEDGEMENTS

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REFERENCES


EARLY RECORDS OF SOME FLORA AND FAUNA USED BY THE KHOISAN OF THE WESTERN CAPE*

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ABSTRACT

A rare document in the the South African Museum provides eyewitness information on the use of a number of species of flora and fauna by the Khoikhoi and San inhabitants of the western part of South Africa during the late seventeenth century. The information provided relates to the use of the various species for food, medicine and equipment, and is supplemented by information from two eighteenth-century botanists as well as modern information.

INTRODUCTION

The library of the South African Museum has a document that is extremely rare and, in some respects, unique. It is generally known as the Codex Witsenii or Witsen's Codex. However, use of the name for this volume alone is not strictly correct, since it is but one of a set of three volumes to which the name was given (Burman 1738:vi et seq.). It is a bound collection of 87 coloured drawings, all but one of which relate to the expedition undertaken in 1685-6 by Simon van der Stel, Commander of the Dutch East India Company's (VOC) settlement on the shore of Table Bay. The purpose of the expedition was to locate the 'Copper Mountains' in the country of the Namaqua, which were said to be the source of all the copper possessed by the indigenous inhabitants of the land (Moodie 1960:398).

As well as a journal being kept of the expedition, drawings were made of some of the flora and fauna encountered along the route. They are considered to be the work of Heinrich (Hendrik) Claudius, an apothecary and artist who was a member of Van der Stel's expedition. Because of his professional interest, Claudius annotated them with information about their pharmacological and/or dietary properties, this probably having been obtained from the Khoikhoi; and he also included many of the indigenous names.

The original of the journal and its accompanying drawings disappeared from the VOC's archives, possibly towards the end of the seventeenth century, but are believed to be those now in the library of Trinity College, Dublin. These have been published in two editions (Waterhouse 1932; De Wet & Pfeiffer 1979). The illustrations in the South African Museum's volume were made at the Cape in 1692 for Nicolaas Witsen, a wealthy citizen of Amsterdam who was one of the Directors of the VOC and a Trustee of the Hortus Medicus in Amsterdam, in which plants from all over the known world were cultivated. What is known of the history of this volume and the other collections of similar drawings has been detailed elsewhere (Waterhouse 1932; Barnard 1947; Kennedy 1967; De Wet & Pfeiffer 1979; Wilson 1989; Kerkham 1992a, 1992b). Each of the collections differs in the number and nature of the drawings it contains, and the annotations of many of them differ, so that each is in some respects unique. Apart from the Dublin drawings, the identity of the artists who made the other collections is unknown, but the source of all of them is clearly the Claudius originals, not all of which are in the Dublin collection.

As far as is known, no publication relating to these collections has dealt with the ethnographic data. This information can be useful to archaeologists, who may find in their excavations the remains of the species discussed below or, where these have not survived, can use the information to expand their knowledge of the economy of the Khoisan. In this connection it should be borne in mind that, although the species described were found in the western part of the country, many of them have a wider distribution, and that similar species of the same genera were probably used in other parts of the country.

The use or vernacular name of many of the species is ascribed to the Khoikhoi: the Grigrigua, who lived between the Berg and Olifants Rivers; and/or the (Little) Namaqua, whose territory lay between the Olifants and Orange Rivers. The Sunqua (Sun) referred to in folio 148 were widely distributed and the 'Cape people' also mentioned there were probably the Goringhaqua, the 'Kaapmans' of the early records, and possibly their
neighbours, the Gorachouqua and Cochoqua.

The expedition took place between 25 August 1685 and 26 January 1686. All the species recorded were thus observed between early spring and midsummer. A single plant (folio 70, not discussed here), was recorded as having been found by Van der Stel on 30 January 1686 on the Steenberg, on the False Bay side of the Cape Peninsula.

The descriptions below are preceded by the folio number of the illustration in the Museum’s volume and information is provided from the annotation on the reverse of the drawing. These are followed by the identification of the species and such other information as is available. The information extracted from Watt & Breyer-Brandwijk (1962) is mostly derived from other, primary, sources but these authors are cited here as being the source. Since not all of the illustrations are reproduced here (Fig. 1), cross-references to those in the collection of Trinity College, Dublin (Waterhouse 1932, De Wet & Pheiffer 1979), the catalogue of paintings in the Africana Museum, Johannesburg (Kennedy 1967) and the collection of the South African Library, Cape Town (Kerkham 1992a, 1992b) are provided for the benefit of readers who have access to these publications. TCD followed by a number refers to the folio in Waterhouse and De Wet & Pheiffer, K plus number to the catalogue reference in Kennedy, and SAL plus letter and number to the South African Library collection. In cases where the indigenous name given in the other collections differs from that in the Museum’s volume, the variant is given in brackets after the collection reference. A complete (black-and-white) set of the illustrations in the Museum’s volume is to be found in Barnard (1947).

**FLORA**

9. The root of this plant has a pleasant taste, is carminative [relieves flatulence] and diuretic [causes an increased output of urine] and much used by the inhabitants, who call it chamare. The leaves have the smell of parsley.

Possibly *Pucecedanum gummiferum* (L.) Wijnands (Apciaceae) showing tuber and basal leaves. About a century later, Thunberg (Forbes ed. 1986:202) recorded that the root of a similar plant, called gli by the inhabitants, was dried and powdered, then mixed with cold water and honey and allowed to ferment overnight, after which it produced an intoxicating liquor. Watt & Breyer-Brandwijk (1962:1038, 1041) cited a report that *Glia gummifera* was used in South Africa as a diuretic in treating dropsy and lithiasis (kidney- and gallstones), and another of the medicinal use of *P. tenuifolium*, which apparently blisters the skin. The last two scientific names have been revised to *Pucecedanum gummiferum* (Gibbs Russell et al. 1987:139-140). Note that the indigenous name has been used for the genus name of the plant illustrated in folio 63. Common names: gli(wortel); moerwortel, yeast root, the latter indicating the use of the root as a yeast or fermenting agent (Smith 1966:230). TCD811, K637, SALB28.

13. This plant is filled with brack, sourish sap that is useful - in direct necessity - for slaking thirst, but its use results in severe stomach-ache. It grows mostly in the country of the Namaqua.

*Conophytum* sp., probably *C. minutum* (Haw.) N.E. Br. (Mesembryanthemaceae). Watt & Breyer-Brandwijk (1962:6) reported that Louis Leipoldt, poet, writer and medical doctor, considered that this genus has narcotic properties. Common name: not known for this species. K644.

15. This is the second kind of the *gambry* of the Hottentots, but unfit to use. (See 55 below for the first kind.)


19. The flower of this plant has a pleasant smell and it [the plant rather than just the flower] is calefacient [produces or causes a sensation of warmth] and suitable for poultices. Called *cabaroë* by the inhabitants.


27. This plant has an edible root and is called heynname.

*Pelargonium barklyi* Scott Elliott (Geraniaceae). Watt & Breyer-Brandwijk (1962:453) reported the use of a number of *Pelargonium* species in the treatment of various diseases and Thunberg (Forbes ed. 1986:160), and dysentery. Common name: not known for this species, but the name malva, mallow, is generally applied to the genus (Smith 1966:331). K601. observed that the tubers, being of an astringent nature, were used in the treatment of diarrhoea.

37. The roasted bulb of this plant has a sweet and pleasant taste and is a common food of the inhabitants, but eating much of it causes severe constipation.


43. The bulb of this sweet-scented flower has a pleasant if somewhat astringent taste. It is a common food of the inhabitants and they call it cabung.

*Lapeiroisia pyramidalis* (Lam.) Goldblatt (Iridaceae). Common name: Bond & Goldblatt (1984:77) gave this as naeltjie, clove, and applied
Fig. 1. Twenty-four of the flora and fauna discussed. The number in the lower left corner is that of the folio. The letter in the lower right corner indicates the use of the species for food (F), medicine (M) or artifacts (A).
the names *cabong* and *chabi* to *L. fabricii*, whereas Smith (1966:184, 190) applied them to *L. anceps*. TCD785 (*Chabi*), K627 (*Chabung*), SALB35.


53. The spongy pith of the branches of this tree is removed and the hollowed-out bark used by the inhabitants for quivers, a piece of leather being drawn over one end. Called *choje* by the inhabitants.

*Albuca altissima* Dryander (Liliaceae). Common names: the use to which the branches were put has given rise to the Afrikaans and English vernacular names kokerbroom and quiver tree (Coates Palgrave 1977:78). TCD799, K595, SALB23.

55. The stem of this plant is filled with sweetish sap and is chewed by the inhabitants when they are thirsty, as it has a wonderful ability to cool and freshen the mouth. The inhabitants call it *gambry*.

*Albuca altissima* Dryander (Liliaceae). Note that this differs from 15 above although it has the same Khoikhoi name. Thunberg (Forbes ed. 1986:57) also recorded the use of another species, *A. maior (= A. canadensis*: Gibbs Russell et al. 1985:101) as a thirst-quencher. Common names: Smith (1966:538) gave maerman, thin man, as the common name for this plant, but under this heading (p. 328) applied it to *Urginea altissima* (L.f.) Bok. Elsewhere (pp. 218, 424), he applied the indigenous name, *gambry*, to *A. canadensis*, which is also known as slymstok, slime-stick, with reference to the qualities mentioned above. Le Roux & Schelpe (1981:30) gave the common names of *A. altissima* as slymstok and kaniemiek, the latter evidently of Khoisan origin. TCD849, K623, SALB14.

56. The fruit of this plant looks and tastes like the Indian fruit kauki [persimmon], but is constipating and eating too much of it obstructs the bowels. It is called *kannob* by the inhabitants.

*Diospyros austro-africana* De Winter (Ebenaceae). Watt & Breyer-Brandwijk (1962:393) cited a report that theNama used Royena hirsuta [= *D. austro-africana*: Gibbs Russell et al. 1987:149] as a purgative, which is contradictory of the effects mentioned above. Common names: fire-sticks, kritikom, the former referring to use of twigs to make fire by friction, the latter probably a Khoisan name (Coates Palgrave 1977:744). See also 83 below. TCD833, K618, SALB31.

57. The fruit of this plant has a pleasant, if some what tart, taste. Healthy and cooling, it is useful for travellers to freshen their mouths and quench their thirst. Called *cargoë* by the inhabitants.


58. The bulb from which this flower grows has a sweet and pleasant taste when baked in the ashes. The inhabitants call it *chaby*, and it serves them as a common food.


59. This is *kanna*, renowned among the Namaqua and other peoples in the area on account of its intoxicant properties. It is chewed daily by the people and has a pleasant and cordial taste. It grows only on certain mountains in Namaqualand and is collected in October.

*Sceletium sp.*, probably *S. regium* L. Bol. (Mesembryanthemaceae). Thunberg (Forbes ed. 1986:248) described how a shrub, called *kon* by the Hottentots and *canna* by the colonists (sic), was famous all over the country and was traded over great distances. The root, stalk, and leaves were pounded, then twisted like ‘pig-tail tobacco’, allowed to ferment and then kept as a thirst-quencher, although if chewed immediately after fermentation, it intoxicated. Common name: not known for this species, but kanna and kougoed, chewing matter, have been applied to other species (Smith 1966:276, 309). TCD787, K631, SALB27.

61. The berries of this plant are edible to some extent but are not healthy, especially if too many of them are eaten and water drunk thereafter, since this causes acute stomach-ache. The plant is found in many places and is called *chou* by the inhabitants.


62. This plant, found in certain valleys along the Piketberg, has a sweet and edible root. *Anomatheca viridis* (Aiton) Goldblatt (Iridaceae). Common name: groenagretjie, green mayflower (Bond & Goldblatt 1984:59). K623.

63. The root of this plant, like a type of carrot, has a pleasant smell and is an effective carminative. It grows in dry, sandy places in the country of the Grigriqua.

Possibly *Chamarea capensis* (Thunb.) Ecklou &
Zeyher (Apiaceae). Watt & Breyer-Brandwijk (1962:1036) cited a report that this plant was heated and applied externally to relieve pain; also that it was not used internally as a medicine but eaten as a food, and that the root is soapy. Note that the indigenous name for the plant illustrated in folio 9 has now become the genus name of the plant illustrated here. Common names: Cape caraway; finkelwortel, fennel root (Bond & Goldblatt 1984:142). K605.

64. The root of this plant is sweet and much eaten by the inhabitants. It is found in many places and is called heyniame by the Namaqua, aree by the Grigriqua.

Pelargonium incrassatum (Andr.) Sims (Geraniaceae). Van der Walt & Vorster (1981:79-80) reported that this species is restricted to a narrow strip along the western Cape coast, from the Spektakel Pass west of Springbok to the Nardouw Flats east of Klawer. The wide distribution mentioned by the annotator may refer to tuberous Pelargonium spp. in general, rather than indicating that the distribution of *P. incrassatum* is now more restricted than in the past. It is leafless, thus invisible, during the summer. Common names: Namaqualand Beauty (Van der Walt & Vorster 1981:79-80); 't neitje (Le Roux & Schelpe 1981:98), probably a Khoisan name. TCD869, K602, SALB25.

67. This shrub has a sweet smell and is useful for making poultices in the event of cramps.


69. The root or bulb of this plant, which is called haro by the inhabitants, has a sweet and pleasant taste.

*Moraea fugax* (Delaroche) Jacq. (Iridaceae). Watt & Breyer-Brandwijk (1962:510) reported that the taste is like that of a boiled chestnut, but Thunberg (Forbes 1986:55) thought they tasted like potatoes. Common name: uintjie, little onion, a name given to a wide range of plants with bulbs, combs or tubers, particularly species of Iridaceae and Cyperaceae (Smith 1966:473). TCD797, K610, SALB36.

74. The root of this plant has a sweet and pleasant, though watery, taste and can provide the inhabitants with a daily food. It grows in some places in the country of the Namaqua, who call it berroe.

*Opphia digitata* (Thunb.) Willd. (Lovelliaceae). See also below for a different species illustrated by Burman. Thunberg (Forbes ed. 1986:251) stated that a plant called *kameka or barup*, 'which is said to be a large and watery root', was one of several means employed by the Hottentots when traversing the Karoo 'not only to assuage their hunger, but more particularly to quench their thirst'. Common name: baroe or variant spellings, often with a prefix such as berg-, mountain, melk-, milk, etc. (Smith 1966:616). TCD831, K652.

76. The root and stem of this plant, roasted in the fire, are pleasant to eat. It was found in many places in the country of the Namaqua, who eat it as a common food all year round and call it thunma.

Pelargonium carnosum (L.) L'Hérit. (Geraniaceae). Common name: fleshy-stalked pelargonium (Van der Walt 1977:8), simply a translation of the scientific name. TCD793, K653, SALB16.

78. This plant is found in many places, but particularly between the Olifants and Doornbosch [= Groen] rivers. The inhabitants hold it in great esteem and eat it as a diuretic. The Namaqua call it *canarebi* and the Grigriqua camao.

Fockea edulis (Thunb.) K. Schum. (Asclepiadaceae). Watt & Breyer-Brandwijk (1962:133) cited a nineteenth-century report that the tuber was eaten raw by the Hottentots. Thunberg (Forbes ed. 1986:250, 274) stated that this was one of several plants used by the Hottentots as a source of food and water; also that they ground it to meal and baked it like bread. Common name: kamb(a)roo (Smith 1966:272). Thunberg (loc. cit.) gave the common names *ku* and *Kou*, the latter called 'a Hottentot watermelon'. These names are either corruptions or dialectal variants of the Khoikhoi names given in the Dutch annotation. TCD825, K622, SALB12.

79. An edible gladiolus.

Glandiolum equitans Thunb. (Iridaceae). Common name: kalkoentjie, little turkey. This name is applied to several species of Iridaceae and alludes to the colour of the flowers (Smith 1966:270-271). TCD829, K609.

80. This plant grows in the vicinity of Meerhoffkasteel and is used successfully by the inhabitants as a purgative. It is called quaroebé by the Namaqua and Grigriqua.


81. The brittle and soft stem of this geranium has a sweet and pleasant taste. The inhabitants eat it, and call it cabouti. It was found between Oloffberghsfontein and the Dassenberg [= Heerenlogement].

Pelargonium echinatum Curtis (Geraniaceae). Common names: bobbejaan t'neitjie (Le Roux & Schelpe 1981:96), the latter part probably a Khoisan name applied to *Pelargonium* spp. in general - see folio 64; also prickly-stemmed pelargonium (Van der Walt 1977:13). TCD827, K600, SALB15.
82. This unusual plant is found in the vicinity of the Copper Mountains. The inhabitants call it *tkauby* and use its sap as an adhesive, with which to glue together their arrows and quivers.


83. The fruit of this plant are pleasant to eat, although exceedingly astringent. They are called *Baviaens kerse* [baboons' cherries] by the Dutch.


**FAUNA**

142 (upper). This kind of wild rabbit is found in the vicinity of the Copper Mountains. It has a pleasant taste and is called nabasby by the inhabitants. Smith's red rock rabbit *Prnonolagus rupestris* (Leporidae), a nocturnal species (Skinner & Smithers 1990:176-7). TCD735, K665, SAL Z2.

142 (lower). This caterpillar, after the contents of its gut have been squeezed out, is put on wooden skewers and roasted on the coals, or it is cooked without water in a pot, after which the liquid is squeezed out and the remainder made into balls and eaten. It is considered a particular delicacy by the Namaqua, who call it *aroebie*. (The annotation also mentions that the people customarily ate red and green grasshoppers.)

Larva of the willowtree (or zig-zag) emperor moth *Gonimbriasia tyrhea* (Saturniidae). In the winter-rainfall region, the larva appears in late spring or early summer and is available for about two months before it pupates (V.B. Whitehead pers. comm. 1993). Cross-references as above. A better-known relative, the 'mopane worm', is the larva of *G. betina* (Pinhey 1972:79).

148. This snake is eaten with great relish by the Sunqua, who call it *keykaras*, while the Cape people call it *cabou*.

Mole snake *Pseudaspis cana* (Colubridae). TCD773, K671. Folio 146 (upper) illustrates what appears to be a juvenile of this species, but it is called *thouquete* by the Namaqua and *eyerimate* by the Griquas, both tribes considering it vicious and poisonous. *P. cana* is not venomous, but can inflict a serious bite. TCD775, K670 (centre).

156. The venom of these snakes, which the inhabitants call *hamachou*, is used by them to poison the tips of their arrows and spears after it has been dried and sliced into pieces. (The illustration shows how the venom sac is removed and its end tied off, this also being described in the annotation.)

Cape cobra *Naja nivea* (Elapidae). TCD777, K672 (right).

**THE [DECADES] RARIORUM AFRICANARUM PLANTARUM**

Johannes Burman (1707-1779), a medical doctor and Professor of Botany at the Hortus Medicus in Amsterdam, acquired the three volumes of the *Codex Witsenii* from the widow of his predecessor, Caspar Commelin, after the latter's death in 1731. He made extensive use of the Codex in his monograph on Cape flora (Burman 1738-9). Although he annotated the Museum's volume with references to his own work and that of other botanists, of the 92 references to the *Codex* in his monograph, only twelve refer to the Museum volume: folios 9, 13, 17, 19, 25, 27, 39 and 63-67.

As will be seen from the foregoing, not all the illustrations in the Museum's volume are of flora used by the Khoikhoi. There are, however, other references to such use in the Decades, information on these having been taken from the other two volumes of the *Codex Witsenii*, one of which is in the library of the National Botanical Institute, Pretoria, while the location of the third is not known, or from another source. Those given below list the number of the Decas, plate, figure, and page. Burman gave the *Codex Witsenii* as the source of his information for all the plants except the first.

3.25.1.61. Eaten by the inhabitants for their agreeable taste and commonly called *Ficus Hottentotorum* [Hottentots' fig].

*Carpobrotus edulis* (L.) L. Bol. (Mesembryanthemaceae). Common name: suurvy, sour fig (Bond & Goldblatt 1984:320).

3.27.3.67. The bulb is eaten by the Hottentots.

*Oxalis purpurea* L. (Oxalidaceae). Common name: not known for this species, but the name suring, sorrel, is applied to many species of this genus (Smith 1966:446).

4.38.2.99. The bulb is eaten by the Hottentots.

*Cyphia bulbosa* (L.) Berg. (Lobeliaceae). Common name: bergbaroe, mountain baroe (Bond & Goldblatt 1984:211). See folio 74 above for another species.

9.82.1.235-6. It is called the *Assagay-Boom* [-tree]... from which the Khoikhoi make sarissas or assegais.

*Curtisia dentata* (Burm. f.) C.A. Sm. (Cornaceae).

9.83.1.237. Commonly called *Slangenhout* [snakewood]. Surgeons in the Cape of Good Hope use the root to evacuate serous fluids.
Olea exasperata Jacq. (Oleaceae). Possibly a use derived from the Khoikhoi. Smith (1966:422) said that the name derives from the belief that the root was an antidote for snake-bite (see also Coates Palgrave 1977:760).

ACKNOWLEDGEMENTS

The flora in the volume were identified by Dr John Rourke, Curator of the Compton Herbarium at the National Botanical Institute, Kirstenbosch, while those in Burman's monograph were identified by Dr Onno Wijnands, Department of Plant Taxonomy, Wageningen Agricultural University, the Netherlands. Dr Bill Branch of the Port Elizabeth Museum identified the reptiles and Dr Vin Whitehead of the South African Museum the caterpillar. Dr Thea Toussaint van Hove, a voluntary co-worker, assisted with the translations. Colleagues Bill van Rijsjes did the photography for the figure and Vivien van Zyl the montage.

REFERENCES


MTEMANKHOKWE: HUMAN SKELETAL REMAINS FROM A LATE IRON AGE CEMETERY IN THE MANGOCHI DISTRICT OF SOUTHERN MALAWI*

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ABSTRACT

Six human skeletons from a late Iron Age context in the Shire River Valley of southern Malawi have been analysed from a biological perspective. The age, sex and health status of each individual is presented. Population origin, evidence of social status and ethnicity, and health and diet, are discussed in the light of these data. The presence of intentional tooth mutilation in these individuals is the first demonstration of such a case from an archaeological context in Malawi.

INTRODUCTION

During 1987, Dr. Yusuf Juwayeyi and his colleagues at the Department of Antiquities of Malawi, excavated six human burials from a late Iron Age site in the Shire River Valley in southern Malawi (Fig. 1). The site appears to have been a cemetery built on the site of an earlier village. There are many parallels between this site and the one dug at Nkudzi Bay by Inskeep (1965), and pottery associated with the Mtemankhokwe burials is the same as that at Nkudzi Bay (Juwayeyi 1991).

Juwayeyi’s analysis of the associated cultural material indicates a date for the cemetery site in the late eighteenth or early nineteenth centuries. The importance of this date is that “the people buried at the Mtemankhokwe I site were the ancestors of the Nyanja speaking people” (Juwayeyi 1991:33). The movement of Yao-speaking and Ngoni-speaking peoples post-dates the burial phase of the Mtemankhokwe site.

In July 1991, upon the invitation of Dr. Juwayeyi, I had the opportunity to study the six skeletons housed at the Malawi Department of Antiquities in Lilongwe. The following report on the skeletal biology of the people is intended to parallel Juwayeyi’s 1991 description of the cultural practices. Tables 1 to 4 present the measurement data for these individuals.

DESCRIPTION OF THE SKELETONS

Burial No. 1 (Fig. 2)

Burial number 1 demonstrates the poorest preservation of the six Mtemankhokwe individuals. Although both the face and vault can be reconstructed, crushing has resulted in substantial distortion and the two cranial sections

Fig. 1. Map of Malawi showing location of Mtemankhokwe and Nkudzi Bay sites.

cannot be assembled in an anatomically correct manner. The palate is also broken with several loose teeth that cannot be refitted into the damaged sockets. The mandible is in fairly good condition and shows some
Table 1. Cranial measurements (mm).

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Table 2. Cranial indices.

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Table 3. Mandibular measurements (mm) and indices.

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<th>3</th>
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<td>M</td>
<td>F</td>
<td>M</td>
<td>F</td>
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<td>Maximum Mandibular Breath (w1)</td>
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<td>Pro. Rameal Height (rd)</td>
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<td>34</td>
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<td>102.9</td>
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<td>-</td>
<td>76.8</td>
<td>58.1</td>
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Table 4. Long bone measurements (mm).

<table>
<thead>
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<tr>
<td>lt rt lt</td>
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<tr>
<td>Humerus</td>
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<td>286</td>
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<tr>
<td>Epicondylar Breath</td>
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<td>52</td>
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<tr>
<td>Midpoint Circumference</td>
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<td>64</td>
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<tr>
<td>Radius</td>
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<td>251</td>
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<tr>
<td>Ulna</td>
<td>271</td>
<td>272</td>
</tr>
<tr>
<td>Femur</td>
<td>419</td>
<td>-</td>
</tr>
<tr>
<td>Tibia</td>
<td>354</td>
<td>-</td>
</tr>
<tr>
<td>Mid-shaft (ant-post)</td>
<td>19</td>
<td>27</td>
</tr>
<tr>
<td>Mid-shaft (med-lat)</td>
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<td>28</td>
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</tbody>
</table>

Pathologies: The post-cranials are fairly complete, but both humeri, the right fibula, and the left femur are broken and cannot be measured.

This individual is clearly male. The pelvis demonstrates a narrow sciotic notch and a narrow sub-pubic angle. That the individual was an adult is unquestioned, and the complete formation and fusion of the medial epiphysis to the shaft of the clavicle indicates an age in excess of 25 years. Although the face of the pubic symphysis has remodelled extensively, the remodelling is not as extensive as the oldest age category (McKern 1970). The sagittal and coronal sutures have begun to obliterate. No osteophytes are present on the vertebral column, the ventral rib ends are cupped but not extensively, and the sternal corpus has not united to the manubrium. All these features indicate an age less than 40 years. The indication is therefore that Burial 1 represents a man who was probably in his 30's at death.

There are no obvious post-cranial abnormalities or pathologies, although slight arthritic lipping can be seen on the phalanges of the foot, particularly on the toes. The bones of the right upper limb are longer than the left indicating that the individual was probably right-handed.

The jaws of Burial 1 do demonstrate interesting features. The four upper incisors have been lost antemortem, but only the sockets of the central teeth have been completely resorbed. The sockets for the lateral incisors are still present although resorption is evident. The post-mortem breakage of the jaws means that many teeth have been lost after death. Other than the upper incisors, the right lower P1 and M2 have been lost antemortem. The mandible also shows severe apical abscessing at the root of the right M1 and especially at the roots of the left premolars. The maxillary molars have marked buccal calculus, particularly on the right M2.

Burial No. 2 (Fig. 3)

This skeleton is in better condition than the previous individual. The cranial is nearly complete with some minimal damage to the base of the skull and to the back
of the palate. The mandible is complete and nearly all of the bones of the post-cranial set are present. Some vertebra, a few hand bones and most of the foot bones have been lost. The femora, tibia and fibulae have suffered regional damage and none are complete.

The morphology of the pelvis in general is not particularly indicative of the sex of this individual. Confirmation of sex comes only from the shape and structure of the pubic symphyseal face, which is feminine. Very faint parturition-like scarring can be seen on the dorsal edge of the pubis, and the presence of well defined pre-auricular sulci suggest that these are indeed parturition scars. The age of the individual at death is past 40 years. The rib ends are strongly cupped, calcification of the cartilage has begun on the ventral end of the 1st rib, and osteophytosis is present on thoracic vertebrae (T5 to T7) and at the lumbar 4/5 junction. The coronal suture has been obliterated and the sagittal is nearing fusion. The pubic symphyseal face is flattened with a strong rampart and fitting the 50’s age category from the Suchey-Brooks pubis aging models (Suchey et al. 1988). All in all, these features would indicate a woman well past the 40 year mark, and probably in the sixth decade of her life.

There are few obvious abnormalities seen on the skeleton. The muscles markings are clear and well delineated, and the right upper limb bones are longer than the left. As previously stated, osteophytosis is present on the vertebral column and is especially severe at the junction of L4 and L5. Osteoarthritis is recognizable by slight lipping around the glenoid fossa of both scapulae, and also on the heads of the second and third metacarpals of both hands.

The dental health is not particularly good. Of the 25 teeth still in their sockets, 3 are carious (12%) and antemortem loss has removed the left lower M1 and M3. Calculus is present throughout the tooth set and is marked buccally on the upper premolars and buccally and lingually on the lower incisors. Once again, the upper four incisors are missing and the alveolar process around their sockets entirely resorbed.

Burial No. 3 (Fig. 4)

The cranium of Burial 3 has been damaged on its left side and on its base. The mandible has lost both of its condyles, and the post-cranial skeleton is fragmentary, with only the humeral pair, the right radius & ulna, and the left tibia intact. The vertebral column is well preserved in the lumbar region, but is represented in the thoracic segment by vertebral arches only.

The initial identification of sex by Juwayeyi (1991) was as a female, but closer examination of the fragmentary pelvis and the cranium indicate a male sex. There is no pre-auricular sulcus, a fairly narrow sub-pubic angle and a high well curved iliac blade. The cranium is also high with a narrow and nearly right angled mandibular ramus. Muscle markings on the cranium are generally well delineated and the gonial flare of the mandible is marked. The fact that this was the tallest of the six Mtemankhokwe individuals adds support to its identification as a male.

Age is more difficult to assess because the diagnostic pubic regions are missing. The medial end of the clavicle is fully formed and united to the shaft indicating an age in excess of 25 years. The rib ends do not appear to be
cupped significantly and the corpus of the sternum is free of the manubrium. All sutures of the vault remain patent, and the dental attrition is the least of all six individuals from this site. Although only an estimate, the most likely age at death would have been in the man’s late 20’s or early 30’s.

The health condition of the skeleton is quite good. There is a very mild periosteal reaction on the distal end of the popliteal surface of the right femur. No osteophytosis is present on the available vertebral bodies. Caries is not present on the dentition, but the lower right M1 has been lost ante-mortem and its socket is partially resorbed. The ante-mortem loss on this comparatively young individual is coupled with the development of calculus on the buccal surfaces of all of the upper teeth. The lower molars and premolars are clear of calculus, but the lower incisors and canine are heavily encrusted on both buccal and lingual surfaces.

The most distinctive feature of the dentition of this skeleton is the mutilation of the upper incisors. The two central incisors had been removed some time before death as the sockets of these teeth have been substantially

Fig. 3. Facial and left lateral views of Burial 2.

Fig. 4. Facial and right lateral views of Burial 3.
resorbed. The two lateral incisors are intact, but the alveolar process on their mesial edge is partly resorbed and little bony material is holding the teeth in their sockets. These lateral incisors have been chipped buccally to remove a notch from the crown. The lesions are mirror image bilateral and are clearly not accidental.

Burial No. 4

Skeleton 4 is the least complete of the six individuals. Juwayeyi’s report indicates that this individual was buried sitting upright. No cranium (nor its fragments) was found. The mandible is present but the post-cranial set is damaged with many missing elements. The left arm is represented only by the distal half of the humerus and the vertebral column consists of C 1-7, T1-5, T12, and L 1-4. The pelvis is damaged and none of the bones of the leg is complete.

The presence of a well preserved mandible but no sign of a cranium is not surprising considering the cemetery had been used for cultivation in recent times. Juwayeyi indicates that Burial 4 was identified at 1.4 metres depth, well below the cultivation zone, but “it took some time before we realized that the few bones - mainly ribs - already recovered were part of a complete burial” (Juwayeyi 1991:30). The cranium had obviously been much higher in the soil column and cultivation practices sometime in the past had allowed its exposure and subsequent loss. This same pattern of cranium loss in an otherwise undisturbed Iron Age sitting burial has been seen in South Africa (Taylor 1979).

Burial 4 is definitely that of a woman. The broken hip bones cannot be aged, but they show wide sciatic notches and minor parturition scarring inside a pre-auricular sulcus. No maximum age at death can be defined, but the union of the medial epiphysis to the end of the clavicles indicates that the woman was fully adult and probably older than 25 or 30 years at death.

Arthritis is the only osteological disorder visible on the skeletal remains. The zygopophyseal joints between the arches of C5 to T1 all demonstrate slight arthritic changes, and the preserved ulna of the right arm has lipping on its humeral articulation. The arthritic problems appear to have been relatively minor and probably did not affect the woman’s way of life to any significant degree.

The mandible of Burial 4 is striking because of the extensive ante-mortem tooth loss. Of a total of 16 tooth positions, 11 have been lost antemortem, and the corresponding sockets have been extensively resorbed. The chewing function of the five remaining teeth must have been minimal as only the two left premolars provide an extended occlusal surface and the other teeth (the right canine, right M3 and left M2) are isolated from each other by gaps. All teeth demonstrate moderate wear and the M3 presents some calculus.

Burial No. 5 (Fig. 5)

Burial 5 is represented by a fairly complete skeleton. The cranium is somewhat crushed, with much of the face and base broken. Some distortion is present on the left side due to the crushing of the left frontal region. The biometric point nasion has been lost. The mandible is well preserved.

The post-cranial skeleton is essentially complete, but quite a number of the bones are broken. Most of the cervical vertebrae are broken, but the whole pre-sacral set can be identified. The feet and hands are complete, but the right tibia and both femora are broken at their ends.

The structure of the pelvis of burial 5 identifies it as a
male with a particularly narrow greater sciatic notch and sub-pubic angle. The pubic symphysis is well preserved and indicates an age greater than 36 years (McKern 1970). That the age is well in advance of 40 years is confirmed by extensive cupping at the rib ends complete fusion of the coronal suture and partial fusion of the sagittal suture. Although further age estimates, such as from the radiographic structure of the proximal femur, are not available, the general appearance of the skeleton suggests an age older than 50 years at death.

Osteophytosis is present on the lower thoracic and lumbar vertebra, and is particularly severe on the lower lumbars.

As with the previously described crania, this individual demonstrates tooth mutilation on the anterior maxilla. All four upper incisors have been lost ante-mortem and the sockets are entirely resorbed. The general health condition of the dentition is similar to the other individuals. Caries is present on the left lower M1. The corresponding tooth on the right side had been lost ante-mortem as has been the upper left M1. Severe abscessing is present at the root apex of the lower left M1 and calculus is present on most teeth. Buccal calculus is marked on the lower left canine.

**Burial No. 6 (Fig. 6)**

The last burial is the best preserved of the series. The cranium and mandible are extremely well preserved, complete with styloid processes and anterior nasal spine intact. Post-cranially most bones are present, including the hyoid. The long bones of the lower limb, although present, are all damaged at the knee and the hip and no lengths can be measured.

The excellent preservation of the pubic area allows identification of this individual as a female and also provides a reasonable estimate of her age. The face of the pubic symphysis appears quite smooth indicating that she was probably in her late 40's at death. Slight parturition scars are evident on the dorsum of the pubis. An interesting anomaly is the presence of an extra thoracic vertebra.

The dentition has once again been mutilated, and all four upper incisors have been lost with substantial alveolar resorption. An interesting note here is that part of the sockets of the lateral incisors are still visible. The evidence suggests that the upper incisors were lost earlier than the laterals. Caries is not present on the remaining teeth, but there are extensive ante-mortem losses other than the upper incisors. The left upper M2 and M3 and the lower right P2 and M1 were lost before death. The right lower central incisor is also missing with some loss of socket alveolar process. Calculus is present on nearly all lower teeth.

The T2/3/4 zygopophyseal joints of the thoracic vertebral arches are moderately affected by arthritis, as is the base of the 4th right metatarsal. Slight osteophytosis is present on the junctions of the bodies of T8/9, T10/11, and on all the lumbars. The bones of the lower limb show some pathological features that may be quite significant in terms of the individual’s lifestyle. The left femur, patella and tibia are larger than their corresponding members. The bones do represent the same individual, but left femur is some 15 mm larger in mid-shaft circumference, and the linea aspera on the right femur is nearly non-existent. The proximal end of the right tibial shaft shows a lateral pathology marked by periosteal inflammation and deposition. If this represents a chronic disorder, it may account for the thinner right limb as bone wastage if the individual actively avoided placing weight on the limb for a long period of time.

Burial 6 also contains some remains of a second individual. The proximal half of a left radius and most of a set of lower limb bones of a smaller individual were excavated with the complete individual. Careful
comparison on the bones confirms that there is no confusion with the thinner femur of the first individual. The lower limb bones consist of a tibial pair (the left tibia is nearly complete and is 347 mm in length), a damaged fibular pair, a pair of tali, the right calcaneus, 10 metatarsals and 6 phalanges. The reconstructed height from the left tibia gives a stature of 1.52 or 1.55 m (depending on sex), both figures of which are well below the 1.59 m calculated for the complete individual.

SEX, SOCIAL STATUS AND ASSOCIATED ARTEFACTS

The analysis of the archaeology of the burials by Juwayeyi (1991) brought to light a number of questions concerning the social identification of the individuals in relation to their burial posture or associated grave goods. In particular, Burials 4 and 5 were assigned the roles of "chief" and "slave" respectively, based on their burial position. Now that the skeletons have been analysed, the sex and age categories can be compared more fully to the burial information.

The six individuals from Mtemankhokwe consist of three males and three females (Burial 3 was incorrectly identified as a female in Juwayeyi's paper). The grave goods associated with Burials 1 to 3 and 6 form an interesting pattern. The males were associated with clusters of arrowheads, while the females were buried with clusters of pots. All individuals wore beads or wire decorations. The inclusion of Burials 4 and 5 cloud this initial clarity. Burial 4, that of an adult woman, has a particularly rich decoration of ivory and iron bangles and also is associated with the largest cluster of 26 arrowheads. Burial 5, that of an older man, has no grave goods at all other than beads. Juwayeyi has suggested that the difference in grave goods between Burials 4 and 5 indicates social status. If this is true, then matrilineal power, or recognition of matrilineal importance, must have been an aspect of the Mtemankhokwe social life. The assumption that Burials 4 and 5 are linked temporally is an interesting one, but in the light of the disturbances evident in the burial sequencing at Nkudzi Bay and the presence of parts of an extra individual with the Mtemankhokwe Burial 6, the assumption of contemporaneity of Burials 4 and 5 may not be correct.

The posture of Burial 6 is unlikely to represent any particular aspect of the death of this individual. The posture is abnormal in that all of the other Mtemankhokwe and most of the Nkudzi Bay burials are extended on their back. One Nkudzi Bay burial, that of the infant number VII, is loosely flexed on its side (Inskeep 1965). Mtemankhokwe Burial 6 demonstrates no osteological features which reflect the terminal illness of the individual, but evidence is present indicating some osteoarthritus and a long term wastage of the right leg.

RECONSTRUCTED STATURE AND POPULATION ORIGINS

No large comparative series of modern crania from south-central Africa is currently available for comparison to the Mtemankhokwe remains. The only excavated skeletons that can be compared are the archaeologically similar series from Nkudzi Bay, but this is a very small sample. Of the 12 burials identified by Inskeep (1965) only three were of adults or near adults and none have been fully published. Brauer (Brauer & Rosing 1989) has included three crania with some measurements from this site, but one is mis-identified and is not from Nkudzi Bay (Livingstone Museum 6408 is recorded in the Museum catalogue as coming from Barotseland), and although the other two are certainly specimens from the Inskeep excavation (Museum number 6709), the burial number has not been recorded for either individual. Brauer has tentatively identified these two individuals as being one male and one female, and his published measurements are included here in Table 5. No statistical comparison is warranted for such small samples, but a comparison of the Mtemankhokwe and Nkudzi Bay data show their basic similarity.

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<th>SAMPLE</th>
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<td>F</td>
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<tr>
<td>measure</td>
<td>mm</td>
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</tr>
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</tr>
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<tr>
<td>Cranial Height (100 H'/L)</td>
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<tr>
<td>Orbital (100 O1/O2)</td>
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<td>Nasal (100 NB/NH)</td>
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</table>

Each of the Mtemankhokwe skeletons has been used to reconstruct the height of the individual in life (Table 6). The formulae used for this procedure are from Lundy (1983) and Lundy & Feldsman (1987) and are based on South African Negro peoples. Lundy's 1983 analysis showed that the traditional Trotter and Gleser formulae based on American Negro peoples consistently over-estimated the living stature of South African peoples, and that his new calculations were substantially more accurate. Applying these South African formulae to a Central African population is problematic, but these are currently the only formulae available for native African peoples.

Lundy's & Feldsman's calculations can be used for most of the limb bones, but the accuracy is greatest for the long bones of the lower limb. Since these bones are not well preserved at Mtemankhokwe, comparison of heights calculated from different bones and summarising heights calculated from different bones on the same skeleton is difficult. The problem is solved here by multiplying the calculated stature by the square of the r-correlation coefficients (the coefficient of differentiation). This weights the formulae according to their accuracy.

The stature of living Malawian people has been the
Table 6. Height reconstruction.

<table>
<thead>
<tr>
<th>Burial</th>
<th>Bone</th>
<th>Height</th>
<th>Error</th>
</tr>
</thead>
<tbody>
<tr>
<td>1(male)</td>
<td>Femur</td>
<td>155.02+/-</td>
<td>2.80</td>
</tr>
<tr>
<td></td>
<td>Tibia</td>
<td>156.88+/-</td>
<td>3.44</td>
</tr>
<tr>
<td></td>
<td>Radius</td>
<td>161.82+/-</td>
<td>3.64</td>
</tr>
<tr>
<td></td>
<td>Ulna</td>
<td>162.92+/-</td>
<td>3.73</td>
</tr>
<tr>
<td>2(female)</td>
<td>Radius</td>
<td>150.30+/-</td>
<td>3.39</td>
</tr>
<tr>
<td></td>
<td>Ulna</td>
<td>150.64+/-</td>
<td>3.63</td>
</tr>
<tr>
<td></td>
<td>Humerus</td>
<td>149.33+/-</td>
<td>3.72</td>
</tr>
<tr>
<td></td>
<td>Tibia</td>
<td>146.60+/-</td>
<td>4.13</td>
</tr>
<tr>
<td>3(male)</td>
<td>Tibia</td>
<td>162.96+/-</td>
<td>3.44</td>
</tr>
<tr>
<td></td>
<td>Humerus</td>
<td>160.69+/-</td>
<td>3.83</td>
</tr>
<tr>
<td>4(female)</td>
<td>Radius</td>
<td>153.63+/-</td>
<td>3.39</td>
</tr>
<tr>
<td></td>
<td>Ulna</td>
<td>155.24+/-</td>
<td>3.63</td>
</tr>
<tr>
<td></td>
<td>Humerus</td>
<td>147.68+/-</td>
<td>3.72</td>
</tr>
<tr>
<td>5(male)</td>
<td>Tibia</td>
<td>157.37+/-</td>
<td>3.44</td>
</tr>
<tr>
<td></td>
<td>Radius</td>
<td>165.52+/-</td>
<td>3.64</td>
</tr>
<tr>
<td></td>
<td>Ulna</td>
<td>166.08+/-</td>
<td>3.73</td>
</tr>
<tr>
<td></td>
<td>Humerus</td>
<td>156.92+/-</td>
<td>3.83</td>
</tr>
<tr>
<td>6(female)</td>
<td>Radius</td>
<td>159.46+/-</td>
<td>3.39</td>
</tr>
<tr>
<td></td>
<td>Ulna</td>
<td>162.51+/-</td>
<td>3.63</td>
</tr>
<tr>
<td></td>
<td>Humerus</td>
<td>155.25+/-</td>
<td>3.72</td>
</tr>
</tbody>
</table>

$r^2$ corrected average stature for each burial

<table>
<thead>
<tr>
<th>Burial</th>
<th>Male Average</th>
<th>Female Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>158.9</td>
<td>149.3</td>
</tr>
<tr>
<td>2</td>
<td>161.9</td>
<td>152.3</td>
</tr>
<tr>
<td>3</td>
<td>161.2</td>
<td>159.1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td>160.7</td>
<td>153.6</td>
</tr>
</tbody>
</table>

One of the notable features of the dentition of the Mtemankhokwe burials is the relatively poor state of dental health. Every individual presents both calculus and ante-mortem loss of teeth (even if the incisors discussed below are excluded). Three of the individuals have caries, and two demonstrate abscesses on the tooth roots.

The frequency of caries is related to three major factors; genetic susceptibility of the individual, geochemical variations in the local food/water sources, and kind of diet. The presence of fluorine and other cariostatic compounds in the local water source has a great impact on the amount of caries, but if the geochemical background is known and can be corrected for, then comparisons of caries rates between populations will primarily reflect the dietary pattern. It is recognized that agricultural diets with their preponderance of soft and sticky foodstuffs, tend to be extremely cariogenic (Turner 1979). If caries are prevalent, ante-mortem loss of diseased teeth is a frequent result.

Turner (1979) has compared the frequency of dental caries in samples drawn from populations with different economic backgrounds and has noted the frequency of carious teeth to be 1.6% of the total tooth number for 12 hunter-gatherer samples, 5.1% for 13 samples with mixed economies (agriculture supplemented by hunted and gathered foods) and 10.4% for 32 samples of populations whose food sources are entirely agricultural. Turner speaks of a 2% non-agricultural threshold below which a purely hunting and gathering people can be identified. Traditional pastoralists also are very active hunters and gatherers and therefore will also fall within this range.

For the case of the Mtemankhokwe skeletons, there are some possible African examples for comparison. Morris (1992) has described the pattern of dental disease amongst the Riet River and Kakamas peoples (late pre-historic and proto-historic groups of herdsmen in the middle Orange River valley) and amongst the Griqua (an early historic group of agro-pastoralists with access to refined foods from the Cape Colony). Other comparative samples can be drawn from the San of the Kalahari (Van Reenen 1964), from the urbanizing South African Negro populations of the Witwatersrand in South Africa (Staz 1938), and from the data provided by Walker & Hewlett (1990) on Central African pygmy foragers and neighbouring Bantu-speaking farmers.

Tables 7 and 8 compare the caries and ante-mortem loss rates in these various populations. The Kakamas and Kalahari San demonstrate the very low caries rates for hunter/herder populations in high fluorine environments, both well below Turner’s non-agricultural threshold. The Riet River people who live in a lower fluorine environment have an elevated caries level, and a slightly elevated rate of ante-mortem loss. The Griqua also have an somewhat elevated caries and substantially elevated ante-mortem loss rate, but because they are in a relatively
high fluorine area, this does reflect the introduction of agricultural food and sugars (Morrис 1992). Staz's (1938) data for non-urbanized Negro populations is lower than the Griqua sample, but the relatively high number of affected individuals demonstrates the agricultural link between the two. The diet of these rural African people is based on a staple of cereal maize and sour milk and it is probably only the fairly high dental attrition rate and perhaps a higher fluorine level that has allowed the caries incidence to remain low. Both the Central African pygmy and the neighbouring Bantu-speaking groups rely heavily on agricultural foods and this is reflected in the relatively high caries percentage. Although the pygmies are primarily hunters, their trade with their neighbours has introduced a great deal of agricultural products (Walker & Hewlett 1990). The very high number of ante-mortem losses amongst the pygmy groups is due to the habit of decorative tooth-chipping which seems to predispose these teeth to dental decay and exfoliation. Of the teeth lost amongst the Mbuti, 39% are incisors (Walker & Hewlett 1990).

The Memankhokwe individuals seem most to resemble the Griqua sample. The overall caries rate is 5.2%, and 17.6% of teeth have been lost ante-mortem. The average number of ante-mortem losses per mouth is nearly the same as in the Griqua sample. Table 9 summarizes the disease pattern by tooth type and emphasizes the similarity of Memankhokwe to the Griqua. In non-agricultural peoples, the 3rd molar is the tooth most frequently affected by caries and incisors and canines tend to be fairly disease free. When agricultural foods are involved, the 2nd molar is most frequently involved, but it is 1st molar that is most commonly carious in European samples where the amount of occlusal attrition is very reduced and the food sources are

refined Staz (1938). Memankhokwe shows this pattern very well.

Juwayeyi (1991) has provided evidence that the Memankhokwe people were the ancestors of the living Nyanja-speaking people of southern Malawi and were agriculturalists who grew sorghum, millet and maize but also hunted. A mixed agricultural diet with a substantial input of hunted foods does seem to be likely from the evidence of diet as seen through dental disease.

**TOOTH MUTILATION AND ETHNICITY IN SOUTH-CENTRAL AFRICA**

Two patterns of tooth removal and mutilation are seen at Memankhokwe. The two upper central incisors of Burial 3 have been removed and the state of the tooth sockets indicates that resorption of these sockets was well underway at the time of death. The two lateral incisors are intact but each tooth has been chipped on its buccal surface to remove a notch from the crown. Each notch has removed about half of the occlusal surface of the tooth and given the tooth a stepped appearance. The alveolar process on the mesial edge of both lateral incisors has begun to resorb and the lateral incisors have rotated distally in their sockets (Fig. 7). The second pattern of mutilation at Memankhokwe involves the removal of all four upper incisors. Burials 1, 2, 5 and 6 have been treated in this manner.

If we examine the age at death of these five individuals, it becomes apparent that only one pattern of mutilation is present, and that the loss of the lateral incisors is a factor of progressive alveolar loss, not of intentional extraction. The youngest individual (Burial 3), in his late 20’s or early 30’s, retains his chipped lateral incisors, but already at his age, the loss of the central incisor alveolar process has altered the support for the more lateral teeth and they have begun to twist in their
sockets. This process has progressed in Burials 1 (in his 30's at death) and 6 (in her late 40's at death), and the alveolar process of the lateral incisors has resorbed to the state where the teeth have been exfoliated. In both cases the sockets for the root tips are still present but the teeth are gone. Burial 2 (female) and Burial 5 (male) were both over 50 years old when they died, and the progression of alveolar loss has resulted in the complete removal of the sockets for the lateral as well as the central incisors. Burial 5 has the most extreme pattern of resorption, and the socket of the right canine is also partly resorbed with the ante-mortem loss of that tooth as well (Fig. 5). The presence of calculus on the teeth of all of these individuals must have added periodontal disease to the oral environment and this would have enhanced the speed of resorption of the tooth sockets.

The age at which the mutilation occurred cannot be directly identified. The central incisor sockets of Burial 3 were still not completely resorbed by the age of late 20's or early 30's, which suggests that removal did not occur at a time long past and that a removal age perhaps in the late teens or early 20's was likely. Van Reenen (1986) records the timing of this event for people in northern Namibia and indicates that it is variable. Most Kavango, Ovambo and Herero practitioners operate when the child has just reached puberty, but some Kavango groups delay the process until puberty is well advanced because the operation is less painful the longer it is delayed.

The single pattern of dental modification at Mtamankhokwe appears to have been the removal of the two upper central incisors and the concomitant chipping of the buccal edges of the lateral incisor crowns. This particular pattern has not been recorded in the literature. Most Central African mutilations do not involve removal of teeth, but instead concentrate on a pattern of tooth chipping (Konnild n.d., Walker & Hewlett 1990). The removal of the lower incisors (and sometimes the canines as well) is much more established in East Africa where it corresponds strongly with the presence of Nilotic groups. Konnild (n.d.:30) goes so far as to state that "the removal of all of the lower incisors has a significant influence in the pronunciation of the Nilotic languages" and that the accepted pronunciation requires the removal of these teeth.

Konnild's (n.d.) extensive review illustrates that the upper central incisors are a frequent target of the mutilators, but that the removal of these incisors seems to be rare except in North African archaeological sites older than 4000 years ago. The most similar pattern of maxillary incisor removal seems to be among the Tonga people of the plateau region of southern Zambia (Werner 1906; Colson 1958). Of importance here is that it is done on both boys and girls.

The reason for mutilating or extracting the anterior teeth can be as decoration, as a mark of ethnic (tribe or class) identification, or as a rite of passage. The striking feature of the Mtamankhokwe mutilations is that all five cases are the same, for both men and women. Where the mutilation is for purposes of decoration, the patterns seen vary substantially from individual to individual. Colson, in her discussion of the Tonga people (1958), describes how the tooth removal is done as a rite of passage for both boys and girls shortly before puberty. The passage through this rite is critical to the social well-being of the individual, and Colson remarks that a girl cannot successfully be secluded at puberty if her teeth are not removed. Colson is of the opinion that use of this maturation rite for both boys and girls has the significance of marking the initiation of children into the community and that the pattern of removal is considered to be a special mark of the Tonga (Colson 1958:277). With the opening up of Tongan society to the wider Zambian community, the custom of tooth removal has stopped. The specific pattern of mutilation at Mtamankhokwe strikes me as being similar to the Tongan case. The removal, probably done as a rite of maturation, probably represents an element of ethnic identification.

Fig. 7. Close up of tooth mutilation on Burial 3. Facial and palatal views.
SUMMARY

The six human skeletons from Mtemankhokwe represent the remains of the people of southern Malawi who lived during the late 18th or early 19th century. Archaeological evidence suggests that they were probably the ancestors of the modern Nyanja-speaking peoples. All six were adult, three men and three women. Four of the individuals demonstrate small amounts of osteoarthritis, but this should not be considered abnormal, for only one individual (Burial 3) was relatively young. The people of Mtemankhokwe were shorter than the average modern Malawian, but this remains to be verified with reconstruction formulae corrected for the local Malawian populations.

The rather poor dental health of these people is typical of agricultural peoples. The most distinctive dental feature is not the disease profile, but the dental mutilation pattern. The five crania present in the series all demonstrate the same mutilation pattern - the removal of the central incisors and probably the chipping of the buccal edges of the lateral incisor crowns.

ACKNOWLEDGEMENTS

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SOME NOTES ON GRAIN STORAGE IN THE NORTH-WESTERN TRANSVAAL*

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*Accepted for publication April 1993

ABSTRACT

Clay granaries found in various inaccessible locations in the Northern Transvaal are described. Consideration is then given to contemporary ethnographic information concerning granaries in general among neighbouring peoples. It is suggested that because the inaccessible granaries have no ethnographic parallels they could have been built during times of stress before the nineteenth century.

INTRODUCTION

The discovery of a number of clay granaries (Fig. 1), found in various inaccessible locations in the Makgabeng area of the Bochum district in the northern Transvaal (Fig. 2) prompted an investigation into the origin of these structures. Other types of granaries, eg. baskets, were also found in some of these shelters. They were, however, mostly disintegrated.

Local spokespersons have no knowledge concerning the origin of these granaries and they speculate that they might have been built by people who fled from Blouberg in 1894 during the war fought between chief Leboho of the Hananwa and the ZAR under Gen. Piet Joubert. This, however, seems unlikely for two main reasons: firstly, the type of granary has not been recorded anywhere in

Blouberg itself; and secondly the war in 1894 lasted only about two months, too short a period for people to produce a crop as well as build and use the granaries.

Though the Makgabeng was inhabited variously by Ndebele, Koni, Birwa, Tlokwa, Tshadibe and other Sotho/Tswana-speaking people during historical times, it is not possible to relate these sites, with the possible exception of one, to any of these groups. Though very little pottery was found in association with the granaries, small pieces that were found on one site seems to indicate that it is of Tswana origin.

The occurrence of granaries constructed in various ways and from widely different materials is well-known
in southern African ethnography. Granaries have been described by McDonald (1940), Walton (1956), Van Zyl (1958), Redelinghuys (1968), Van der Waal (1977) Van Schalkwyk (1985) and Frescura (1981) but not in systematic matter.

The purpose of this paper is to describe unusual granaries from the north-west Transvaal and to ascertain why they do not appear in the ethnographic record. Also, the description of these and other granaries may help archaeologists interpret excavated features.

**GRANARY TYPES**

The type of granary under investigation here, called *sefala*, is made from clay, approximately one meter high, with a diameter of 1,5 meters and is found mostly in caves or rock shelters. Five different sites containing such granaries occur within a couple of kilometers of each other in the Makgabeng area. Three of these site are found in very isolated places but the other two occur on sites with extensive stone-walling. Unfortunately most of the granaries have been broken by herd-boys and only the really inaccessible ones are still intact (Fig. 3).

![Fig. 3. Location of one of the granary sites (1989).](image)

Two other sites with similar *difala* (plural of *sefala*) are also known. One is in the Haakdoorndraai Nature Reserve near Marken, northwest of Pietersburg. From a published photograph (Levy 1987) there seems to be a superficial resemblance between these and the ones found in the Makgabeng area. This, however, is not the case with the second group found near the hamlet of Villa Nora (Judson 1965) not far from the Haakdoorndraai site. The big difference here is that, in the latter case, many of the granaries seems to have been double-storied as a 'floor' of wood was built in between the two openings

![Fig. 4. Some 'double-storied' granaries near Villa Nora (1965).](image)

(Fig. 4).

In the area under consideration, the north-western Transvaal, three other types of containers were until recently also used for the storing of grain. The most common of these are the large baskets called *diseho* (Fig. 5) which are woven from grass and bark. A basket big

![Fig. 5. Woven grain baskets kept in a house (1988).](image)

enough to contain 10 bags of grain can take up to 6 weeks to complete, excluding the time spent collecting the material. In the past these baskets were buried in the cattle kraal (*lesaka*) but are now stored inside the house or under the veranda. The *Ndebele* of the Potgietersrust area used to keep them on a small platform constructed from poles covered with a loose roof of grass (Fig. 6).

Colin Rae, a minister who accompanied the ZAR forces during the campaign of 1894 against the Hananwa, writes...
in his diary of how they went to abandoned villages in Blouberg, excavated the grain baskets from the cattle kraal and used the grain to feed their horses (Rae 1898). Figure 7 shows an abandoned cattle kraal, last used c. 1940, where the holes from which the disebo were taken when the people were resettled below the mountain are still visible.

A pot-like container (Fig. 8), also called sefala, is made of a mixture of ash and cattle dung, and is not fired like ordinary clay pots. The smell of the dung and ash protects the grain and other seeds from insect infestation. These grain pots are kept in an ordinary hut or under a veranda and are used for storing seed for the following year’s planting or for keeping products such as beans and lentils.

From old photographs in the National Cultural History Museum a third type of granary known as letlolo (Fig. 9), can be identified as having been used by the Ndebele people of the Potgietersrust area. This was in the form of a small hut with a removable roof. Similar granaries to these are also known to have existed amongst Sotho groups (e.g. Molepo) in the area and are still used by some Venda.

CONCLUSION

Of the four types of granaries found in the area, only three are known ethnographically. This seems to suggest that the clay granaries were built prior to the settlement of the people now found in the area. The inaccessibility of these containers seems to indicate that they date from a period of uncertainty, probably before recorded traditions which forced people to hide their food resources.

ACKNOWLEDGEMENT

I would like to thank my colleague, J. van Schalkwyk, for his assistance in writing this report and J. Jordaan of the Pietersburg Museum for the use of Figure 8.
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THE CONTEXT OF FOUR PAINTED STONES FROM THE SOUTH-EASTERN AND EASTERN CAPE*

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ABSTRACT

This paper reports on three painted stones and one possible charcoal drawing from Later Stone Age sites in the south-eastern and eastern Cape. Another find from Klasies River Cave 5 is described and it is argued that one of the two painted stones found previously at this site is not in primary context. While two painted slabs from Roodekrans Shelter near Grahamstown and a possible charcoal drawing from Groot Kommandokloof Shelter in the Baviaanskloof may be directly associated with burials, it is reaffirmed that painted stones were 'used' in several different contexts and are not exclusive to burials.

INTRODUCTION

Before 1970 a large number of painted stones (approximately 40) were found mainly along the southern Cape coastal belt and the adjacent Cape mountains (Rudner 1971). Apart from a possible painted pebble from near Lüderitz Bay (Rudner 1971:57) and a painted pebble from Abbot's Cave near Middleburg (Cape) (Sampson & Vogel 1989), the only others found outside the Cape ecozone were six painted stones discovered at Apollo 11 in southern Namibia. The date for these stones is in the order of 26 000 BP (Wendt 1976) which makes this art the oldest in southern Africa. The oldest painted stone from the southern and eastern Cape is from an occupation unit at Boomplaas Cave (Fig. 1) dated to 6400 BP (Deacon et al. 1976). Other 'art mobilier' in the form of engraved slabs were found at Wonderwerk Cave in the northern Cape with the oldest slab dated to 10 200 BP (Thackeray 1981; Thackeray et al. 1981).

The interpretation of the images on painted stones is similar to the interpretation of the wall art which, based on ethnographic and neuropsychological comparison, indicates that the art depicts hallucinations experienced by shamans when in a state of trance (Lewis-Williams 1981, 1983a, 1984, 1990; Lewis-Williams & Dowson 1989). While many of the images are undoubtedly trance related, there is little understanding of the specific 'use' context. The ritually loaded nature of painted stones suggests that their specific 'use' contexts was of an equivalent nature. However, the precise contexts from which painted stones have been recovered often remains unclear. Most painted stones recovered before 1970 were removed unsystematically and consequently there is little information available on their precise contexts. The absence of a precise provenance for many painted stones led Rudner (1971) to make a general assumption about their 'use' context. He suggested that the majority of the painted stones were cover stones for burials. However, none of the 12 painted stones found since 1970 (those from Apollo 11, Boomplaas Cave and Klasies River Cave 5) were associated with burials or found close to burials and drawing a consistent link between the two is invalid (Lewis-Williams 1984). While numerous Later Stone Age (LSA) burials in the eastern and southern Cape were found covered by flat stones (also referred to as burial stones) these are only 'painted' in the sense that they are often stained with red ochre as are the skeletons and ornaments associated with them. These 'burial' stones may have been stained indirectly.

Other contexts in which painted stones have been found include storage pits such as at Boomplaas Cave in the Cango valley where four painted stones were found.
in association with storage pits (Deacon et al. 1976; Deacon, J. 1982). In the discussion below we describe the contexts of painted stones from the collection of the Albany Museum, some of which were accessioned in the 1920’s.

PAINTED STONES FROM THE EASTERN CAPE

Klasies River Cave 5

The Klasies River complex of caves is situated some 40 km west of Cape St Francis (Fig. 1). Cave 5 (KRM5) is located approximately 2 km to the east of the main site, well-known for the anatomically modern human remains recovered during excavations in the late 1960’s by Singer & Wymer (1982). The tunnel-like cave is about 90 m in length from entrance to rear and the two painted stones discussed here were found by the same excavators (Singer & Wymer 1969). The first stone, depicting a painting of a human and four dolphins, came from near the surface (Singer & Wymer 1969, 1982, fig. 47) and shell from the same layer has been dated to 2285 ± 105 (GX-336). It is not known if this is a corrected date. The second stone with red grid patterns on both sides was recovered from lower down in the sequence. A hearth at the bottom of the Later Stone Age sequence which overlies a thick layer of dune sand covering Middle Stone Age occupation deposits (Singer & Wymer 1969, 1982) dates both stones to younger than 4110 ± 105 BP (Geochron GX-1378) (Singer & Wymer 1969). This date is slightly different from that reported by Singer & Wymer (1982). The age of the stone was mistakenly reported as older than 4110 BP (Thakeray 1983:24, table 1).

Klasies River Cave 5 (KRM5) was re-excavated in 1984 by the first author (Binneman 1985; Hall & Binneman 1987). The excavations are located both at the entrance (KRM5A) as well as adjacent (KRM5B) to Singer & Wymer’s excavations further back in the cave and in the vicinity of the painted stones (KRM5B) (Fig. 2). Another painted stone was recovered from KRM5B depicting a small antelope in red (Figs 3 & 4). Charcoal from the same layer is dated to 3900 ± 50 BP (Pta-3906). This stone comes from an undisturbed occupational horizon and is not linked to any other feature.

While the projected position of Singer & Wymer’s first painted stone (Singer & Wymer 1982, fig. 10.2) appears also to have been in an in situ occupational context, there is reason to believe that Singer & Wymer’s second painted stone (with red grid patterns) is in secondary context. The in situ Later Stone Age deposit from KRM5B consists of shell lenses in which Patella longicosta is the dominating shellfish species. These alternate with lenses of sterile dune sand which are truncated towards the wall of the cave by very loose and well sorted shellfish material dominated by Oxytyle spp. and with little soil matrix. This loose deposit is clearly visible on the photographs published by Singer and Wymer (1982, figs 46 & 47) as well as the original witness section exposed during the 1984 excavations. A further excavation (KRM5C) half way down the slope, between KRM5A and KRM5B, revealed similar loose deposits. Analysis of the shellfish remains from KRM5C and the loose deposits showed that these have similar species frequencies to those at the entrance excavation. This indicates that a large part of the deposit against the wall is slope fill and that the projected position of the second stone is within it. The association of this painted stone with backed flakes (large segments) (Singer & Wymer 1969) may indicate a rough age for the stone. These large segments appear to be a coastal tool which to date have been recorded from between the Klasies River Caves to the mouth of the Great Fish River and date to the last 3000 years.

The Roodekranz Shelter painted stones

Although the two painted stones in the Albany Museum collection are marked as being from Roodekranz Shelter, the authors believe that this is open to debate. Rudner (1971) reported that Mr W.W. Austin excavated
a shelter on his farm near Springvale, Alicevale in 1921. According to Rudner, Austin found "four burials covered by two painted slabs" (accessioned and marked as Roodekranz Shelter 1-2, AM G70) in the shelter. It is not clear where Rudner acquired this information since there are no burials in the Museum accessioned from Roodekranz Shelter. The only group of four burials donated to the Museum in 1921 from the Springvale area came from a cave on Hoffmans River on the farm Wilton (HS 120-125). This is most probably the cave Hewitt (1922:459-60) referred to when he reported on "a certain small cave two miles away from the rock-shelter (presumably Wilton Large Rock Shelter) on the farm Wilton "where four burials were found covered over by flat stones painted red on the under surfaces". It is possible that the four burials referred to by Rudner (1971:57) from 'Roodekranz Shelter', covered by the two painted stones, were actually from the site noted by Hewitt.

Furthermore, according to the Albany Museum records Mr Austin also donated 12 burials from Spitzkop Cave to the museum (HS 128-139). The farm Roodekranz is adjacent to Spitzkop and four and a half miles (7.5 km) north-east of Wilton Large Rock Shelter. This donation also included some unique ivory, bone and marine shell ornaments, shale palettes and a small number of stone implements (Hewitt 1922) (accession number AM 1921/1702, see Clark 1959). Mr Austin, it would appear, completely turned and picked over all the deposit from Spitzkop. A visit to Spitzkop indicated that little LSA material is visible in the site or on the talus. The only material recovered was phalanges missed during the original removal of the burials (Hall 1990).

Hewitt (1922:461) reported that "a coloured funeral slab of stone ... with crude paintings which somewhat resemble the very inferior later paintings - the fat-tailed sheep group - found at the Wilton rock-shelter" covered
a skeleton in the bottom layer of Spitzkop Cave. Rudner (1971:57) on the other hand, reported that the stone from Spitzkop (S1) was "a painted burial stone ...only white marks on the red-painted slab remained". Although it would appear from Rudner's description that the paintings had faded since discovery, it is quite clear that this is not a painted stone in the true sense of the word. The stone is a typical lower grindstone with a smooth surface covered with red ochre dust which comes off easily when touched. The few isolated, minute white lines and spots can be from any substance and origin.

The only information regarding the painted stones from Roodekrans Shelter is a note accompanying a large piece of skin garment with two rows of stitching, housed at the Museum (accession number E 381). This note appears to have been written by Austin in 1921, and reads "Portion of kaross found in cave at Roode Krantz near Springvale in about 2 ft of ash (Note: painted stones were found in same cave).

On this evidence it appears that the painted stones came from Roodekrans Shelter. However, no shelter on this farm appears to be suitable. In the light of the close proximity of the farms, Roodekrans Shelter and Spitzkop Cave may be one and the same, and the names used interchangeably for the same site. It is telling that Hewitt never mentioned Roodekrans Shelter or painted stones from the site in any of his publications. While we cannot be certain as to the exact location of the painted stones, it is of interest that in all references to them they appear to be associated with burials.

The larger of the two painted stones is an irregular, thin, flat, somewhat brittle micaceous sandstone slab (Fig. 5). Several breaks run across the slab and small gaps have been filled in with plaster of Paris and painted. There are four human figures painted in red. All the figures lack heads and it is possible that these were painted in white, but faded away over time. At least one of the figures (second from the left) is unmistakably an elongated human figure with slightly bent knees but lacking arms. The other figures may also be elongated and the figure second from left appears to wear a kaross with arms outstretched. Another figure is touching it from behind. A series of white dots are present on the 'kaross'.

Despite the severe damage to the stone and the poor preservation of the pigment in some areas, several possible trance elements are visible in the painting. Following Lewis-Williams (1981, 1983a & b, 1987, 1990) and Lewis-Williams & Dowson (1988, 1989) the most obvious is the elongation. Elongated human figures are a recurring feature of San rock art and 'being tall' is a common hallucination among trancing shamans.
Fig. 6. Painting of two animals from Roodekrantz Shelter.

(Lewis-Williams & Dowson 1989). A second possible trance element is the white dots on the kaross. Rudner (1971) interpreted these dots literally as white beads, but in view of the elongation they may also be seen as trance related because dots are one of several geometric forms which people experience when in the early stages of trance (Lewis-Williams & Dowson 1989). The two thin parallel red lines in front of the figure may represent outstretched arms or even clapping. It is not clear whether the faded patches of paint behind the kaross figure represent another human figure in which case it touches the back of the figure in front of it. Thin white lines and small dots of white paint are visible between the two figures but they are too faded for specific comment.

The second painted stone is a thin, long quartzite slab with two animals painted in red (Fig. 6). There is no explicit trance symbolism in this painting. The slab is flaked along most of the perimeter. This modification of the stone presumably took place after the stone had been painted because the head, legs, neck and front legs of the left animal are missing. One of the animals is probably an eland and the head was presumably painted in white but has subsequently faded.

Rudner (1971) speculated that both the stones may have been fragments from the wall of the shelter, but this is clearly not the case.

Groot Kommandokloof Shelter

Groot Kommandokloof Shelter (Fig. 1) is situated in the Kouga Mountains some 30 km north-east of Joubertina and was excavated by the first author. The shelter faces north-east and measures 18 m wide by 8 m deep and the roof is some 8 m high at the dripline. A testpit excavated against the back wall exposed a 0,50 m deep section with well-preserved plant material in the surface unit.

A burial of a juvenile was recovered and the bottom unit into which the burial hollow had been dug dates to 6430 ± BP (Pta-4612). The skeleton was lying on bedrock, placed on its right side in a northerly direction and in a extended position. The burial was covered by a cairn of fifteen stones (Fig. 7). Two large, flat grindstones, one of which was stained with red ochre, were placed directly on top of the skeleton. Other stones included ochre stained hammerstones, anvils, flaked cobbles, flakes and roofrock. Among these was a block of roofrock depicting a possible human figure in black (Fig. 7 & 8).

Fig. 6. Burial cairn and the possible charcoal drawing (middle centre) from Groot Kommandokloof Shelter.
Fig. 7. The possible charcoal drawing from Groot Kommandokloof Shelter.

It is not entirely certain whether the black marking on this small quartzite block is actually a ‘painting’. However, there are several indications that the markings may represent a charcoal drawing. Although the block originated from the cave wall it was wedged into the cairn by other stones which indicates that it had been placed deliberately. Although the image was brushed several times there was no visible change. However, the black is not a mineral stain and scrubbing with water would remove it. Furthermore, a dry, sterile yellow ashy soil covered the stones, with no evidence of any roots or signs of other humified or carbonised organic remains, which rules out a natural organic origin for the stain. Overall, the shape of the black marking, in the form of two slightly curved lines running from a larger body of black, is too ‘structured’ to be a coincidental natural organic stain (Figs 7 & 8). If this is the case then the drawing may possibly depict a human figure bent at the waist in a trance position.

DISCUSSION

That the majority of the painted stones recovered by controlled excavations during the past two decades have not been directly associated with burials is proof that Rudner’s (1971) suggestion is debatable. The specific contexts of the painted stones from KRM5 reaffirms that this association is not axiomatic. Furthermore, if there was a singular association between burials and painted stones in the south-eastern Cape one would have expected to find this link within the elaborate burial complex at the mouth of Klasies 5 (KRM5A) (Binneman 1985, Hall & Binneman 1987), but no such association has been found. In fact it may be significant that there is a distinct spatial separation between the KRM5 burial complex at the front and the painted stones located further back in the more deeply recessed section of the cave. The specific location of two of the KRM5 stones is in occupational deposits and this association provides no further insight into the specific ‘use’ of these stones. The position of the Groot Kommandokloof Shelter ‘painted’ stone as well as those from Rooedekranz, however, may suggests ‘art mobilier’ is in some cases directly associated with burials. An explanation for this association has been put forward by Lewis-Williams (1984) who has drawn attention to the possible link between the trance-world of the shaman and the other world of the dead. A further association between painted stones and pits at Boomplaas is also possible, although the excavators see no direct functional link between them (Deacon et al. 1976).

From the above it is clear that the LSA painted stones from the eastern and southern Cape cross-cut many different contexts. Searching for explanations for the ‘use’ of these painted stones which is specific to each of these contexts is perhaps too narrow a perspective. Explaining the specific contexts of this art must surely stem first from theory, which sees the art generally as ritual representations of social and economic relationships (Lewis-Williams 1982, 1984). It is this theory which integrates the art with the wider archaeological sequence and in the case of the painted stones, they are a physical part of this sequence. A starting point would be an assessment of the apparent chronological clustering of most of the painted stones within the last 4000 years and correlating this with changes to other aspects of the sequence over the same period. Such an assessment may go some way towards further integration of the economic and the social, placing belief at the centre of action.

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REFERENCES


IDEOLOGY AND HUNTER/HERDER ARCHAEOLOGY IN THE SOUTH WESTERN CAPE*

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ABSTRACT

The concept of cultural identity has been manipulated to such a degree in twentieth century South Africa that any discussion of the topic relating to the past is easily tainted. Here, in the light of a robust critique of our work, we re-examine some of the evidence for archaeologically visible distinctions between hunter-gatherers and herders in the south-western Cape and examine the critique itself. Among other things, we argue that the contribution of the site of Oudepost to this debate is more ambiguous than the excavator believes.

INTRODUCTION

Schrire's (1992a) critique of Smith et al. (1991) is a response to alternative interpretations that we offered of her work at the site of Oudepost as well as an earlier, general model of hunter-gatherer:herder interaction in the south-western Cape (Schrire 1980). Schrire (1980) argued, along with Elphick (1985), that the socio-economic distinctions drawn between indigenous inhabitants by Dutch settlers, and perpetuated in archaeological thinking, were somewhat polarised reifications of a highly fluid cycle of wealth and impoverishment. In terms of this model, those individuals termed Khoikhoi were little different from those termed Soqua other than their having, at the moment they were seen, quantities of livestock. In the face of misfortune - drought, disease or theft - depriving them of their preferred possessions, the Khoikhoi reverted to a baseline hunting and gathering economy, suffering as a consequence a loss of social status. Many of those referred to as Soqua could have been individuals or groups in such a predicament, albeit temporarily. In terms of this model the ascription of sites to hunters1 or to herders, which implied to distinct economic and cultural modes, was unwarranted (Schrire 1980, 1992a).

In contrast we have argued (Smith et al. 1991), as has Parkington (1977, 1984), that many of those termed Soqua were culturally hunter-gatherers and were seen as such by aboriginal herders and subsequently the colonists. Irrespective of precise etymology, the label Soqua implied stockless people, this connotation merging pejoratively with that of thieves. Recognizing that herding societies first appeared at the Cape between 1900 and 1600 years ago, Schrire is unwilling to accept that archaeologically distinguishable cultural and economic entities persisted up to the colonial period, this being the thrust of our evidence (Smith et al. 1991) and the target of her critique. Schrire holds these views despite the probability that, when first encountered by European travellers, at least some hunters appear to have spoken a language different from that of the herders and, furthermore, were frequently referred to in relation to occupancy of mountainous areas (see Parkington 1984:160 for discussion).

Schrire marshalled evidence in support of her argument from her work at Oudepost, an early Dutch colony frontier redoubt. Indigenous items were recovered from among artefacts of European origin and these former were argued (Schrire & Deacon 1989) to be Khoikhoi, because it was with these people alone that the Dutch documented economic relations. The stone age items recovered from Oudepost are apparently indistinguishable from those generally found on Late Holocene sites from the Cape. It thus follows that arguments for the separation of hunters from herders on the basis of archaeological material is implausible and, furthermore, that the very distinction itself may be spurious. We recognise the importance of this claim and acknowledge the opportunity for addressing the issue potentially provided by the site of Oudepost.

Schrire (1992a) identified three issues in our paper in which we fell short. In the sections below we respond to these purported short comings. We dispute that the evidence marshalled by Schrire, either in her work at Oudepost or her critique, is unambiguous and submit that alternative interpretations remain viable.

1. We follow Elphick and refer to hunters as a shorthand for hunter-gatherers and herders for people herding livestock who also hunted and gathered.
HUNTER AND HERDER MATERIAL CULTURE

We have argued (Smith et al. 1991) that hunters and herders do have different, though variable archaeological signatures which can be characterized on the basis of stone tools, ostrich egg-shell beads, pottery frequencies and the overall abundance of domestic stock. To this end we presented the results of a number of excavations in sites from mountains and coastal areas in the south-western Cape. We argued that hunter sites were generally characterised by a high percentage of formal tools, a reasonably frequent use of silcrete raw material, for the most part smallish ostrich eggshell beads, a relatively infrequent use of pottery, and small numbers of sheep, if any. Herder sites generally displayed the inverse of these trends.

The first of Schrire's criticisms which we deal with is that the sites do not fall neatly into one group or the other and that the postulated signatures of hunters and herders are not invariable. Furthermore, she is concerned that we do not know whether the characteristics we isolate in different sites convey cultural identity or matters relating to chronological change or site use. In this respect she challenges us to specify how the archaeological signature of herders out hunting would differ from that of hunters.

Schrire (1992a:63 & table 1) accepted the low incidence of formal tools and silcrete raw material on herder sites, although she fails to see the incongruity of her including the site Drie Susters, with its high silcrete percentages and relatively infrequent ceramics, with sites we regard as herder. This clearly contributed to some of the overlap she claimed as evident (ibid). The problem with Drie Susters, we admit, may be partially due to ambiguity in our presentation and the fact that no formal tools were recovered from the small Drie Susters sample (Smith et al. 1991:88); but we think it is also due to her unwillingness to accept the density of ceramics as a distinctive marker.

In criticizing our use of ceramic densities - specifically, implying that the high ceramic densities from the sites of Driebos and Voëlvlei (Table 1) were contradictory to our argument - Schrire presumably had not read Sadr & Smith (1991), published simultaneously with Smith et al. (1991). In the former a comparison was offered of the differences in the density of pottery on various sites, including some from interior rock shelter deposits (Sadr & Smith 1991: fig. 7). It was pointed out that on coastal sites the predominant depositional matrix is comprised of shellfish remains, whilst that of interior sites is finer grained sands etc. The deposition of shell results in very high rates of accumulation than is the case of sands, thus diluting the quantity of pottery and other artefacts found per cubic metre of excavated deposit. The high ceramic densities from both Voëlvlei and Driebos reflect the compressed nature of sediments in inland sites relative to those near the coast, and are thus not directly comparable with similar calculations from coastal sites (ibid:113). The sites of Voëlvlei and Driebos are thus not a priori contradictory of our argument; we will show that they are, in fact, entirely consistent.

It is instructive to seek a method of presenting ceramic abundances which avoids the inherent limitation of density values outlined above. To this end we employ an index of ceramic frequency appropriate to the kinds of observations routinely available in the published literature. The index is simply the total number of sherds divided by the total number of pieces of flaked stone. Whilst not ideal - we consider that the weight of each may be more appropriate but such published observations are scarce - the results in Table 1 (which is structured on Schrire (1992a: table 1) clearly show that both Driebos and Voëlvlei have incidences of ceramics relative to flaked stone lower than those of Kasteelberg, and, for that matter, Oudepost, but which are more similar to the coastal sites of Witklip, Vlaeberg Areas 1-3 and Drie Susters reported by Smith et al. (1991). At De Hangen, another interior site, the incidence of ceramics is also low (Parkington & Poggenpoel 1971; Sadr & Smith 1991) and formal tools are abundant and of a type similar to those at Voëlvlei (Table 1). The low incidence of silcrete at De Hangen is not surprising given its location in the northern Cedarberg which is distant from known silcrete sources on the coastal plains. What is evident from Table 1 is that, whilst variable, the composition of sites labelled hunter is more distinct from that of those termed herder than Schrire may allow.

This brings us to ostrich eggshell (OES) beads and the usefulness of these artefacts as cultural markers. Schrire has problems with our interpretation of ostrich eggshell bead sizes as distinctive markers. In particular she points to the fact that very large beads are present at Voëlvlei, a site which we think was occupied by hunters on the basis of the silcrete dominated formal stone tool assemblage, ceramic densities and little live-stock. Voëlvlei and De Hangen, similar in many respects, do differ in terms of the sizes of ostrich eggshell beads. But is this a damning argument against our interpretations? We viewed the large beads from Voëlvlei as representing a one-way transfer across a permeable economic and cultural "boundary" from herders to hunters. The big beads from Voëlvlei (which, relative to other sites, are extremely large with a mean of 8,0±1,4 mm, n=84) were surprising since, until then, we had not seen such an overall large sized sample in association with a stone artefact assemblage with many scrapers and adzes, relatively few potsherds and an essentially hunted fauna. The beads from De Hangen, for instance, have a mean size of 5,7 mm (±1,4, n=267).

Beads of the sizes present at Voëlvlei are clearly an innovation of the last two thousand years (Yates in prep.) whereas the stone artefact types common at this site, specifically the adzes and scrapers, originated earlier, both locally and elsewhere in the Cape (Deacon 1976, Schweitzer & Wilson 1982, Deacon 1984, Nackerdien 1989, Manhire 1993). Whilst Voëlvlei has big beads in common with the herder sites of Kasteelberg, the latter do not have formal tools in any appreciable numbers (Table 1). In contrast to Voëlvei they do, however, have abundant to super-abundant remains of both sheep (Klein
Table 1. Percentages of formal tools, silcrete and ceramic densities and indices of frequency from various sites in the south-western Cape. Modified after (Schrirre 1992a: table 1). Please note that the ceramic densities given for WK and VL relate to all the units reflected in the left hand column.

<table>
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<tr>
<th></th>
<th>FT %</th>
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<th>Ceramics n/m³</th>
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</table>

Historic

| Oudepost             | 4.2  | 46.5   | 307  | 1.7           | 0.9  |

Key: WK = Witklip; VV = Voëlville; DB = Driebos; KBC/PN = Kasteelberg C and Paternoster; VL = Vlaeborg; DS = Drie Susters; DH = De Hangen; DSM = Drie Susters Main; KTB = Kreeftebaai; KBB and KBA = Kasteelberg B and A respectively. Column headings: FT = formal tools; Silc. = silcrete; P.I. = pottery index. Further details can be found in Smith et al. (1991).

* site sieved with a fine-mesh screen (1.5mm) which, relative to a 3mm mesh used on other sites, increases the recovery of mostly quartz chips, thus depressing the relative incidence of formal tools and silcrete.

** admixture of MSA tools, many of which are silcrete, from gravels below

& Cruz Uribe 1989) and ceramics (Sadr & Smith 1991). At the very least we are confident that, leaving aside for the moment the issue of activity differentiation, Voëlville cannot be regarded as unproblematically a herder site. We prefer, on grounds that the balance of other cultural traits at Voëlville fall towards what we regard as the hunting and gathering spectrum, that the site is plausibly seen as such.

To pursue the issue of beads further, we turn now to smaller beads and their variable presence in sites. Our analysis of beads comes from samples collected using a 3 mm sieve, this being the minimum size mesh most widely employed in South African stone age excavations. As has been shown by sieving studies very small beads less than 4.5 mm will variably pass through a 3 mm mesh sieve (Yates in prep.). We cross-checked the effects that this may have had on a number of sites by using a 1.5 mm mesh. At Witklip, a near coastal site we inferred as occupied by hunters (Smith et al. 1991), the small mesh beneath the standard 3 mm retained many small beads. We also sieved with a 1.5 mm mesh a representative sample of spoil-heap from the herder site of KBB, as well as a metre square excavation at KBA and all of the excavated deposit at an unreported site KBE. As we expected, large beads were found in the excavations, but none of the Kasteelberg sites revealed evidence for the presence of large numbers of small beads.

The samples which we illustrated from Witklip and compared to Kasteelberg (Smith et al. 1991: fig. 6, Table 2) do not include beads from the 1.5 mm mesh. Had we been able to include them (i.e. if 1.5 mm sieved samples were generally available for comparison) the Witklip mean would decrease (from 4.7±0.8 mm, n=54 to 4.2±0.8 mm, n=61), thus increasing the distance between the Witklip and Kasteelberg samples and making the distinction between the two even greater.

Furthermore, the very small beads we recognize as common from most hunter deposits are insignificant in all presently known herder inventories. Large, herder-style beads are however, not just present at Voëlville but dominant. It thus appears that there was not an exchange of bead styles between the two economic groups; the transfer of bead "style" or beads themselves occurred in one direction, from herders to hunters. We surmise the negative connotations of small hunting style beads may well have rendered such items unattractive to herders.

We next consider whether differences in quantities of
formal tools and ceramics and the nature of faunal assemblages outlined in Table 1 are the result of herders out gathering or - as Schrire suggested - hunting rather than the activities of socially and economically relatively distinct populations. That herders hunted and gathered is beyond doubt. The historical sources make this much clear, as they do the fact that it was a one of a number of recourses in the event of stock loss (Elphick 1985). The implication for Schrire is that herders gathering or hunting employed the material culture found in sites such as Voëlvlei, Driebos, De Hangen, Witklip and others, this explaining among other things the low numbers of domestic animal remains recovered from such sites (Schrire 1980, 1992a; Schrire & Deacon 1989). This is an interesting idea; a number of points however, render this hypothesis less viable.

First, it should be noted that, although heavily dominated by domestic animals, the faunal remains from the Kasteelberg sites do number among them wild species as well (Klein & Cruz Uribe 1989). It is instructive that the shelly deposits from Kasteelberg B (some 1 300 years worth at the most) produced a wild ungulate density of 158 NISP/m² (observations from own records and Klein & Cruz Uribe 1989), compared with a paalty c. 20 NISP/m² from c. 4300 to 3500 year old shell middens in Eland's Bay Cave some 60 km to the north (Klein & Cruz Uribe 1987; own observations). The evidence from Kasteelberg thus reveals that wild game was not unavailable to pastoralists near the coast. Indeed, by comparison to pre-pastoral Eland's Bay it may have been locally quite abundant. There is nothing compelling in the Kasteelberg evidence to show that the occupants of the Kasteelberg area were required to remove to the mountains to satisfy a desire or a need to hunt; the evidence, in fact, indicates quite the opposite. The latter areas, anyhow, have a lower nutrient status and thus lower ungulate carrying capacity than the coastal plains (Cowling 1992; Smith 1984). In the light of this, why in the first instance herders, impoverished or otherwise, would penetrate the mountains to hunt is one question Schrire needs to answer.

Short of arguing for an entirely scavenging oriented procurement strategy for wild species, the occupants of Kasteelberg clearly did some hunting. We can surely assume that in the duration of occupation they also scraped some skins, be they of wild or domestic origin, as well as used and maintained wooden implements of some sort. If such activities did take place, the inhabitants of the sites do not appear to have made and/or used and discarded many formal stone artefacts in the process. Thus, from the Kasteelberg sites we have some indication of what herders were not prone to do whilst undertaking some hunting and other activities. We must therefore ask of Schrire's point of view just why herders produced and/or discarded quantities of formally retouched stone artefacts in one context (De Hangen etc.) but did not do so in others (Kasteelberg) when at least some activities were common to both. Furthermore, her functionalist explanation fails to account for the very little silcrete used in sites nearby the sources on the coastal plains and the more intensive use of the material elsewhere.

Another dilemma is purely a matter of cultural practice. One may ask of Schrire's perspective just why herders visiting De Hangen and other sites besides Voëlvlei should adopt a different size range of ostrich eggshell beads from that widely worn by them at the coast?

All in all we do not think that our evidence is easily accommodated by an simple argument of activity variation within a single cultural system. Schrire's interpretation seems to implicitly agree that the low numbers of domestic animals in mountain contexts is not indicative of intensive herding. If the associated material culture cannot be comfortably accommodated within a model of functional variability as we argue above, it would seem that a cultural explanation is at least worthy of consideration. In this regard, is it really necessary that the cultural signatures of what we regard as hunter sites be shown to be invariable, or for that matter absolutely different from that of sites thought to represent herders? We suggest that to suppose it should, as Schrire implies, is predicated on quite unrealistic expectations of human behaviour. Variability should in fact not be surprising. Human behaviour is known to be fluid, interactive and creative as well as conservative in some of its elements. Hodder (1982), for one, has shown that material culture variably marks and crosses a variety of social boundaries in at least one ethnographic context without having to deny the validity of distinctions between social groupings. In that case study at the very least, the implication was that differences in material culture, which may well mark boundaries, are difficult to predict a priori. In the south-western Cape we do not have sufficiently detailed ethnographic information to guide us much in this respect. The interpretive challenge, we believe, is to mediate between difference and similarity in the archaeological record and not to regard them a priori as epiphenomena of an underlying unitary behavioural system as Schrire seems to do.

We acknowledge certain elements common to both herder and hunter sites - to the presence of sheep and pottery and stone tools we add that of ochre, ostrich eggshell water containers, bone points and tortoise carapace bowls (Schrire & Deacon 1989). The women and men responsible for the creation of the sites on which such items are found were clearly at some level participants in the same historical developments. At deeper levels we think their worlds followed different but interrelated orbits. Evidence presented above demonstrates two points: that some substantial though variable differences in the quantities of certain items exist between a number of sites and that such sites broadly fall into two groups. The extent of conformity of these patterns is better than Schrire believes but clearly awaits further work; presently, the only apparently dissonant instance is the beads from Voëlvlei. However, attributing the presence of large beads as resulting from exchange or stylistic borrowing, as we have done, is not inconsistent with the circumstances of ethnographically documented clientship (Elphick 1985). It may well not be a coincidence that, situated at the interface of the
mountains and coastal plains, the beads from Voëlvlei reflect a herder type pattern of production. The uppermost levels of the site of Witklip, situated some kilometres distant from Kasteelberg, also contain formal tools, have little pottery and sheep but have beads bigger (mean of 6.3 ± 2.0 mm, n = 18) than those from sites such as De Hangen set back in the mountains.

**Oudepost and the Debate**

The second of Schrire's concerns was our critique of the Oudepost material and reinterpretation of it. Schrire rejects our suggestion that the indigenous artefacts from Oudepost (Schrire & Deacon 1989) may have entered the site during the 13/14 year hiatus in Dutch occupation which occurred after the massacre of 1673. Previously, she had argued against their being millennia old (Schrire et al. 1990). Both of these scenarios imply a lack of historical testimony as to who produced and used the materials, a situation which, if true, seriously undermines the case for unambiguously attested cultural affinities. The site's excavator perceptively recognized the unique possibilities for research provided by Oudepost; it is because of the apparent specificity of the documents as to who of the indigenous peoples were present at the redoubt that we need be sure the archaeological record necessarily reflects this and no other presence.

Schrire is convinced that the indigenous and colonial materials recovered come from the entire period of the redoubt's existence, dated by documentary sources to between AD 1669-1732. This conclusion is based on associational evidence and a sophisticated analysis of the diameter of clay pipe bores. This approach demonstrated evidence for a sequence in a deposit extensively disturbed by dune mole activity (Schrire et al. 1990). Schrire has previously stated that there is no documentary or archaeological evidence for indigenous people, be they Khoikhoi or Soqua, living in the abandoned ruins (Schrire & Deacon 1989:111). As the Dutch were by definition largely absent, the first is perhaps not surprising. And in terms of the second, no depositional trace of the hiatus has yet been reported. We assume this would, at the very least, be necessary to yield the archaeological information needed to substantiate such a claim. Elsewhere, we have argued that the chronological interpretation of Oudepost is not unequivocal (Yates & Smith 1993).

Aside from the problem of the chronology of the archaeological remains at Oudepost, we can take issue with statements that the indigenous residues show a "distribution identical to that of colonial residues" (Schrire & Deacon 1989:111) and that they are integrally related. The evidence for this is neither presented in much detail nor is what is available unequivocal. It is worth noting that the two tables proffered to test "(the) direct association of indigenous and colonial residues" (ibid) nowhere include colonial residues other than the architectural context. Clearly, because the artefacts came from excavations around the buildings they are "directly related to" these structures (ibid). Surely the comparison should have been between indigenous and smaller colonial artefacts as well? The concentration of stone artefacts, pottery and ostrich eggshell beads around the lodge seems good circumstantial evidence of meaningful depositional association, but one can wonder (see Wilson et al. 1990), if the lodge excavation has only partly intercepted a wider scatter of stone tools, etc.

A number of pits were excavated to 'test' this proposition. Stone artefacts and the like, we are told, occur repeatedly in association with Dutch residues (Schrire & Deacon 1989:106). We presume this to mean that some test pits were dug where neither were found. This point, if even implied, is presently unclear. If such test pits were not dug, then it is possible that stone artefacts would have been found had the area outside of the distribution of Dutch remains been sampled. Equally important in these key areas would be the choice of volume for the test which would be sufficient to capture the materials in terms of the range of the densities revealed by the systematic excavations. Also necessary is the demonstration that the proportional fall-off in the densities of Dutch and indigenous materials is approximately the same as one moves away from the focus of occupation. If the peripheral tests contained indigenous items at densities which, relative to the average for the excavation, were higher than those of European items then the two would not be identically co-distributed in an exact sense.

For want of information we are not able to evaluate here these spatial propositions, but sufficient data are available for one to scrutinize the distribution of various classes of residues in time. Frequencies of tortoise and mammal bones (Cruz Uribe & Schrire 1991), indigenous items (Schrire & Deacon 1989) as well as pipe stems (Schrire et al. 1990) in each of the three major stratigraphic divisions are presented in Table 2. A Chi-square test was conducted of the frequencies in each category of finds through the sequence; each was significantly different from the others (p < 0.05, df = 2).

These results suggest a very variable set of distributions in time and hence, potentially interesting differences between temporal units that have yet to be explored. One thing is however, clear: tortoise and indigenous artefacts at their present sample sizes and groupings have in one respect something in common and different from pipes and mammal bones. Table 2 shows that the former two have absolutely highest density values in the older unit II, whereas the latter have absolutely highest values in the middle unit I. Statistically, the indigenous remains at Oudepost are not "identically distributed" with the European materials but have a slight tendency to be most common in the oldest units. The implications for the tortoise remains are not clear, but we wonder whether the fact that tortoise humeri are larger than those from nearby indigenous sites dating within the last millennium BP. (Cruz Uribe & Schrire 1991:101-102, fig. 9) is not in any way significant? One possibility considered by these authors and then dismissed, again on distributional grounds and for the reason that the Dutch clearly ate tortoises (Cruz-Uribe & Schrire 1991:101), is that the tortoises reflect natural die offs. Another view, not addressed but clearly quite out of the question for the
Table 2. Numbers, densities and percentages of various categories of finds from the three principle stratigraphic units from Oudepost.

<table>
<thead>
<tr>
<th></th>
<th>Oudepost Units</th>
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<tr>
<td></td>
<td>II</td>
<td>I</td>
<td>x</td>
</tr>
<tr>
<td>tortoise density</td>
<td>1.7</td>
<td>1.4</td>
<td>0.1</td>
</tr>
<tr>
<td>NISP</td>
<td>90</td>
<td>74</td>
<td>2</td>
</tr>
<tr>
<td>%</td>
<td>54.2</td>
<td>44.5</td>
<td>1.2</td>
</tr>
<tr>
<td>mammal density</td>
<td>52</td>
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<td>11</td>
</tr>
<tr>
<td>NISP</td>
<td>2805</td>
<td>3290</td>
<td>442</td>
</tr>
<tr>
<td>%</td>
<td>42.9</td>
<td>50.3</td>
<td>6.8</td>
</tr>
<tr>
<td>indigenous artefact</td>
<td>6.2</td>
<td>5.4</td>
<td>1.1</td>
</tr>
<tr>
<td>density</td>
<td>334</td>
<td>290</td>
<td>43</td>
</tr>
<tr>
<td>n</td>
<td>50.1</td>
<td>43.4</td>
<td>6.4</td>
</tr>
<tr>
<td>pipe density</td>
<td>45</td>
<td>70</td>
<td>15</td>
</tr>
<tr>
<td>n</td>
<td>243</td>
<td>3802</td>
<td>619</td>
</tr>
<tr>
<td>%</td>
<td>35.5</td>
<td>55.5</td>
<td>9.0</td>
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</tbody>
</table>

(Note that slight differences in density occur depending on which of the slightly differing volumes that can be derived from the various sources are used. Sources: Schrire et al. 1990, Schrire & Deacon 1989, Cruz-Uribe & Schrire 1991.)

site's excavator, is that the tortoises are indeed (considerably?) older than the eighteenth century AD; although not proven by the size data, the strong temporal trend of decreasing mean sizes documented by Klein & Cruz Uribe (1989) for the region as a whole makes it a possibility.

Our final point regarding uncertainty with the Oudepost materials concerns OES beads. If one accepts Kasteelberg (KBB) as an example of a herder site, which Schrire seems to do (Schrire & Deacon 1989:111), the frequency pattern of OES beads there is quite different from Oudepost. Schrire believes her large beads from Oudepost are consistent with those of herders. This is only partly true. The Kasteelberg samples from different levels each generally exhibit a normal distribution with modes between 6,0 and 8,0 mm. Oudepost tends to a bimodal distribution with modes around 5,5 mm and 9,5 mm respectively (Yates in prep.). What may be underrepresented in the present Oudepost sample are very small beads since, whilst mostly sieved with a 3 mm mesh, occasionally only a 6 mm screen was used (Schrire & Deacon 1989:110; note that the exact amounts sieved with the respective mesh sizes are not specified). Furthermore, one result of the wet sieving used at Oudepost was that "the spray sometimes forced tiny beads ... through the 3 mm screen" (Schrire 1990:271). The effects of this are easily demonstrated by comparing the mean sizes of beads from Oudepost 3 mm sieved samples (5,5±1,7 mm, n=21) against those from a variable mix of 3 and 6 mm screens from the site as a whole (6,9±1,7 mm, n=170). There is thus a probability that the unusual mix of large and relatively small sizes in the present sample of OES beads from Oudepost would before sieving have been even more emphasised. With small and big beads occurring in a mix not documented elsewhere in the south-western Cape the Oudepost assemblage could be a mixture (Wilson et al. 1990), either of different cultural groups or different periods.

The above clearly does not offer a coherent choice among the possible alternative scenarios. That is not the point. The observations presented here lead us to suggest that the bulk of the colonial artefacts from the area excavated could well postdate the massacre. It is possible, therefore, that undocumented occupation of the abandoned fortifications could account for some of the indigenous materials. Equally, doubts that earlier residues have been incorporated are, in our opinion, not entirely assuaged. Both criticisms attack the assumption that Oudepost has fulfilled the undeniable potential that it offered: the apparent identity of those responsible for indigenous material items left on the site. A precise attribution demands, firstly, precision in chronological resolution and, secondly, an understanding of how the objects entered the site. The first appears to be lacking, through no fault of the excavator, in a heavily disturbed depositional environment. To the second we now turn our attention in as far as it concerns Schrire's statements about the political underpinnings of our criticisms and work as a whole.

ON VERWOERDIAN ARCHAEOLOGY AND THE DEBATE

Finally, Schrire accused us of racism, both in the models we use and in our research objectives. We feel a response in this instance is particularly called for. We contend that Schrire's discourse on the Verwoerdsan underpinnings of our paper reflects more a polemical tendency to interpolate and dichotomize than it does our actual position.

Our view was that the circumstances prevailing at Oudepost, a military establishment, were not necessarily conducive to the kind of interaction implied by the indigenous items found there. This Schrire (1991:64)
counters by generalizing that "If tension always engendered avoidance, how might we rationalise the vast mulatto populations...that sprawl today across the erstwhile realms of the Dutch East India Company...?" We never said that tension always engendered avoidance; our statements concerned a particular circumstance at Oudepost. The site cannot be simply taken as Cape history writ small without denying that its particular historic moments were of any consequence. In short, we submit that there was more to events in the wider seventeenth and eighteenth century Cape than is represented by Oudepost alone. Thus, our views are right or wrong in terms of that site and period and not the Cape or the former Dutch empire as a whole. To imply, as we believe Schrire has, that the implications of the existence of what she terms "mulatto populations" were lost on us is, with deference to Whitelaw et al. (1992), the "cheap shot" of Schrire's response.

Our questioning of Schrire's views on the exact circumstances of social interaction which could have given rise to the residues at Oudepost was based on the fact that conflict was one of the documented interactions. The relationship between Dutch and Khoikhoi at Oudepost was by no means always an easy one, as witnessed by the massacre and indicated by a complaint laid against the post by one of the shepherds who claimed he had been beaten (Cape Archives, Precis and Translations of Letters Received LM 19: 2 April 1726). We would therefore reiterate our contention that after the massacre social relations between the Dutch and local people in the vicinity of Oudepost were strained; Schrire (1990:18) herself has characterised the period as "a guarded truce". Should one therefore easily accept Schrire's contention that the indigenous remains were deposited simultaneously by herders with those of the Dutch?

The records do indicate that local people were trading with and herding sheep for the soldiers at Oudepost. As far as has been published (Schrire 1990, 1991) they say nothing about co-occupation or cohabitation. Here the apparently identical distribution of both male and female indigenous items and the colonial residues is relevant. The documented associations presuppose shared domestic space. Schrire nowhere specifies the exact nature of these interactions beyond noting their intermittence and that they entailed the deposition of both male and female items (Schrire & Deacon 1989:111); nor is there discussion as to whether or not they may have changed through the span of occupation. Perhaps the first is judged as best left to common sense and the second as of no consequence.

It is, however, important to know whether the indigenous artefacts are the cumulative trace of a number of individual visits, intimate or otherwise, or the residues of periodic visits by larger groups, some of whom were trading in livestock. If the latter, why bring both men and women within the confines of a military establishment in the context of the mutual wariness which prevailed? If the former, the indigenous cohabitants have no unequivocal documentary identification, however plausible the inferences (Occam's razor?) one may choose to make on the basis of those who were recorded as being present on "official business". There are many possible permutations which could have given rise to the residues; more explicit views on this matter would be useful, particularly where so much is made of their presence (Schrire & Deacon 1989).

While Schrire may be "disturbed" (1992a:64) by the underlying political message of our paper, we are surprised at her naivety in assuming that any concern with the possibilities of sociocultural divisions is predicated on the principles of apartheid. Are we to read this to imply, as it would seem to do, that cultural and economic distinctions of any form are entirely fabrications of colonial and postcolonial circumstances and thus, have no part of historical enquiry? We believe not. Concern with broadly termed cultural differences as historically articulated phenomena is not necessarily predicated on racism; in examining this, it is instructive to consider research in a region other than the south-western Cape.

Primarily initiated in the work of Tim Maggs (Maggs & Michael 1976), Patricia Vinnicombe (1976), Lewis-Williams (1981) and Aron Mazel (1989)2 archaeological research in Natal has now for over a decade variously focussed on sites yielding evidence of farming or hunting and gathering. There is evidence that important interactions took place between hunters and farmers (summarized by Mazel (1986); see Lewis-Williams & Dowson (1989: 143-145)) and the possibility of structurally similar relations, as opposed to means of production (Hall 1987). Notwithstanding this, it appears commonly accepted that "hunting and gathering and farming persevered as essentially distinct, and archaeologically recognisable, modes of subsistence until relatively recently" (Mazel 1986:442).

The Natal situation also has a particular bearing on a specific comment of Schrire's. Why is the lack of evidence for serial use of rockshelters by hunters and herders in the south-western Cape so strange - does it necessarily presuppose such a wildly improbable settlement strategy that it should be derisively characterized as "very dainty dancing" (Schrire 1992a:63)? The pattern of site juxtapositioning we presented (Smith et al. 1991) is analogous to that documented by Mazel in Natal for the last two thousand years (Mazel 1986). There, hunter sites also occur scattered among those of broadly contemporary farmers without evidence for serial usage. Different as the historical moments of Natal and the Cape may have been, commonalities between the two areas reveal that such an arrangement of sites is not at all strange; it may in fact be closer to a productive locational strategy than the whimsy implied by a "dainty dance" as Schrire chooses to characterize it.

Is research such as that in Natal equally characterizeable as predicated on racist paradigms? Hall (1984) has pointed out that certain conceptual frames

2. This does not deny other important contributions, both earlier and contemporary, but reflects individuals who played key roles in initiating systematic research.
within which farming communities have been characterized, specifically notions of primordial tribalism, are susceptible to an ideological reading within the broader South African social context. He did not, however, claim as unwarranted any notion of meaningfully articulated social identity such as has been a focus of work in Natal and indeed, elsewhere in the world (see Shennan 1989). We wonder, then, what makes similarly interested research in the south-western Cape so different?

CONCLUSION

Schrire (1992b:132) wonders whether we "might be guided more by ideology than any other frame of reference". One could perhaps ask the same of her work. But no matter. One feature of research into historical indigenous social formations in south-western Cape is the fact that the relevant written records are pretty patchy, sometimes hearsay and certainly not unambiguous. With due respect to Schrire (1980), we do not think that her deconstruction of Dutch accounts of indigenous groupings is conclusive or unequivocal; nor do we deny, in the light of what has come to be called "the revisionist San debate", the significant intellectual challenge and farsightedness of her contribution. We believe the matter requires further investigation, in which archaeological evidence has a crucial, perhaps definitive role to play.

As should be clear, Oudepost in our view most certainly does not unequivocally refute hypotheses of relatively distinct material cultural practices of hunters and herders. Nor are the contrasts we presented earlier (Smith et al. 1991) as easily dismissed as Schrire supposes. We do not argue from the archaeological evidence, as Schrire extrapolates, that continuity in some aspects of material culture across the appearance of pottery and sheep presupposes total cultural (behavioural) continuity (Schrire 1992a:63) and thus lack of change. Clearly, many aspects of the settlement and material culture of hunters underwent profound changes coincident with the emergence of pastoralism (Parkington et al. 1986, Manhire 1987, Yates et al. in press). We assume that change, even profound change, does not ensure convergence and the melding of identities. Ours is not a 'pristinist' argument, but one for an appreciable cultural distinction. These respective identities however, were not ineluctable and fossilised; their existence, natures and expressions were historical phenomena. While accepting that individuals can and do cross over such cultural divides, we do not believe that it is common for whole groups to do so at one fell swoop, nor is it necessary that a culturally homogeneous society will result. Equally, the existence of distinguishable social groupings does not necessarily presuppose unremitting mutual hostility and aggression.

In the south-western Cape it is accepted that relations between hunters and herders assumed a variety of forms from raiding through clientship to economic exchange (Wilson 1969; Elphick 1985). It is interesting that some groups historically identified as Soqua were apparently still called such, despite the fact that they were seen in possession (momentarily?) of livestock (Elphick 1985:26). It is clear that owning or herding cattle and sheep alone did not effect a transition between sociocultural identities, at least not on the temporal scale of a human lifetime. Thus key components of the evidence for the cyclical model (Schrire 1980; Elphick 1985), which eschews social or cultural factors in favour of narrow economic opportunism, may be susceptible to alternative readings.

Criticism is essential. Debate is properly served by argument around theoretical perspectives and evidence. This, Schrire has offered in part. It is not however, advanced by assertions of racist imperatives (Schrire 1992a), however subsequently modified by Schrire's own tastefully worded dictum (1992b).

ACKNOWLEDGEMENTS

Comments by John Parkington, Martin Hall and Anne Markell are greatly appreciated, as are the contributions of Lyn Wadley, Mike Wilson and Aron Mazel. Final responsibility of course, remains ours.

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ASSESSING OUDEPOST 1: A RESPONSE
TO YATES AND SMITH*

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A most gratifying number of debates has arisen from the research programme based on the excavations at Oudepost 1, Cape. They include concerns of historiography (Penn 1991), site identity (Hromnik 1990), site age (Yates & Smith 1993a) and the archaeological signature of indigenous people at the Cape (Smith et al. 1991). It has been a privilege to respond hitherto (Schrire 1991, 1992a & b) and I thank the present editors for this opportunity to comment, albeit briefly, on the most recent defence of their position by Yates and Smith (1993b).

The present paper (Yates & Smith 1993b) needs to be read in conjunction with their recent critique of the pipestem dating of Oudepost 1 (Yates & Smith 1993a). Both papers insist that certain of the indigenous artefacts from Oudepost 1 (Schrire & Deacon 1989) could not have been made, used, or dropped, by the kind of indigenous people whose presence at Oudepost 1 is attested in the documentary record. Both papers raise interesting issues, but they misunderstand the nature of archival sources and the formulation of archaeological inference and the pipestem critique is rife with factual errors.

The pipestem paper (Yates & Smith 1993a) purports to show that most of the deposit at Oudepost 1 accumulated in the 18th century, some 30 years after the post was established, so that peoples unknown and unmentioned in the archival record might well have been the authors of the troublesome silcrete artefacts found there. It fails to make its case mainly because it compares incomparable sets of data, some of which are wrong. Its first error is to compare the mean size of pipestem bore diameters as guides to the ages of different sites. Leaving aside the well attested variance in stem bores of pipes from the same box, site means can only reflect the true mean date there if there were a constant deposition of fragments throughout the occupation of the site. This was patently not the case at Oudepost (Schrire et al. 1990) and certainly not the case at the slave lodge at Vergelegen, where almost every trace of occupation was systematically removed before we got there (Markell 1993; Markell et al. n.d.).

Secondly, the authors might generously be seen as trying to redress this matter by comparing the Oudepost means with that of samples from shipwrecks. Unfortunately the wreck samples were not measured with the customary drill bits but with an electronic caliper. Yates and Smith try to redress the ensuing disparities by subtracting an arbitrary 0.2 mm from the caliper means. They attribute this tactic to Dr A. Markell (Yates & Smith 1993a:52, Footnote 1), but Markell who is well versed in the unreliability of caliper figures has been sadly misrepresented here (A. Markell, pers. comm.).

Thirdly, the samples that they use are incomparable with those at Oudepost because, while the means of numerous groups of pipestems at Oudepost were computed after correcting for uneven intervals of measurement (Schrire et al. 1990:278), the means of all of the other samples used by Smith and Yates were not. Finally, Yates and Smith try to refute the Oudepost data by ascribing calender dates to the erroneous shipwreck samples, according to a curve that was disclaimed in later years by the author himself! (McCashion & Robinson 1977:63; McCashion 1990, pers.comm.; See Schrire et al. 1990:293). The net effect speaks for itself.

Harsh though my comments may appear to be, they are nevertheless intended to be instructive. Yates and Smith have flown into an unfamiliar field only to rise like magpies with odd and faulty data in their beaks. Dr. Markell is sorely misrepresented and the students, whose data they have used, end up looking less competent than they undoubtedly must be. The hasty footnotes that include one reference to an unlisted paper (Yates & Smith 1993a: Footnote 3) betray an uncharacteristic rush to press by the normally judicious editor.

The present re-entry to the fray (Yates & Smith 1993b) includes a correction of my misreading of Drie Susters as a "herder" site, an innovative and self-fulfilling index of ceramic frequency that depends on the incidence of stone tools in a site and the restatement of my observation that water sieving at Oudepost probably forced small beads through the holes (Schrire 1990:271). Its main flaw resides in their claim that they are dealing with evidence that "archaeologically distinguishable cultural and economic entities persisted up to the colonial period" (Yates & Smith 1993b:96). We are, in fact, dealing with data that has been interpreted as showing that the presence of culturally different groups were
present over time. The interpretation may be tested and it may hold up or not as the case may be, but it cannot be proven by invention of events.

Thus their reiterated opinion that the large beads at Voëlvlei represent one-way penetration of herder culture into a hunter culture whose beads the herders didn't like, is untestable. It may be true, it may be false, but it fails to advance archaeological theory or interpretation because it cannot be tested.

Similarly, their interpretation that the 12 silcrete artefacts at Oudepost 1 signal the presence of hunters who occupied the post during a lull in documentary exchange, may or may not be true. Yates and Smith imagine that this proposition may be tested against the archival record. They berate me for failing to specify the exact nature of colonial-indigenous interactions regarding shared domestic space and demand to know whether small or large groups of indigenous people visited the site. Their demands betray a singular lack of familiarity with written sources which is not surprising since one of them, at least, has never set foot in the State Archives (R. Yates, pers. comm.).

The avowed aim of Yates and Smith to define the archaeological signature of distinct cultural groups may or may not be fulfilled. But if they are to make a significant inroad to this matter, they will have to leave fiction to others (Schrire 1994) and follow the tried and tested Popperian path of hypothetico-deductive reasoning.

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NOTES

DUTCH BRASS BUTTONS FROM THE CAPE TO THE MARICO

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Rondebosch, 7700

Brass trinkets and small goods made of other metals were much in demand as items of barter in the Cape for several centuries after the first European colonisation. In an account published in the late eighteenth century Mentzel commented on the worth of such goods, the relative economic advantage that this trade represented to the colonists, and the utilitarian modification of some of the traded items by the indigenes.

The whole agreement made by Van Riebeeck with the Hottentots that he found dwelling there rests upon the acceptance by the natives of presents at a total cost of about f1,000. One can realise what an extraordinary number of beads, cheap knives, small looking-glasses, and similar rubbishy "penny" articles can be obtained for f1,000. They valued highly small pieces of iron, whereof they made the points of their assagais, and the brass buttons that were soldered together by girdlers out of two small plates of metal are even now more acceptable to them than the cast article. For if the former were put in the fire the solder would melt and the two plates would separate and provide two pieces of brass (Mentzel 1785:49-50).

Excavations at the slave lodge on the Dutch estate of Vergelegen have produced several examples of these brass buttons, in a variety of sizes. Some of them are intact, while others have separated accidentally, or have been separated deliberately, into two parts (Fig. 1). The lower part incorporates a metal eye for sewing the button to a garment, while the upper part becomes a loose hollow brass dome. These buttons found in the remains of the eighteenth century slave lodge provide a satisfying corroboration of Menzel's descriptions of their occurrence at the Cape. But they also provide a clue to the identity of a class of artefact found distributed from the Cape to the Transvaal.

Two hollow, domed brass artefacts were recovered recently by Mr Jan Boeyens (UNISA) from two late Iron Age sites in the Marico district. One came from a depth of 30 to 40 cm in a midden on site 2526 AC2 on Kleinfontein or Olifantspruit (with dates for the site ranging from 180 to 200 BP), and the other from a hut

Fig. 1. Four brass buttons from Vergelegen slave lodge, one of them disassembled to show the hollow upper dome (scale in mm).

Fig. 2. Domed brass ornament from Kleinfontein in the Marico district (scale in mm).

floor on site 2526 CB9 Magozastad 248 JP (with dates ranging from 400 to 210 BP) (J. Boeyens pers. comm.). They are illustrated in Figures 2 and 3. They are of two different sizes, and both have two holes punched through opposite sides of their rims, presumably for attachment to a garment or for suspension. The diameters, about 16 mm and about 10 mm respectively, correlate with the sizes of the domes of the Vergelegen buttons and the curvatures are the same. We are confident in identifying these domed brass ornaments as the perforated tops of
disassembled Dutch buttons like the ones found in the Vergelegen slave lodge. Their masses were 0.84 grammes and 0.41 grammes and they were relatively uncorroded.

Similar domed brass artefacts, some with single and some with double perforations, have been found in the upper layers of several Later Stone Age sites in the western Cape coastal region and the Cederberg (A.B. Smith pers. comm.; J.E. Parkington pers. comm.). It is tempting to speculate that refashioned brass buttons were traded from the Cape, through Namaqualand, to the northwestern Transvaal and that these characteristic ornaments might be clear indications of such trade. It is likely that others have arrived at similar conclusions already but this note is intended to alert archaeologists to the identification of these brass domes as reworked buttons in the hope that more examples might be forthcoming.

ACKNOWLEDGEMENTS
We thank Jan Boeyens (UNISA) for permission to publish the description of the artefacts from the Marico. Gavin Evans took the photographs.

REFERENCES

PRELIMINARY RESULTS FROM MUMBWA CAVES, CENTRAL ZAMBIA*

LAWRENCE S BARHAM

31 Newtown, Bradford on Avon, Wiltshire, BA15 1NF, England

A combined team representing Zambia’s National Heritage and Conservation Commission, the National Museum, Livingstone, and the universities of Bristol and Oxford spent three weeks in June 1993 examining the deepest deposits of the main cave at Mumbwa, central Zambia (Fig. 1). The complex of caves and rock shelters generally known as Mumbwa Caves has been investigated at irregular intervals since 1925 (Macrae 1926; Dart & Del Grande 1931; Clark 1942; Savage 1983). The 1930 excavations of Dart & Del Grande discovered a quartz based Middle Stone Age assemblage (see Volman 1984:184-5) overlying bedrock at a depth of nearly seven metres. The objective of the 1993 investigation was to assess the extent of this earliest deposit and to collect sediment samples for dating and environmental analysis.

Three test pits were sunk, two to the north of Dart & Del Grande’s central pit - squares H6 and G4 - and the third cutting into the surviving section of the central pit - square E9 (Fig. 2). The two northern test pits proved to be largely sterile, with no evidence of occupation overlying bedrock. The excavation of E9 confirmed Dart & Del Grande’s basic sequence with MSA material appearing beneath the sterile ‘red clay’ of the central pit (Fig. 3).

Bedrock was not reached in E9 as the original section face appears to have collapsed at a depth of 6 metres and been replaced by later infill. An unfortunate consequence of the collapse was the rapid reduction in area of intact lower deposit available for excavation in E9. At best, the deposit extended across 0.50 m of the one metre square decreasing to less than 150 mm near the base.

Given this limitation, the high concentration of largely quartz debitage from lower E9 is impressive (Table 1). It suggests that further excavation of the central pit area could yield the largest stratified sample of early MSA known from Zambia to date. The retouched pieces are too few in number to make firm typological comparisons, but the presence of small flake tools and the

Fig. 1. Location map of Mumbwa Caves, central Zambia.

Fig. 2. Plan view of the three test pits excavated in the main cavern in 1993. The stippled areas are the deepest portions of the 1930 excavation, represented by a dashed line. E9 cuts into the central pit, and G4 and H6 are in the northern extension of Dart & Del Grande.

The predominance of disc cores (Fig. 4) is suggestive of the Charama industry as known from Zimbabwe and Zambia (Volman 1984:185).

Fig. 3. Section of E9 showing major stratigraphic units.

The preservation of macro and microfauna is good throughout the Mumbwa sequence, including the lower MSA deposit. Of particular interest is the recovery of two human radius fragments from the base of E9, near the junction of the intact deposit and the infill. The fragments do not appear to belong to the same bone and may represent two individuals. These finds raise the prospect of further human remains to come from this very earliest occupation of Mumbwa.

Sediment samples were taken for optically stimulated luminescence dating. The results will be reported along with a full sedimentological analysis of the red clay.
Table 1. Artefact frequencies and percentage frequencies for the upper MSA of E9 (E922-E937), the red clay (E938-E9316) and the lower MSA deposit (E9317-E9324).

<table>
<thead>
<tr>
<th>Locus</th>
<th>Shatter</th>
<th>Flakes</th>
<th>Cores</th>
<th>Retouched</th>
<th>Utilized</th>
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<tr>
<td>E922</td>
<td>85</td>
<td>235</td>
<td>6</td>
<td>6</td>
<td>3</td>
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<tr>
<td>E923</td>
<td>173</td>
<td>275</td>
<td>15</td>
<td>6</td>
<td>0</td>
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<tr>
<td>E924</td>
<td>67</td>
<td>158</td>
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<td>77</td>
<td>85</td>
<td>6</td>
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<td>44</td>
<td>29</td>
<td>8</td>
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<td>27</td>
<td>49</td>
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<td>52</td>
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</tr>
<tr>
<td>E937</td>
<td>16</td>
<td>34</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>TOTAL</td>
<td>545</td>
<td>1028</td>
<td>47</td>
<td>17</td>
<td>3 = 1640</td>
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<tr>
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<td>12.59</td>
<td>24.24</td>
<td>5.70</td>
<td>0.57</td>
<td>0.09</td>
</tr>
</tbody>
</table>

National Heritage and Conservation Commission, Sibanyama Mudenda of the National Museum, Livingstone, Birgit Uenze, and Professor Andrew Goudie and Stephen Stokes of the School of Geography, Oxford, for their valued assistance in the field. Thanks also to Chris Stringer for identifying the human remains.

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LETTERS AND COMMENTS

EARLY IRON AGE IN THE EASTERN CAPE: A RESPONSE BY MAGGS TO BINNEMAN ET AL.

TIM MAGGS

Natal Museum, Private Bag 9070, Pietermaritzburg, 3200

Congratulations on your published note on the Kulubele Early Iron Age site on the Kei River (Binneman et al. 1992). It is nice to see confirmation of the first millennium agriculturist settlement as far south and west as this, as well as to note the locality inland in a major river valley. I would agree that the illustrated pottery resembles Msuluzi material from Natal (Maggs 1980a) which is of a similar age.

There is just one point in the note with which I would like to quibble, namely the first sentence which claims that "Until recently the southerly limit of Early Iron Age settlement was thought to be along the Transkei coast ...".

As early as the 1960’s Rudner (1968) reported pottery similar to Schofield’s NC3 reaching as far west as the Port Alfred - Bathurst area. Derricourt (1977) recorded sites of his Shixini Ware as far west as the Chalumna River in the Ciskei, recognising its similarity to NC3. From as early as the 1970s NC3 and Shixini have been recognised as belonging to the Early Iron Age (Maggs 1973) and we have been regarding the Chalumna River, which is 100 km south-west of the Kei, as the southerly limit of known EIA settlement (eg. Maggs 1980b).

The idea that EIA occupation might extend as far as the Great Fish River (Binneman et al. 1992) is very tempting, especially in view of the place that this river holds in the colonial history of the eastern Cape. Is it not time that we took another look at the pottery referred to by Rudner (1968) from west of the Chalumna River? Perhaps we can extend the limits of first millennium agriculturist communities another 100 km along the coast. How about our Albany Museum colleagues picking up the challenge?

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A RESPONSE TO MAGGS: DERRICOURT MISINTERPRETED

LITA WEBLEY & JOHAN BINNEMAN

Albany Museum, Somerset Street, Grahamstown, 6140

We take your point about the distribution of potsherds with Early Iron Age (EIA) attributes as far west as Port Alfred, and agree that we should have phrased the first sentence of our report (Binneman et al. 1992) slightly differently. Our concern, however, was with providing a short report on a new site. We were aware of the material cited by Maggs (above) but we were intending to comment on it in greater detail in a more comprehensive paper dealing with evidence for the Early Iron Age in the eastern Cape.

We should like to take this opportunity to discuss the misconception which has been generated in the literature...
around the nature of the potsherds from Derricourt's Chalumna excavations (1977). In your letter you say "Derricourt (1977) recorded sites of his Shixini ware as far west as the Chalumna River in the Ciskei, recognising its similarities to NC3". A careful examination of his published account suggests that there is insufficient evidence to support such an interpretation. Derricourt named the pottery from his Chalumna excavations "Chalumna Ware" (Derricourt 1977:130, 131:table 17, 132:table 18, 133) for the following reasons, "The pottery is unusual compared with certain other coastal assemblages in several ways: the absence of any incised or impressed decorations or stratified burnish places it outside the known coastal assemblages and most inland groups. There is no assemblage in the region clearly parallel" (ibid:98, our emphasis). On page 130 he repeats in his description of Chalumna Ware, "The pottery is undecorated". Furthermore, it is only of medium thickness, and in table 18 (ibid:132) he notes that the rims do not conform to the types common to Shixini Ware. He clearly distinguishes between Chalumna Ware and Shixini Ware. There is no compelling evidence to suggest that the excavated site at Chalumna River represents an Early Iron Age site, indeed the date of 510±45 BP (Pta-932) for the pottery horizon indicates that it is not.

The confusion regarding the exact nature of the ware from the Chalumna excavations may have arisen as a result of a number of unfortunate juxtapositions in Derricourt’s publication. Drawings of Early Iron Age potsherds (ibid: 130 fig. 33), labelled Shixini Ware are positioned next to his description of Chalumna Ware creating the impression that these sherd came from his excavations. However, these illustrated potsherds are from his sites 570 and 686, which refer respectively to the site of Shixini in the Willowvale district and to Lambasi in the Lusikisiki district.

Apart from the excavated midden at Chalumna, which he named CHE, Derricourt also recorded (but did not excavate) a number of other shell middens to the southwest of the river mouth, one of them being site 586. This site, with cattle and sheep/goat remains, he notes "also has very different pottery from CHE; it has ware close to that we link in this volume to Iron Age by parallel in type with inland sites and decoration seen up coast with this temper parallel to Natal Iron Age" (ibid:108). In other words the pottery from site 586 represents his Shixini ware from the Chalumna River. In his description of the pottery he mentions 133 plain body sherds but no decorated sherd. It is clear that he sees the affinities between his surface collections from site 586 at Chalumna and the EIA material from Natal to be in the temper of the pottery. Despite the fact that the site contained no decorated pottery it was, however, listed as one of his Shixini sites (ibid:130). His other Shixini sites on the Ciskei (west of the Kei River) coast are Ncera Mouth, Cove Rock and Gonubie Springs. We have examined the potsherds from these sites (they will be discussed in a later paper) and do not believe that there is sufficient evidence to suggest that they represent EIA settlements.

Numerous potsherds which could be ascribed to the EIA have been collected in the past from the coast west of the Kei River (Rudner 1968). However, isolated fragments of EIA pottery, some found as far west as Alexandria, do not necessarily represent Early Iron Age (or early agriculturist (Maggs 1992)) settlement. Very little is known about the nature of the occupation along the Ciskei section of the Eastern Cape coast during the first millenium AD. Historical accounts mention that the Gonaqua Khoikhoi occupied this region but we have yet to determine how, if at all, their archaeological signature may be distinguished from the Early and Later Iron Age peoples. Extensive interaction and trade between the various inhabitants of the Eastern Cape cannot be ruled out as a possible explanation for the widespread distribution of EIA potsherds west of the Kei River. In our paper (Binneman et al. 1992) we emphasised the significance of the fact that Kulubele is in fact an in situ EIA settlement whereas there is no similar hard evidence from the coast.

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Logo
Decorated pot from an Early Iron Age site in the Great Kei River valley, eastern Cape, and a painting of a 'trance figure' from the same region.

Cover illustration
Decorated Bambata Early Iron Age ceramics from Toteng in western Botswana, p. 3.
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OPINIONS

CONTRACT ARCHAEOLOGY AND
DATABASES

The 'Opinions' column in November 1992 raised the
question of access to Museum databases. Comment
followed in the next issue by David Morris of the
McGregor Museum. At first sight reasonable, the
concerns raised in both commentaries have potentially
serious consequences for archaeology in southern Africa.

Although the debate is ostensibly about databases, it
cannot be separated from the larger issue of the role of
archaeology in the consultancy business. It must also be
seen against the current financial and political climate. It
is no secret that museums are feeling the squeeze. One
method to supplement revenue is through archaeological
contracts. Contract archaeology, however, must be run as
a business. As Morris states, regional recording centres
offer local expertise. But a distinction needs to be made
between the skills of archaeologists and the data
contained in their institutions. By controlling access to
information, a Museum could attempt a regional
hegemony. This is a practice that cannot be allowed for
at least three reasons.

First, it is unethical to use resources accumulated
through public taxes to limit competition. This is a matter
of principle that has little to do with archaeology and the
competition board is currently investigating a variety of
semi-state organisations accused of such unethical
behaviour.
Southern African Field Archaeology

Contract units should compete on the basis of their personal ability rather than the information they control. According to Dave Fredrickson, in California, at least, databases and contract groups are kept separate to avoid conflicts of interest.

In the case of museums, their collections and information are public property, and they have no right to charge a 'consultancy fee' for providing information. Whether or not a consumer may ultimately benefit financially from that data is irrelevant. Information should be free.

The time needed to extract data, however, is another matter. No one should object to a nominal fee for assistance. The HSRC, for example, charges R80 to conduct a search of their computerised databases.

Secondly, contract archaeology will probably develop as part of the environmental consultancy business. Many contracts are likely to derive from Environmental Impact Assessments funded by international agencies such as the World Bank. These contracts are awarded on the basis of separate technical and financial tenders submitted by multi-disciplinary teams. If the successful team is denied access to archaeological data, those records are likely to be ignored. As Morris states, this deplorable process is already happening, and archaeology is the loser.

Thirdly, should institutions regard their databases as a bankable resource, the resulting competition will have a deleterious effect on archaeological research. Inevitably, institutions will entomb their data in jealously guarded files. As a consequence, communications between scholars, essential for scientific progress, will be stifled.

Contract archaeology is still in a formative period in South Africa, but already certain problems have arisen. At present most clients are reluctant to pay for archaeological surveys. Generally speaking, archaeology is not taken seriously, and the EIA mentioned by Morris is by no means unique. Indeed, some reports are an embarrassment to our profession, and we are partially responsible for the low status of archaeology in South Africa.

Archaeologists therefore need to address the future of the profession as a whole. Contract archaeology requires a set of skills that most archaeologists simply do not possess, and we have to decide whether or not we wish to acquire them at the expense of our research activities.

Archaeologists who become consultants will specialise in the business of archaeology rather than research. It is therefore important to protect the profession by establishing an institute of consultant archaeologists, separate from SA3. A permanent office and secretariat will be required and therefore subscriptions would necessarily be high. The institute would establish and maintain professional standards for contracts. It would also undertake inter alia to promote archaeology with the government, clients and the public. It would liaise with international funding bodies such as the World Bank and USAID to inform them of the standards required for cultural property surveys in South Africa.

This is not a job for the National Monuments Council. The role of the NMC must be to ensure that conservation legislation is enforced and more importantly has public support.

Archaeologists should look beyond vested interests and fears for their security and strive to improve the image and professionalism of their chosen vocation. Whether the focus is research or business, archaeologists need to obtain respect from other professions and a mandate from the public.

C. Campbell
T.N. Huffman

The Editors of Southern African Field Archaeology would like to congratulate Ursula Evans of the University of Cape Town on winning the competition for the best paper by an archaeology student. Ursula's paper will appear in the September issue of Southern African Field Archaeology. Both Ursula and the Archaeology Department at UCT will be receiving free copies of our journal during 1994. We will be running this competition again this year and we call on all archaeology students to submit reports on their field work no later than 30 November 1994.
TOTENG POTTERY AND THE ORIGINS OF BAMBATA*

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ABSTRACT

Two sites at Toteng yielded a ceramic sample representing three distinct groups of people: historic BaYeyi, pastoral Khoi and Early Iron Age Bambata. The Bambata sample is the first ever retrieved from settled villages. Although small, it helps to clarify the affinities of several other collections.

INTRODUCTION

A.C. Campbell located several Bambata Early Iron Age sites in 1988 in the course of an archaeological survey of a dam area near present-day Toteng (20.23S; 22.57E) in western Botswana. Two were test excavated in February 1991 near the proposed dam wall on opposite sides of the Nchabe river bed (Fig. 1).

Campbell choose these sites because of the importance of Bambata pottery in debates about the spread of pastoralism and farming into southern Africa (Walker 1983). Previously, most Bambata pottery in Botswana (e.g. Denbow and Campbell 1980), Zimbabwe (Cooke 1963, Robinson 1963) and South Africa (Wadley 1987:53) had been found in deflated deposits or mixed with Later Stone Age artefacts. The Bambata vessels in these widely-spaced deposits represent 'trait intrusions' because the stone tool assemblages continue without modification (e.g. Walker 1983), the pottery itself lacks any antecedent and only a few vessels, or fragments, are usually present. Despite their intrusive contexts, these fragments have greatly influenced our understanding of the Bambata style. Fortunately, the Toteng sites appeared to have been true villages, and it was therefore possible to recover a full assemblage.

Toteng I centred around a mound on the site of a late 19th century European store that was built when Toteng was the capital of the BaTawana. Nine pits were excavated at Toteng I in artificial spits (Campbell 1992). Four were in 1 m squares (Test Pits 1, 3, 5 & 6), two were 1 m x 2 m (2 & 4), two were 2 m x 2 m (D & E) and one was 2 m x 6 m (ABC). Test Pits 1 to 5 and Square D were located on top of the mound, while Square E and Trench A-C were sited on flatter ground below the top. The excavations on top exposed a 0.65 m capping of redeposited sand and calcrite from recent road activities that produced the mound appearance. This recent deposit overlay a layer of historic material, followed by grey ashy sand with Bambata pottery and then a Later Stone Age horizon, fine sand and finally bedrock at about 2,20 m. Square E uncovered the floor of the European store, while Trench A-C found the historic horizon stratified above a Bambata midden about 0,50 m thick. Charcoal from this midden at a depth of 0,70 m has been radiocarbon dated to AD 130 ± 50 (Pta 5534) which calibrates to the 3rd century.

Five pits were excavated in artificial spits at Toteng III on the north bank about 300 m north of Toteng I. Squares A and C were initially 1 m x 3 m, although Square C ultimately reached 3 m x 3 m because of the burial of a child. Charcoal from 0, 22 m deep in a midden deposit around the child has been dated to AD 350 ± 50 (Beta 44966), calibrating to the 5th century. TP1 and 2 were both 1 m x 1 m squares, and Square B...
was 2 m x 2 m. Most material was found in the top 100 mm, but occasionally some extended another 100 mm, and in square B it was concentrated in the top 0,30 m. A road quarry next to Square B shows that this deposit formed a midden about 5 m wide. charcoal from a depth of 200 mm to 300 mm in this midden dates to AD 140 ± 60 (Beta 44965), which calibrates to the 3rd century. Campbell (1992) presents full excavation details in his CRM report, here I present a description and analysis of the indigenous ceramics.

TOTENG CERAMICS

The excavations and surface collections from these two sites yielded some 62 vessels, representing three groups. Generally, these groups could be separated by key features: short necked jars with red-on-buff chevrons characterized historic pottery; bag-shaped vessel with pointed bases and pierced rims distinguished Bambata pottery; and relatively thin vessels with fine comb-stamping were Bambata. I describe them in greater detail, beginning with Bambata.

Bambata

In the Bambata assemblages vessel surfaces tended to be grey or dark and the vessel walls thin, from 4 mm to 6 mm. The same vessel, however, could vary up to 4 mm, depending on the vessel part. The average thickness of 25 vessels illustrates this variability:

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Most Bambata vessels incorporated an organic temper that was often burned out, leaving numerous holes. In other cases charcoal remained in the wall, and a few contained fine grit.

Vessel forms included bowls and jars. Some jar rims were thickened externally or pushed out from the back. Other vessels had straight or curved necks without accentuated rims.

Many vessels were decorated with fine comb-stamping (i.e. 3-4 stamps per 5 mm) although incision, broad-line incision and punctates also occurred. Of more importance, however, were the designs and their placement: vessel lips had oblique stamped or incised lines; rims had a band of oblique incisions or comb-stamping; necks had horizontal broad-line incision, multiple alternating bands or alternating blocks of stamping; and shoulders had a band of punctates or pendant rays of comb-stamping. Some vessels also bore traces of red ochre, and one was graphite burnedished. One bowl rim appeared to have been decorated with an incised triangle.

No complete multidimensional types could be determined from the fragmentary sample. Consequently, incomplete types were based on design layout. There were six:

Type 1. Jars with incised or stamped rims and broad-line incision in the neck. Lips were sometimes decorated (1 nearly complete and 3 fragments. Fig. 2).

Type 2. Jars with a large area of horizontal stamping or alternating blocks of stamping. Lips were sometimes decorated, and rims occasionally showed two or three deep rows of stamping. Red ochre was common (6 vessels and 3 fragments. Figs 2 & 3).

Type 3. Jar with band of vertical to oblique comb-stamping in the neck and another at the neck/shoulder junction. Decorated lip (1 example. Fig. 3).

Type 4. Jar with plain rim and multiple bands in the neck. Graphite burnish on one example (1 vessel and 3 fragments. Fig. 4).

Type 5. Bowl with triangle below the rim (1 example. Fig. 4).

Type 6. Pendent rays on the shoulder (1 example. Fig.4).

Khoi

Khoi pottery utilized charcoal temper along with a white grit that was probably derived from calcarete. The six fragmentary vessels represented three types:

Type 7. Bag shaped vessel with internally reinforced lugs and thick pointed bottom (3 fragments. Fig. 5).

Type 8. Thickened jar rims decorated with crosshatching (2 examples. Fig. 4).

Type 9. Plain bowl (1 example. Fig. 5).

Historic

The remaining pottery was also characterized by white grit tempering. The vessels tended to have short upright necks and flat lips. A handle may be part of this group. Decoration comprised a band of punctates, red bands or red chevrons on a buff background, and small applique knobs on shoulders. These decorated fragments formed four types:

Type 10. Painted vessels. One with punctates on the neck/shoulder junction (10 examples. Fig. 6).

Type 11. Short-necked vessels with a hatched band at the neck/shoulder junction (2 examples. Fig. 6).

Type 12. Plain vessel with applique knobs. (1 example Fig. 6).

Type 13. Plain vessels with short upright necks. (12 examples Fig. 6).

The stratigraphic distribution of these types was not always clear because of rodent disturbances. Fragments of the same Bambata vessel, for example, were scattered 0,50 m to 0,60 m apart, while historic material penetrated to a depth of 0,90 m in some areas (Table 1).
Nevertheless, Bambata pottery was generally stratified under the Khoi and Historic types in the two sites (Tables 1 & 2). Indeed the midden in Trench A-C, Toteng I, under the historic horizon, contained 25 Bambata fragments representing 7 vessels. Furthermore, the one nearly complete example of Bambata Type 4 lay above a LSA horizon on top of the mound. Thus there can be no doubt that a Bambata occupation predated the historic village and that at least three different groups of people can be identified through ceramic style.

**IDENTIFICATIONS**

The historic pottery is not well known although the historic sequence is relatively clear. According to oral tradition, the BaYeyi moved into the Toteng area from Caprivi at the end of the 18th century, before the early 19th century occupation of the Tawana (Tlou 1985). The Yeyi are matrilineal people related to other Western Bantu speakers such as the Subia and Totela in the middle Zambezi area (Murdock 1959). The Subia and Totela make pottery belonging to Phillipson’s (1974) Linyati Tradition that is notably similar to the red-on-buff ware at Toteng. This close ceramic similarity and
linguistic relationship suggest the Yeyi made Types 10-13.

Phillipson attributes the Linyati Tradition in Zambia to Kololo (i.e. Tswana) influence in the 19th century. The similar Yeyi pottery at Toteng, however, predates the Tswana, and so the origins of Linyati pottery probably lie elsewhere.

Khoi-speaking people also lived in the area in the 19th century (Denbow & Campbell 1980). In the 1840s Livingstone found pastoral BaDete along the Botletli river, and oral traditions collected by Campbell & Denbow among Bantu speakers indicate the Dete predated Yeyi, Tswana and Kalanga. Significantly, the Dete claimed to have formerly made Types 7 & 8, and these types can be confidently ascribed to Khoi people. Since red painted ware has been found with Khoi pottery at Toromojo (Denbow pers. comm. 1979), the Khoi may have also used some of the historic pottery. Further work

is necessary to clarify this period.

Although the earlier Bambata sample is disappointingly small, it nevertheless clarifies a few important points. First, the numerous pieces of the same vessels in the midden suggest that the Toteng sites were settled villages where many pots were used, rather than transient hunter-gatherer camps where individual vessels and even fragments may have been valued. The thickness of the discrete midden supports this conclusion.

The village status of the sites leads to an important point about the assemblages. The association of types and range of other variability can be used as a datum to assess the association of pottery found in rock shelters and deflated environments with little stratigraphy. Using this datum for association, we can now see that the thin vessels with herringbone on the rim, multiple bands in the neck and triangles on the shoulder at places such as Toromojo and Hippo Tooth (Fig. 7). Denbow & Campbell (1980) were part of the Bambata assemblages
there. Likewise, Toteng Type 1 and similar combinations at Bambata sites in Zimbabwe (Schofield 1941; Robinson 1963; Walker 1983) were also part of those assemblages and not intrusive.

Although most of these assemblages are small and fragmentary, their combination with Toteng can improve the general definition of the Bambata style. For present purposes jar types are sufficient. One group includes Toteng 1 and is characterized by a clear separation between rim and neck: group 1A has rolled or thickened rims decorated with bands of incised or stamped herringbone or hatching continuing across the lip, and necks are decorated with bands of incised parallel lines or multiple bands; group 1B includes decorated lips, thickened or protruding rims decorated with incised or stamped hatching or cross hatching, and the necks are covered with incised, stubbed or stamped parallel lines, alternating blocks of lines or multiple bands (Fig. 7).

The second group has a long layout that combines the rim and neck positions of Group 1, or at least extends the neck positions. This extended neck position is decorated with long incised or stamped oblique to vertical lines, or alternating blocks of lines. Decorated lips are common, as are two horizontal lines or a blank space below the lip.

Group 3, judging by fragments from Tshangula (Cooke 1963 and collections in the Queen Victoria Museum, Harare), is characterized by bands of punctates, stabs and stamping on or near the rim, neck and shoulder. Other shoulder fragments show that some types in Groups 1-3 include wide bands of incised alternating blocks of lines, hatched triangles and parallel lines.

Group 4 incorporates recurved profiles with multiple bands in the neck. Bowl forms repeat these layouts.

Groups 1A and 4 are widespread in other Early Iron Age facies, whereas 1B and 2 are definitive of Bambata in Botswana, Zimbabwe and South Africa. The presence of Group 1B, as well as 1A and 4 in the assemblages from Benfica (Dos Santos Jun & Ervedosa 1970) and Quibaxe (De Sousa Martins 1976) in Angola (Fig. 8) is some of the evidence supporting the view that Bambata represents an early movement of the Kalandu Tradition, or Western Stream, into southern Africa from the northwest (Huffman 1989).

The unusually wide range of stylistic types (bowls as well as Groups 1 to 4) at Bambata Cave indicates that Bambata villagers moved east into Zimbabwe. Although the radiocarbon results from the Bambata levels (Walker 1983; Vogel et al. 1986) are problematic, other evidence helps to date this movement. A Matola village at the base of Mt Buchwa (National Museums of Zimbabwe 2030 CB 19) yielded a Group 2 Bambata vessel (Fig.7) from among the rubble of a daga structure along with typical Matola pottery. There therefore seems little reason to
Fig. 8. Benfica pottery, redrawn from Dos Santos Junior and Ervedosa 1970 (thin profile), and De Sousa Martins 1976 (full profiles). From Huffman 1989.
doubt the association. The narrow limits of Matola radiocarbon dates (e.g. Hall & Vogel 1980) shows that this village most likely dated to the calibrated range of AD 200 to 400. This range is in agreement with the three dates from Toteng and clearly shows that Bambata predates Gokomere.

Gokomere pottery belongs to the Nkope Branch of the Urewere Tradition (Huffman 1989). It differs from Ziwa and Nkope further north in that it contains a significant proportion of multiple bands in the neck. Multiple bands in this position are characteristic of the Kalundu Tradition, however, and the earlier presence of Bambata with this type suggests Bambata was its source in Gokomere. From this perspective Ziwa incorporated Bambata, creating Gokomere in the process.

Because Bambata and Gokomere assemblages share some types and many motifs, it is not always possible to identify the affiliation of small and fragmentary samples. For example the Bambata fragments at Mabveni (Robinson 1961a: fig. 7, nos. 9, 12, 16 & 17) and Great Zimbabwe (Robinson 1961b: fig 23, nos. 5,6,7 & 10) could represent either an early Bambata occupation or the later period of incorporation. In either case these fragments provide support for interaction between the makers of Bambata and Ziwa.

Further west the origins of Early Iron Age facies are not so clear. Early Iron Age pottery at Bisoli and Panga in eastern Botswana, as well as at Merry’s site in the Matopos, differ from contemporaneous Gokomere assemblages in a few notable details. For example, jar lips are often decorated, some rims have herringbone designs, triangles occur on shoulders, and some complex designs are reminiscent of Bambata. Rather than an origin in Ziwa, the Early Iron Age in eastern Botswana may have evolved from Bambata. This new interpretation, made possible by the excavations at Toteng, is a topic for future investigation.

Despite the small sample then, the Bambata pottery from Toteng has helped to clarify the Early Iron Age in southern Africa. Evidently, Bambata settlements spread from Angola in the 2nd and 3rd centuries to places such as Toteng in Botswana. As a result hunter/gatherers acquired pottery and passed it along their own exchange networks to places as far away as the Magaliesberg in the southern Transvaal. Somewhat later, Bambata villagers moved into Zimbabwe. The spread of Ziwa from the northeast into southcentral Zimbabwe in the 6th century incorporated Bambata and created Gokomere. Further west, however, Bambata ceramics may have been less affected. To clarify this sequence, we need to define ceramic facies in terms of complete rather than fragmentary types. Consequently, larger samples from actual villages are necessary.

ACKNOWLEDGEMENTS

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REFERENCES


TWO VICTIMS OF THE WRECK OF THE "BRITISH PEER"*

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ABSTRACT

Human remains recovered from a building site near the coast in the Malmesbury district have been identified as those of two of the crew of the "British Peer" which was wrecked near there in 1896. The remains are described and the evidence provided for their identification.

INTRODUCTION

In November 1991, workers on a construction site at Ganzekraal, a public recreation area on the coast some 60 km north of Cape Town (Fig. 1), exposed two clothed human skeletons. The site foreman notified the police at Darling, who requested the assistance of the South African Museum's archaeologists in investigating the matter. The remains were removed to the Museum for study, and this paper reports the results of the research. At first, nothing was known about the remains, except that they were probably Caucasian and of relatively recent date. However, a farmer in the Darling district read a report on the finds (Cape Times 21 November 1991) and suggested that they could be those of the crew of a ship wrecked at Grotto Point in 1896 or 1897 (F. Duckitt 1991 in litt.). The vessel was subsequently identified as being the "British Peer", which was wrecked off Kabeljoubank on the night of 10 December 1896, with the loss of her captain and all but four of her 23 crew (Turner 1988:144). The identity of the wreck and its location were also confirmed by Mr Duckitt (1991 in litt.), whose grandfather had been alive at the time of the wreck and had pointed out its location.

There was some initial confusion as to the actual site, as the first report (Cape Times 10 December 1896) stated that the wreck had occurred at Tierfontein (Tygerfontein), a farm immediately adjacent to and south-east of Yzerfontein. The second report (Cape Times 12 December 1896) gave the location as "near the Izerfontein (sic) Point", with the Dassen Island light about six miles (9.6 km) away on the beam. The correct location, off Kabeljoubank, was finally confirmed by Messrs Malcolm Turner and Reg Dodds (1992 pers. comms), the latter of whom had dived on the wreck and salvaged some of its cargo and the ship's bell. The report of the judgement of the Court of Inquiry (Cape Times 9 January 1897) gave the location as "near Jacob's Cove" (now Jacobsbaai) and the coordinates as 33.31S; 18.19E (actually 33.30.20S; 18.18.40E). Figure 2 shows Kabeljoubank and the location of the wreck, the remains of which are still to be seen at low tide, about 9 m below the surface. Mention of the place was also made in the memoirs of Mr Duckitt's aunt, Mary, the daughter of Albert Melck, the owner of Ganzekraal farm. She wrote that "the desolate cape was named British Peer Point" after the wreck (Kuttel Keegan ed. 1991:65). Water-worn building bricks, fragments of china and pieces of bottle-glass, remnants of part of the cargo (Cape Argus 12 December 1896), are to be found among the boulders on the shore nearby; and the remains of a wooden mast lie further away in the vegetation above the high-water mark.

The survivors' accounts of the wreck and the subsequent controversy over the treatment of the survivors, the dead and the cargo, make an interesting item of local history. However, for reasons of space, these cannot be included here; but a comprehensive report (Wilson & Van Rijssen 1994) has been deposited in the library of the South African Museum.

THE HUMAN REMAINS

The two bodies were found on the seaward edge of a dune at the southern end of the bay, about 50 m from the shore (Fig. 1). They had been buried in a single grave about 1.8 m below the present surface, with their heads towards the east and their feet towards the sea. They lay in a fully extended, supine position with their arms by their sides, and had been laid together on canvas and wrapped in an open-weave material like hessian (Fig. 3).

In order to remove the remains, it was necessary to cut through the shroud so as to separate them. At the Museum, the upper covering was removed, and as much as possible of the incorporated sand, before they were X-rayed. The skeletons were examined by J. Kovacs of the Department of Anatomy and Cell Biology, University of Cape Town Medical School. Samples of the clothing
Maps of the coast between Cape Town and Saldanha Bay showing the location of places mentioned in the text.

were studied by A. Hart, Assistant Curator, Textiles and Dress, Victoria and Albert Museum, London. Information from their reports (Kovacs 1992 in litt.; Hart 1992 in litt.) is incorporated in the following descriptions. The remains are designated ‘L’ and ‘R’ on the basis of their position on the left or right of the grave as seen from its foot.

‘L’. This skeleton was found intact, but the feet became disarticulated when the sand was cleared away and the boots fell. It was brought to the Museum in this condition. The man had short, curly hair and a full beard, but there was no evidence of a moustache. The right side of the face had been shattered and the front of the right humerus sheared in a tapering cut for some

120 mm from the top of the shaft, cutting right through the bone. This suggests that the man had been struck from above by a sharp object. Most of the right maxillary dentition was missing, possibly as a result of the same trauma. The left maxillary incisors and premolars were displaced as a result of overcrowding and the left mandibular molars were absent, probably lost before burial. There was heavy occlusal wear on the incisors and some staining that suggested that the man may have chewed tobacco. X-ray photographs of the torso did not reveal any damage, but the accumulated sand prevented clear definition of the bones. Since the skeleton was still mostly covered by clothing, it was not possible to obtain the measurements necessary for estimation of living stature. However, comparison with the femur of ‘R’ (see below) suggested that the men were of about the same height. Age at death was estimated at 45-55 years.

The man wore a loose-fitting, collarless, sleeved black jacket or jerkin of herringbone twill that ended at the waist in front. There were impressions of at least two buttons, but these were not present. They were probably made of a material such as casein, since metal and bone survived. There was no evidence of a shirt or other garment under the jacket. Baggy russet-coloured trousers were held at the waist by a leather belt fastened by an iron buckle and had a fly with brass buttons embossed

Fig. 1 Maps of the coast between Cape Town and Saldanha Bay showing the location of places mentioned in the text.

Fig. 2 Kabeljoubank and the location of the wreck (arrowed).

Fig. 3 The human remains as found at Ganzekraal.
'G. King Sheffield' at the top and bottom around their circumference (Fig. 4). M. Pearce, Principal Keeper, Applied Art, of the City Museum in Sheffield, advised (1992 in litt.) that G. King was one of the partners of the Sheffield firm G. & J. King, merchants and manufacturers, which had been in business since at least 1865. The belt was 65 mm wide and made of a single thickness of leather with two patches stitched on each side of the front (i.e., two adjacent to the buckle and to its left, and two to the right of the last hole on the tongue end). These patches were stitched all round their edges, which eliminates a suggestion that this might have been a money-belt. The feet were encased in ankle-high leather boots, reinforced at the back of the heel, and with ten brass eyelets for laces on each side, but laces were not present.

Fig. 4 Detail of the belt and one of the buttons worn by 'L'.

'R'. This was the first skeleton discovered and the lower limbs were disarticulated and damaged by the digging. Parts of the bones were missing, as were the right foot and the boot that encased it. The skull had also been separated from the body. There was some damage to the upper face, including loss of teeth, but this may also have resulted from the digging. Occlusal wear on the teeth of the left maxilla and mandible suggested that this individual had been a pipe-smoker. He wore a full beard but, as in the case of 'L', there was no evidence of a moustache. Age at death was estimated at 40-45 years. Using the femur:stature ratio of 26.7 per cent devised by Feldesman & Lundy (1988), living stature was estimated to have been 1.82 m.

This man was dressed better than the other. He wore a black, collared twill jacket that reached to his waist in front and had cut-away points. Below this was a waistcoat of dark fabric on which the impression of a button about 20 mm diameter could be seen, but the button itself had disappeared. Under the waistcoat were a cotton shirt and a linen vest, of which all but one of the buttons had disappeared. The button that remained, which was about 10 mm diameter and made of a material like casein, had been preserved because it underlay a clasp made of a copper-silver alloy. This clasp, which may have been for holding money or letters, was fastened to a strip of silk-like material that had no evident connection with the rest of the garments (Fig. 5).

The X-ray photograph of this man's torso (Fig. 6) also shows a number of buckles and buttons that suggest that he may have been wearing overalls or dungarees, although the part of these below the pelvis was missing. Alternatively, they could have been part of a pair of braces. Copper staining on the lowest vertebrae present suggested that a belt may have been worn, but there was no trace of this and it is possible that the stains came from a brass button, corroded fragments of a number of which were found, similar to those on the clothing of 'L'. In two places, on and beside the vertebrae, other
metal objects were indicated, which were found to be small square-headed nails similar to those used in the manufacture of the boots.

Ten small lead pellets were found in the left acetabulum or hip-socket, similar in shape to those used in airguns but unlike any that are manufactured today (H.D. Noli 1992 pers. comm.). Their function is unknown.

The ankle-high boot (Fig. 7) had a separate, decorated toecap but no reinforced heel. The top was closed by three pairs of hooks similar to those found today on hikers' or climbers' boots, followed by five pairs of eyelets. A leather shoelace was still threaded through these. The boot is typical of an English one known as the 'Balmoral', which was fashionable from the 1880s to 1919.

DISCUSSION AND CONCLUSION

Three of the four survivors were carried by the current down the coast to the only place for a considerable distance where there is a sandy beach (Cape Times 12 December 1896). This is Jacobsbaai (Fig. 1) and it is thus probable that some of the bodies of those who drowned were also brought there. The Cape Times and Cape Argus of 12 December 1896 reported that five bodies had been found the day after the wreck and two more the following morning. A correspondent to the Cape Times wrote on 30 December 1896 that the bodies had been buried on a elevation about 60 yards (approx. 55 m) from the shore, which is similar to the location of the two bodies discussed here. The report may, however, refer to the ridge extending southward from Kabeljoubank, where Mr Duckitt's father told him there were graves of the crew; but Mr Duckitt (1993 in litt.) also considered that other bodies would have been buried close to wherever along the coast where they were washed up. On 4 January 1897, another correspondent to the Cape Times said that a total of fourteen bodies, including that of the captain, had been recovered.

The most compelling evidence in support of the remains being those of crew of the "British Peer" is the 'Balmoral' boots worn by 'R', especially given the limited period that they were in fashion.

The Maritime History Archive of the Memorial University of Newfoundland at St John's holds the original documents relating to the crew of the "British Peer". These are the Agreement and Account of Crew, Foreign-going Ship (Eng. 1) and the Account of Crew and Other Particulars of a Foreign Going Ship (List C). They include full details of the names, ages, addresses and nationalities of the crew; and List C also records who of the crew were drowned and who were discharged. From these, it is possible to suggest that 'R' was the 42-year-old steward, George James Whyte, since he was the only member of the crew in the 40 to 45-year age-group. However, this cannot be taken as a certainty due to the lack of suitable and accessible skeletal parts, particularly the pubic symphysis. Three of the victims, all able seamen, were in the 45 to 55-year age-group: C.P. Oberg, 51; H. Peterson, 48; and Gustav Rumbach, also 48. The identity of 'L' must thus remain in doubt.

On the basis of the foregoing, it is concluded that the remains of the men found at Ganzekraal are those of two of the crew of the "British Peer". Ganzekraal being a public resort, the remains were reburied on the adjacent property, Buck Bay (Bokbaai), owned by the Duckitt family. The location of the grave is on record in the Archaeological Data Recording Centre at the South African Museum.

An extensive article on our research into the wreck of the "British Peer" and its aftermath, published in the Weekend Argus of 16 October 1993, produced a surprising and gratifying response. The article was read by Mr Philip Alston, a visitor from England who had just arrived in Cape Town, who informed us that he was a grandson of Joseph Olsen, the 18-year-old third mate who was one of the four survivors. Olsen, who changed his name to Alston, became a captain at 22 and eventually owned his own fleet of ships, which traded between Britain and India (see Weekend Argus 6/7 November 1993).

Thus, in "communicating technical and academic discoveries to the public in ways that are appropriate and factually accurate" (Miller 1993:58), both Mr Alston and ourselves were rewarded by being provided information we could not otherwise have obtained.

ACKNOWLEDGEMENTS

This report would not have been possible without the assistance of a great many people. Thanks are due, first and foremost, to Mr Fred Duckitt for putting us on the right track and for the considerable amount of information he provided. We also thank Mr Risely Geldenhuys, the site foreman, and his workers, who
found the remains and assisted in their removal; and Adjutant J.F. Conradie of the South African Police at Darling, who notified us of the find and provided guides to take us to it. Messrs Malcolm Turner and Reg Dodds assisted us with regard to the precise location of the wreck and other information.

Ms Paula Rudkin of Lloyd's of London's library referred us to the Guildhall Library, which now holds many of Lloyd's' marine records, and whose Ms Phylida Melling provided details of the British Peer and told us where to obtain information about the crew. Ms Mary Bridson of the Maritime History Archive, Memorial University of Newfoundland, St John's, arranged the provision of the crew lists. Ms Liza Verity of the Maritime Information Centre, National Maritime Museum, Greenwich, provided information about 19th-century seamen's clothing; Ms Avril Hart of the Victoria and Albert Museum, London, advised on the clothing found with the remains; and Ms Mary Pearce of the City Museum, Sheffield, provided information relating to the brass buttons.

Ms Rachel Alexander of the Shark Research Unit based at the South African Museum X-rayed the remains and the Museum's Mr Aubrey Byron provided reverse-image photographs of the X-rays. Mr Jonathan Kovacs of the Department of Anatomy and Cell Biology, University of Cape Town Medical School reported on the skeletal remains.

Colleagues in the Archaeology Department, Mrs Vivien van Zyl and Mr Louis Lawrence, made the maps as well as assisting in the preparation of the remains. Messrs Charles Cloete and Brian Pedro of the Museum's workshop made the coffins in which the remains were reburied. We are grateful to Mr Duckitt for providing the reburial site, to Rev Dawid Botha of Darling for conducting the graveside service, and to Museum colleagues Messrs Paul October and Noel Fouten, as well as Louis Lawrence, for their assistance at the site.

REFERENCES


UNDERSTANDING THE MSA/LSA TRANSITION: THE PRE-20 000 BP ASSEMBLAGES FROM NEW EXCAVATIONS AT SEHONGHONG ROCK SHELTER, LESOTHO*

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ABSTRACT

The assemblages from the pre-20 000 BP layers of new excavations at Sehonghong rock shelter, Lesotho, are described and the results contrasted with previous interpretations of the Sehonghong sequence. The assemblages are considered to exhibit characteristics of both Middle and Later Stone Age technologies. Additional comparisons are drawn with other southern African sites of the same age, leading to an examination of their implications for our understanding of the MSA/LSA transition.

INTRODUCTION

Relative to the substantial archaeological investment made in the Holocene prehistory of South Africa or in the study of the emergence of anatomically modern people, comparatively little attention has been paid to the archaeology of the late Pleistocene, defined broadly as the period from 40 000 to 12 000 years ago (H.J. Deacon’s 1979 work at Boomplaas being a notable exception here). In Lesotho, the potential of Sehonghong rock shelter for investigating this period was demonstrated by P. Carter’s excavation in 1971, which uncovered a sequence of Middle and Later Stone Age assemblages extending back beyond 32 000 BP (Carter & Vogel 1974). Because this site was known to have good conditions for the preservation of organic remains and relatively accessible late Pleistocene deposits, it was re-excavated in 1992 as the first stage of a re-investigation of late Quaternary hunter-gatherer land-use patterns in eastern Lesotho, initial results of which are presented elsewhere (Mitchell 1993; Mitchell & Vogel in press). While future papers will consider other aspects of the archaeological and palaeoenvironmental assemblages recovered, this one deals with the pre-20 000 BP part of the 1992 sequence and discusses issues of wider relevance for understanding the MSA/LSA transition raised by their analysis.

SITE LOCATION

Sehonghong (29.46S, 28.47E) is a large rock shelter on the south bank of the river of the same name, 3 km upstream of the latter’s confluence with the Orange (Senqu) River in the Thaba Tseka district of eastern Lesotho (Fig. 1). It lies at 1800 m a.s.l. and faces west-northwest (290°). The vegetation of the surrounding
area mainly comprises a short, dense Themeda-Festuca alpine grassland in which Themeda triandra is the dominant species, but shorter, less palatable grasses such as Festuca spp. become more common above 2130 m, particularly on south-facing slopes. The gorge of the Orange River and the valleys of its major tributaries have a Themeda-Cymbopogon-Eragrostis grassland within which a variety of trees and shrubs (including species of Buddleia, Diospyros, Leucosidea and Rhus) occurs. Survey of the surrounding area shows it to have been intensively used by both MSA and LSA people (Carter 1978; Mitchell et al. in prep.).

**EXCAVATION PROCEDURE**

Excavation was carried out between 12 July and 6 September 1992 in a 6 m by 2 m wide trench extending towards the dripline from the rear wall of the shelter, 2 m to the south of, and exactly parallel to, the area excavated by Carter in 1971 (Fig. 2). The deposit was removed in natural stratigraphic units defined by changes in colour and sediment texture and all excavated material was dry-sieved through a 1.5 mm mesh before undergoing preliminary sorting on-site. Soil from MOS and RFS had first to be dried in the open air before it could be passed through the sieve, and wet-sieving (which was impossible in the drought conditions then prevailing) would have been needed had excavation continued below RFS. Bulk sediment samples were taken where plant remains were observed during excavation. At the excavation's end the unexcavated deposit below RFS was covered with plastic sheeting and the trench backfilled using earth and rock.

**STRATIGRAPHY**

The natural stratigraphic units defined during excavation have been grouped for analytical purposes into a series of layers that represent successive pulses of occupation (Mitchell & Vogel in press). Below layers of recent, middle and early Holocene age are others of terminal Pleistocene and Last Glacial Maximum origin, which correspond collectively to Layers IX and X of Carter's (1978) stratigraphy. The occurrences here come from the bottommost three layers in the 1992 excavation (Fig. 3). They are:

Orange Sand (OS): a thin, largely sterile orange sand (unit 127) with a high number of small sandstone roof spalls that may represent frost-shattering because of increased cold just before the Last Glacial Maximum. This layer was removed as three units, of which unit 129 is probably a hearth, while unit 128 represents a locally darker patch within 127. OS corresponds to Carter's Layer VIII and 22.5 buckets of deposit were removed.

Mottled Orange Sand (MOS): a series of brown to orange sandy units, some of which include small sandstone spalls, and have extensive black or darker brown mottling. The layer was removed in a total of 11 units, of which units 135, 137, 138, 155 and 156 are small, shallow hearths, while unit 140 represents a much larger feature close to the rear wall of the shelter in squares L12/M12. MOS is equivalent to Carter's Layer VII and a total of 61.4 buckets of deposit were removed from it in the 1992 excavation.

Rockfall with Sand (RFS): this layer (equivalent to Carter's Layer VI) represents a major episode of roof collapse associated with numerous, thin sandstone spalls and angular rocks, mostly <400 mm in maximum dimensions. Many of them are partially coated with a thin gypsum precipitate and small nodules of gypsum also occur; both comments apply to MOS and OS as well.

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**Fig. 2. Sehonghong: site plan showing location of the 1971 (squares 8 & 9) and 1992 (squares 12 & 13) excavations.**

Carter (1976) has suggested that this rockfall may have been initiated by an intensification of cold conditions during the late Pleistocene, although other mechanisms, such as pressure-release, may also result in spalling and roof collapse episodes. Excavation ceased in 1992 in RFS, having removed the associated orange sand, but leaving the collapsed rocks in place to avoid...
 damaging the underlying deposit. 34.2 buckets of deposit were removed.

**FEATURES**

Most of the features present in these layers are small, shallow hearths, one in OS and five in MOS, the exception to this pattern being the large, 150 mm deep pit that constitutes unit 140 at the base of MOS. Other examples of much larger hearth-like features that form definite pits and are filled with charcoal, often in large pieces, occur in the late Pleistocene part of the Sehonghong sequence and seem to represent something other than the normal domestic (?) hearth, possibly a roasting pit or some other kind of special-purpose fire. This one, however, is unique in that it also contains what might be called a sub-feature within it (Fig. 4), consisting of an apparently deliberate arrangement of two basaltic manuports and one lower grindstone fragment that make up the sides of a ‘box,’ the ‘lid’ of which is formed by a large and broken lower grindstone, heavily coated with red ochre and with its ochred surface placed face-down. Grasses, and perhaps other uncarbonized plant remains, were present within this feature on discovery, but unfortunately did not survive their transportation to Cape Town intact. Close to this ‘box,’ and still within unit 140, a further manuport was found. It is a tabular piece of rippled sandstone, also heavily coated with red ochre, that is not native to the site, although an area of rippled sandstone was noted in a small shelter a few kilometres upstream. The association of these artefacts in a pit or hearth appears to have been deliberate, but its significance is unknown. Expanding the area of the excavation might show whether other such features exist and/or reveal other evidence of spatial patterning (e.g. in artefact or animal bone distribution) that would provide additional contextual information for it.

**DATING**

The initial series of radiocarbon dates from Sehonghong (Carter & Vogel 1974) is complemented and extended by further determinations from the 1992 excavation (Table 1). The top of MOS is now dated to 20 500 ± 230 BP (Pta-6059), while the base of BAS, the layer that overlies OS, has a date of 20 200 ± 200 BP (Pta-6077). These two dates fit well with a date from Carter’s excavation for a hearth at the top of MOS of 20 240 ± 230 BP (Pta-919), as well as with one of two dates (19 860 ± 220 BP, Pta-918) obtained from a level equivalent to a position near the base of BAS. A second date from this position in the 1971 excavation is stratigraphically inconsistent with the other two just mentioned (20 900 ± 270 BP, Pta-789), but still overlaps with Pta-919 at two standard deviations. A date for OS of c. 20 200 BP, with MOS ceasing to accumulate only a little before then, thus seems definite. Two determinations (26 000 ± 430 BP, Pta-6268 and 25 100 ± 300 BP, Pta-6271) have been obtained for unit 136 within the RFS layer and, overlapping considerably at two standard deviations, indicate that this rockfall event dates to ± 25 500 BP.

Three further dates from the 1971 excavation require mention. A determination of 28 870 ± 520 BP (Pta-920) from low down in Carter’s Layer VII seems initially to

![Fig. 3. Sehonghong: partial section of the north wall in the 1992 excavation.](image-url)
point to MOS having accumulated over a very long span of time, but close examination of the relevant section drawings suggests that it may be unreliable as the charcoal dated comes from more than one stratigraphic unit. Further *termini post quos* for the rockfall episode represented by RFS are given by two dates from the top of the underlying Layer V of 30 900 ± 550 BP (Pta-787) and 32 150 ± 770 BP (Pta-785). Collectively, therefore, this series of radiocarbon dates neatly brackets the three assemblages discussed here to between 26 000 and 20 000 BP.

### Table 1. Sehonghong: radiocarbon dates of relevance for the OS, MOS and RFS layers.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Pta-789</td>
<td>BAS IX</td>
<td>-</td>
<td>-</td>
<td>20 900 ± 270</td>
</tr>
<tr>
<td>Pta-918</td>
<td>BAS IX</td>
<td>-</td>
<td>-</td>
<td>19 860 ± 220</td>
</tr>
<tr>
<td>Pta-6281</td>
<td>BAS IX</td>
<td>096A</td>
<td>-</td>
<td>19 400 ± 200</td>
</tr>
<tr>
<td>Pta-6077</td>
<td>BAS IX</td>
<td>126</td>
<td>-</td>
<td>20 200 ± 200</td>
</tr>
<tr>
<td>Pta-919</td>
<td>MOS VII</td>
<td>-</td>
<td>-</td>
<td>20 240 ± 230</td>
</tr>
<tr>
<td>Pta-6059</td>
<td>MOS VII</td>
<td>137</td>
<td>-</td>
<td>20 300 ± 230</td>
</tr>
<tr>
<td>Pta-6268</td>
<td>RFS VII</td>
<td>136</td>
<td>-</td>
<td>26 000 ± 430</td>
</tr>
<tr>
<td>Pta-6271</td>
<td>RFS VII</td>
<td>136</td>
<td>-</td>
<td>25 100 ± 300</td>
</tr>
<tr>
<td>Pta-787</td>
<td>-</td>
<td>V</td>
<td>-</td>
<td>30 900 ± 550</td>
</tr>
<tr>
<td>Pta-785</td>
<td>-</td>
<td>V</td>
<td>-</td>
<td>32 150 ± 770</td>
</tr>
</tbody>
</table>

Note: All dates are uncalibrated and have been corrected for isotopic fractionation. All samples were pretreated with acid and alkali.

### STONE ARTEFACT ASSEMBLAGES

The Sehonghong lithic assemblages have been analysed using the typology devised by J. Deacon (1984a), as amended by Carter *et al.* (1988). Results are discussed following the now standard format, beginning with raw material usage.

Opalines (also known as crypto-crystalline silicas or CCS) are the dominant raw material throughout the upper part of the Sehonghong sequence (Carter *et al.* 1988) and in each of the assemblages discussed here (Table 2). In addition to an origin as river-borne nodules eroded out from higher-lying basalts, they occur as scree and in rare veins on the plateaux above the site, but the quality of these latter sources, as found so far, is poor. They account for >80% of the artefacts in each assemblage, with dolerite dyke material the second most commonly used material (5-10%) and hornfels in third place; RFS exhibits an enhanced use of dyke material compared with OS and MOS. Smaller amounts of tuff, siltstone/mudstone, quartz and basaltic rocks were also used, and a small quantity of calcite, which does not fracture isotropically, was introduced to the site as well. Quartz and calcite have a similar origin to opalines, while dyke material and hornfels derive from the dolerite dykes that crosscut the area.

Flaking technology shows little evidence for the use of prepared core techniques. The majority of cores are irregular (Table 3) and have either single or double platforms. Almost one-third of these cores in OS are bipolar, but bipolar irregular cores account for <8% of the total in MOS and RFS. Bipolar flaking is, however, more common than this would suggest as there is a regular component of both flat and small bladelet cores and core reduced pieces (almost all in opalines) in all three layers. Including the latter, half or more of the cores in these three assemblages are bipolar. Few artefacts exhibit prepared platforms (Table 4) and only
Table 2. Sehonghong: raw material usage in the OS, MOS and RFS layers.

<table>
<thead>
<tr>
<th>Number of artefacts</th>
<th>OS</th>
<th>MOS</th>
<th>RFS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Opalines</td>
<td>1637</td>
<td>82.89</td>
<td>5849</td>
</tr>
<tr>
<td>Dyke material</td>
<td>107</td>
<td>5.42</td>
<td>407</td>
</tr>
<tr>
<td>Hornfels</td>
<td>72</td>
<td>3.65</td>
<td>293</td>
</tr>
<tr>
<td>Quartz</td>
<td>46</td>
<td>2.33</td>
<td>97</td>
</tr>
<tr>
<td>Calcite</td>
<td>61</td>
<td>3.09</td>
<td>92</td>
</tr>
<tr>
<td>Tuff</td>
<td>46</td>
<td>2.33</td>
<td>37</td>
</tr>
<tr>
<td>Silstone/mudstone</td>
<td>2</td>
<td>0.10</td>
<td>17</td>
</tr>
<tr>
<td>Basaltic rocks</td>
<td>1</td>
<td>0.05</td>
<td>19</td>
</tr>
<tr>
<td>Baked silstone</td>
<td>2</td>
<td>0.10</td>
<td>-</td>
</tr>
<tr>
<td>Sandstone</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>Baked sandstone</td>
<td>1</td>
<td>0.05</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>1975</td>
<td>99.99</td>
<td>6812</td>
</tr>
</tbody>
</table>

Mass of flaked stone in gram (excluding calcite)

<table>
<thead>
<tr>
<th>mass (g)</th>
<th>% mass (g)</th>
<th>mass (g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opalines</td>
<td>1695.1</td>
<td>63.81</td>
</tr>
<tr>
<td>Dyke material</td>
<td>443.6</td>
<td>16.70</td>
</tr>
<tr>
<td>Hornfels</td>
<td>368.2</td>
<td>13.86</td>
</tr>
<tr>
<td>Quartz</td>
<td>21.7</td>
<td>0.82</td>
</tr>
<tr>
<td>Tuff</td>
<td>89.3</td>
<td>3.36</td>
</tr>
<tr>
<td>Silstone/mudstone</td>
<td>20.9</td>
<td>0.79</td>
</tr>
<tr>
<td>Basaltic rocks</td>
<td>6.0</td>
<td>0.23</td>
</tr>
<tr>
<td>Baked silstone</td>
<td>5.8</td>
<td>0.22</td>
</tr>
<tr>
<td>Sandstone</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Baked sandstone</td>
<td>6.0</td>
<td>0.23</td>
</tr>
<tr>
<td>Total</td>
<td>2656.6</td>
<td>100.02</td>
</tr>
</tbody>
</table>

one of these is retouched. *Levallois* cores are absent and there is only one radial core (in RFS).

Although the proportion of blades and bladelets in the assemblages is less than in the Robberg occurrences that overlying them, a definite bladebladelet component is present and both bladelet cores and *lames à crête* occur. Blades and bladelets account for >47.3% of all unmodified flakes larger than 10 mm in OS, >42.6% in MOS and >34.7% in RFS. Their mean size is greater than in either the Robberg or Holocene LSA assemblages at Sehonghong. Although this may partly be a function of small sample size, it is paralleled by the mean sizes of unmodified opaline flakes (Table 4).

Macroscopic evidence of utilisation on the flaked artefacts is uncommon and generally slight, although a hornfels blade from OS has edge damage that begins to approximate that of a knife and a dyke material blade from MOS has utilisation on two converging edges that together form a point. Three lower grindstones were found in MOS, one of them heavily coated with red ochre, and basaltic cobbles that appear to be unmodified were introduced to the site as manuports, including several that occur within the RFS rockfall.

Few formally retouched artefacts are present and those found exhibit little obvious choice as to the blank on which they are made nor any standardization in size shape (Fig. 5). The single scraper from MOS appears to be an intrusive specimen of Woodlot-type (*sensu* Mitchell *et al.* in press) and the same may be true of one of those from OS. Those from RFS, on the other hand, are steeply and continuously retouched on flake blanks and two, along with a miscellaneously retouched piece, are in a highly distinctive green tuff that was not used for any of the unmodified artefacts in this layer, suggesting that these three tools may have been introduced to the

Table 3. Sehonghong: stone artefacts from the OS, MOS and RFS layers.

<table>
<thead>
<tr>
<th></th>
<th>OS</th>
<th>MOS</th>
<th>RFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNMODIFIED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chips</td>
<td>69</td>
<td>151</td>
<td>92</td>
</tr>
<tr>
<td>Chunk</td>
<td>32</td>
<td>81</td>
<td>54</td>
</tr>
<tr>
<td>Cores:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>flat bladelet</td>
<td>10</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>small bladelet</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>bladelet</td>
<td>3</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>radial</td>
<td>-</td>
<td>-</td>
<td>1</td>
</tr>
<tr>
<td>irregular</td>
<td>18</td>
<td>41</td>
<td>16</td>
</tr>
<tr>
<td>subtotal</td>
<td>22</td>
<td>56</td>
<td>23</td>
</tr>
<tr>
<td>Core-reduced pieces</td>
<td>7</td>
<td>45</td>
<td>17</td>
</tr>
<tr>
<td>Core-rejuvenation flakes</td>
<td>3</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><em>Lames à crête</em></td>
<td>3</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Flakes (&lt; and &gt; 10 mm)</td>
<td>1741</td>
<td>6244</td>
<td>2577</td>
</tr>
<tr>
<td>Blades (&gt; 25 mm)</td>
<td>18</td>
<td>36</td>
<td>13</td>
</tr>
<tr>
<td>Bladelets (&lt; 25 mm)</td>
<td>15</td>
<td>44</td>
<td>7</td>
</tr>
<tr>
<td>Sections</td>
<td>54</td>
<td>117</td>
<td>58</td>
</tr>
<tr>
<td>Total</td>
<td>1963</td>
<td>6785</td>
<td>2846</td>
</tr>
<tr>
<td>UTILISED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flakes</td>
<td>4</td>
<td>14</td>
<td>32</td>
</tr>
<tr>
<td>Blades</td>
<td>3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Bladelets</td>
<td>2</td>
<td>-</td>
<td>2</td>
</tr>
<tr>
<td>Hammerstones</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
<td>Upper grindstones</td>
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<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Lower grindstones</td>
<td>-</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td>7</td>
<td>22</td>
<td>39</td>
</tr>
<tr>
<td>FORMALLY RETOUCHED</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Scrapers</td>
<td>1</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Miscellaneous retouched piece</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>MRP, MSA-type knife</td>
<td>3</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Naturally backed knife</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Truncated flake</td>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Total</td>
<td>5</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1975</td>
<td>6812</td>
<td>2894</td>
</tr>
</tbody>
</table>
Table 4. Sehonghong: frequency of prepared platforms and mean size of unmodified opaline artefacts from the OS, MOS and RFS layers.

Frequency of prepared platforms:

<table>
<thead>
<tr>
<th></th>
<th>OS</th>
<th>MOS</th>
<th>RFS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unmodified flakes</td>
<td>4</td>
<td>5.48</td>
<td>3</td>
</tr>
<tr>
<td>Unmodified blades, bladelets</td>
<td>4</td>
<td>9.76</td>
<td>19</td>
</tr>
</tbody>
</table>

and proximal sections

Mean size of unmodified opaline flakes (mm)

<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>23.34 ± 8.47</td>
<td>17.90 ± 6.52</td>
<td>4.58 ± 3.12</td>
<td>62</td>
</tr>
<tr>
<td>MOS</td>
<td>20.35 ± 7.63</td>
<td>17.32 ± 7.11</td>
<td>4.58 ± 2.95</td>
<td>100</td>
</tr>
<tr>
<td>RFS</td>
<td>22.03 ± 8.94</td>
<td>18.98 ± 7.41</td>
<td>5.58 ± 3.81</td>
<td>100</td>
</tr>
</tbody>
</table>

Mean size of unmodified opaline blades (mm)

<table>
<thead>
<tr>
<th></th>
<th>Length</th>
<th>Width</th>
<th>Thickness</th>
<th>n</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS</td>
<td>30.33 ± 10.96</td>
<td>11.93 ± 5.55</td>
<td>3.86 ± 2.05</td>
<td>30</td>
</tr>
<tr>
<td>MOS</td>
<td>29.36 ± 8.69</td>
<td>8.04 ± 4.24</td>
<td>4.18 ± 1.92</td>
<td>58</td>
</tr>
<tr>
<td>RFS</td>
<td>25.50 ± 6.69</td>
<td>9.56 ± 2.87</td>
<td>3.39 ± 1.21</td>
<td>18</td>
</tr>
</tbody>
</table>

Fig. 6. Sehonghong: knives. 1 OS (opaline); 2 MOS (opaline); 3 and 4 RFS (hornfels).

mostly consist of blades or endstruck flakes in various materials (opalines, tuff, hornfels) with steep, continuous retouch along one lateral edge, normally on the dorsal surface (Fig. 6). In two cases from OS and three from RFS the opposite edge is also retouched, though usually less invasively, and one hornfels example from MOS has cortical backing. The latter specimen falls within the naturally backed knife class of Parkington (1984), which is also represented higher up in the Sehonghong sequence, but the others are better described as knives within the MSA typology of Wadley & Harper (1989), a point returned to below; none of these artefacts, or the other formal tools from these levels, shows signs of re-use.

NON-STONE ARTEFACTS

Two bone artefacts were found in MOS (Fig. 5). One is the polished tip of a bone point that is remarkably thin (1 mm thick) and the other a 41 mm long polished fragment of the shaft of a bone implement that has a slight taper. These two artefacts comprise two-thirds of the worked bone known from the pre-12 500 BP part of the Sehonghong sequence, but there is no reason to believe them to have been intrusive from higher up in the deposit. The thinness of the first specimen suggests that it could not have been a functional projectile point nor an awl, but the function of neither item is known.

A small amount of ochre is present: 10.0 g in OS, 30.3 g in MOS and 3.8 g in RFS, but none is ground. One of the two lower grindstones and the piece of rippled sandstone found in unit 140 in MOS are both heavily coated with red-ochre.

Fig. 5. Sehonghong: formal stone tools (all in opalines unless otherwise stated) and worked bone. 1 scraper (OS); 2 scraper (MOS, but probably intrusive); 3 scraper (RFS, hornfels); 4 scraper (RFS, tuff); 5 truncated flake (OS); 6 polished bone shaft fragment (MOS); 7 tip of polished bone point (MOS).

site ready-made. A single retouched flake from OS, steeply truncated across its distal end to give a concave edge in a manner common in the overlying BAS layer, was also found.

The remaining formal tools fall within the miscellaneous retouch class of Deacon (1984a) and
PLANT AND ANIMAL REMAINS

Bone is preserved in all three layers, although noticeably less well than in the terminal Pleistocene/Holocene part of the Sehonghong sequence, and the faunal assemblages recovered will be the subject of a specialist report by Dr I. Plug. Charcoal preservation was excellent, as in the overlying layers, and preliminary identifications by F. Prins include that of *Protea sp.*, a genus whose presence here at this time-depth (F. Prins, pers. comm.), as at Rose Cottage Cave (Wadley et al. 1992), is indicative of the altitudinal depression of vegetation belts under the hypothermal conditions of the Upper Pleniglacial.

Uncarbonised remnants of what are presumed to have been grass bedding were observed under many of the rocks present in MOS and also occur under the rocks of the RFS rockfall at the top of Carter's Layer V, which has an age of >30 000 BP. Unfortunately, while bulk samples of this material were taken, the botanical remains did not survive their removal to the laboratory intact and could not therefore be identified. The possibility of identifying them through phytolith analysis (though not as far as species level) remains to be explored, and, if successful, may extend backwards in time observations on plant use obtained by Opperman & Heydenrych (1990) at Strathalan Cave B.

DISCUSSION

Previous discussions of the Sehonghong sequence have been limited by the spit approach used in the 1971 excavation, although Carter et al. (1988) attempted to overcome this by using only those spit-square units derived from a single stratigraphic horizon. The stratigraphically excavated occurrences from OS, MOS and RFS provide a much larger and chronologically more tightly defined assemblage of the stone artefacts deposited by people using Sehonghong in the first part of the Upper Pleniglacial. This assemblage is microlithic in character, although with mean flake sizes slightly greater than those recorded for succeeding Sehonghong LSA assemblages. Like all of them, it is dominated by opalines, but RFS shows an enhanced use of dyke material. While bipolar flaking is a marked feature of all three occurrences, little use was made of the prepared core technique. A blade/bladeflet component can be recognised, but these artefacts are not as regular nor as numerous as they are in the Robberg occurrences at Sehonghong, and some could have been accidentally produced. The formal tool sample is small and consists largely of steeply retouched endstruck flakes and blades that can best be described as knives, after Wadley & Harper (1989). This introduces the question of how best such assemblages should be described. I consider this issue in three parts, first comparing the OS/MOS/RFS assemblages with previous interpretations of the Sehonghong sequence, and then broadening the focus to include other recently excavated assemblages of approximately the same age in the south-eastern part of the sub-continent, before discussing some problems that bear on the MSA/LSA transition as a whole.

In the original discussion of the Sehonghong sequence, Carter (1978) suggested that a pattern of small/large/small blades could be identified in the MSA assemblages present, but remarked specifically only upon the presence of what he termed "Lesotho MSA Industry II," from which backed crescentic pieces (segments) were absent. Volman (1981) suggested subsequently that a Howieson's Poort-like occurrence at its base was followed by a more conventional MSA and then by an Early Later Stone Age (ELSA) assemblage in spits 7 to 9, which correspond to the lower part of BAS, OS and the upper part of MOS in the 1992 excavation. While accepting the first two of these suggestions, Carter et al. (1988) rejected the idea of an ELSA occurrence at Sehonghong, partly because of the mixing of stratigraphically distinct layers that Volman's analysis required and partly because they considered describing poorly defined assemblages as ELSA an unnecessary source of confusion in the literature. Instead, they suggested that the mean blade size of, and the presence of opposed platform cylindrical blade cores in, the assemblages equivalent to our RFS, MOS, OS and BAS indicated that they "are clearly MSA in character" (Carter et al. 1988:195). Rare formal tools of MSA type (such as the point illustrated in Carter et al. 1988: fig. 4:33 (4)) were also present in the assemblages which they informally referred to as MSA 9 (= BAS in the 1992 excavation) and MSA 6 (= MOS and RFS).

With Sehonghong now the subject of renewed, stratigraphic excavation it is possible to approach these interpretations afresh. The term Middle Stone Age cannot meaningfully be applied to any of the assemblages recovered from the 1992 excavation, although formal tools of MSA character occur as isolated artefacts in a very few of the Holocene and terminal Pleistocene units and, together with several large dyke material blades, adjacent to a hearth dug down into the top of the layer below RFS from the BAS layer (Mitchell in prep.). In all these cases it is clear that they did not form a regular part of the otherwise LSA toolkit in which they are found (cf. also Wadley 1987:52). The OS, MOS and RFS assemblages differ in that fully half of their small number of formal tools are knives of Middle Stone Age type and there is a low level of platform preparation, which is absent from assemblages higher up in the Sehonghong sequence. In several other respects, however, they are more similar to those later assemblages than to that described by Carter et al. (1988) from the two layers (IV and V) below them. Features that exemplify this include their microlithic character, the use of bipolar flaking, the predominance of opalines, the presence of a definite bladelet component and the extreme rarity of radial or Levallois cores. By contrast, Layers IV and V (which have a lower age limit of ±30 000 BP) have a predominantly dyke material/hornfels assemblage with several prepared cores, larger flake-blades and flakes and increased frequencies of MSA formal tools. While
OS/MOS/RFS can therefore be seen as transitional between MSA and LSA technologies, long-term trends in raw material usage and mean artefact size are also evident at Sehonghong that transcend the differences between industries (Carter et al. 1988:237-238) and Wadley (pers. comm.) has drawn attention to the persistence of bladelets and microlithic flakes throughout the MSA at Rose Cottage Cave.

An additional point that requires comment here is the choice of typology to be used in analysing stone tool assemblages that span the shift from MSA to LSA technologies. Deacon (1984b:226) has argued that the two are so distinct that their description requires different typologies. But if this is so, how are we to deal with assemblages that span the transition between them? How are we to recognise them? As an example of the difficulties involved, the presence in the OS/MOS/RFS assemblages of several knives led to their reanalysis using Wadley & Harper’s (1989) typology, with the result that their microlithic character was greatly downplayed and the significance of their bladelet component was not apparent. While accepting that different formal tools are characteristic of MSA and LSA assemblages, I am unconvinced that, at least where we wish to examine the shift from one technology to the other, different typologies should be used for analysing their unmodified artefacts and suggest that even with formally retouched artefacts we must remain alert as to how the same pieces would be described under both systems. We already run sufficient risk of introducing “artificially more marked differences between groups than need necessarily be the case” by the very act of grouping stratigraphic units together and comparing the entities that we thus create (Kaplan 1990:61), without the use of different typologies adding to the problem. In order to examine the shift from MSA to LSA technologies we should move beyond the application of contrasting typologies and towards examining how the organisational properties of the cultural systems that we are studying have changed. To this end we must begin to consider a variety of issues, such as raw material usage and procurement, patterns of retouch, utilisation, re-use and breakage of artefacts, strategies of core reduction, methods of animal carcass processing, the use of space within rock shelters and the placement of sites within the landscape, over the full length of the late Pleistocene and thereby forestall the obscuring of cultural process that results from too much of an emphasis on the essentially typological definition of MSA or LSA assemblages (cf. Inskoep 1967:571).

I now briefly review the published data on assemblages of similar age in the south-eastern part of southern Africa. Preliminary comments on new excavations at Rose Cottage Cave suggest that a pattern similar to that found at Sehonghong can be detected there. The layer G assemblage, dated to 20 600 ± 250 BP (Pta-5598), "lacks retouch and contains high frequencies of small irregular flakes" alongside "a few bladelets and single-platform bladelet cores" and some MSA pieces (Wadley & Vogel 1991), while the underlying layers, beginning with Ru, which is undated, and Dc (27 200 ± 350 BP, Pta-5596) "unequivocally contain(s) an MSA assemblage with triangular and irregular flakes, a few blades, knives, points, large scrapers and core reduced pieces" (Wadley 1991:128). All three of these layers, however, share a raw material signature in which opalines are greatly reduced compared to coarser-grained materials relative to the overlying LSA assemblages. Elsewhere in Lesotho, the as yet unpublished sequence from Mellikane includes an opaline-dominated assemblage consisting of small, irregular flakes, without any apparent blade or bladelet component, that dates to ± 20 000 BP and is preceded by a long MSA sequence, the post-Howiesons Poort part of which has dates ranging from > 45 000 to 33 000 BP (Carter 1978; Vogel et al. 1986).

From Strathalan in the north-eastern Cape Opperman & Heydenrych (1990) have reported a predominantly hornfels assemblage in which convergent points and large flake-blades occur, indicating its MSA affiliation; several radiocarbon dates give an average age of 22 800 BP. A series of occupation floors below this layer date back to as far as 27 600 ± 420 BP (Pta-4642) and all are associated with MSA artefacts (Opperman 1992). Further to the west, but still within the north-eastern Cape, the MSA assemblage from Grassridge consists of hornfels flake-blades with some retouched points and knives and has a terminal age of ≤ 36 380 ± 870 BP (Pta-2714, Opperman 1988), while Wallsmith (1990) has obtained a thermoluminescence date of 26 300 ± 3000 years (Gd Tl 203) for the top of the MSA sequence at Driekoppen Shelter in the Seacow Valley.

Interpretation of the sequence from Umhlatuzana, the sixth site in the region with deposits of late Pleistocene age, is rendered difficult by the absence of dates for layers bracketed between 28 000 (layer 15) and 13 000 (layer 5) BP, as well as by doubts about possible assemblage mixing caused by rotational slipping within the deposit (Kaplan 1990:5, 33). However, layers 19 to 14 show well-pronounced shifts in raw material usage from a hornfels-dominated to a quartz-dominated pattern, the latter being characteristic of the LSA assemblages in the upper part of the sequence, as well as steady increases in bladelet and single platform core frequencies. Among formal tools, a pattern in layers 21 to 19 dominated by unifacial points and miscellaneous retouched pieces gives way to much more diverse samples. The assemblages from layers 21 to 19 (dating c. 40 to 35 000 BP) are characterised as "late MSA" and those from layers 18 to 14 as transitional between MSA and LSA technologies, specifically because they demonstrate "an increase in the frequency of bladelet production relative to the MSA, and a gradual shift away from traditional MSA flake production, specifically the prepared core technique" (Kaplan 1990:84). Further increases in bladelet and core-reduced piece frequency lead Kaplan (1990:41) to designate the succeeding occurrences, from Layers 13 to 4, as Robberg. The Umhlatuzana sequence suggests that the shifts in raw
material usage and flaking technology that eventually end in a pattern that is recognisably LSA have a history going far back into the late Pleistocene.

On the Swaziland/Natal border Border Cave is a key site not only for the emergence of anatomically modern people, but also for examining the MSA/LSA transition (Beaumont 1978). The assemblage from 1BS.LR/1WA is microlithic and dominated by opalines and quartz, both of which were reduced by bipolar flaking, and core reduced pieces (pièces esquillées or scaled pieces) are common; blades and bladelets are rare. In all but one of these respects (frequency of scaled pieces) it differs markedly from the underlying post-Howiesons Poort assemblage in 2BS. As I have shown elsewhere (Mitchell 1988a:208), and as has also been argued by Kaplan (1990:82-84), few of the criteria advanced by Beaumont & Vogel (1972) for designating this assemblage as Early Later Stone Age hold water; some are based on extremely small sample sizes (e.g. scraper dominance of the formal tool category) while others are not exclusive to 1BS.LR/1WA (e.g. a high frequency of scaled pieces). Furthermore, the presence of both radial prepared cores and of flakes with formally faceted platforms suggest that 1BS.LR/1WA is transitional between MSA and LSA technologies (as has also been suggested by Barham (1989)), which is possible chronologically, and/or a situational response to a shift, for reasons that are unknown, towards using opalines and quartz, rather than rhyolite, as preferred raw materials. Renewed excavation of Border Cave has confirmed the age of 1BS.LR/1WA as ± 39-38 000 BP (Miller & Beaumont 1989; Grün et al. 1992; Miller et al. 1993) and this is therefore the oldest, well-documented context for ostrich eggshell beads, ground bone points and small bored stones in southern Africa.

Across the border in Swaziland itself MSA assemblages from Sibebe shelter that include both unifacial and bifacial points come from an excavated horizon dated to 31 400 ± 780 BP (Pt-3349, Vogel et al. 1986:1143), the stratigraphic associations of a younger determination of 22 850 ± 160 BP (GrN-3514, Price-Williams 1981) being doubtful (P. Beaumont, pers. comm.). Other MSA assemblages occur in colluvial deposits postdating 30 000 BP (Price-Williams et al. 1982), but the reliability of dates on calcrete is open to considerable question (Volman 1984:210). MSA assemblages have also been reported from Lion Cavern dating to between 43 200 ± 1350/1200 BP (GrN-5313) and 22 280 ± 400 BP (Y-1827, Beaumont & Boshier 1972), but, as many of the details of these Swaziland assemblages remain to be published, they can add little to the regional picture. The same is true of the two caves at Shongweni, which seem to have been occupied very ephemerally both before and after the Last Glacial Maximum (Davies 1975; Vogel et al. 1986:1158-60), and Sibudu Shelter near Durban which has dates of 24 200 ± 290 BP (Pt-3767) and 26 000 ± 240 BP (Pt-3765) for an assemblage described as MSA (Vogel et al. 1986:1160).

The picture that emerges from this brief overview is complex, but several key points stand out. First, assemblages making some use of prepared core techniques and characterized by points and large blades are present at Sehonghong until c. 30 000 BP and at Rose Cottage until at least 27 000 BP, while they survive at Strathalan and perhaps in Swaziland until c. 22 000 BP. Second, assemblages that may be transitional between MSA and LSA technologies are found at both Sehonghong and Rose Cottage Cave in early Upper Pleniglacial contexts with dates of just before 20 000 BP. Third, where long sequences can be examined (as at Sehonghong and Umhlaluzana) certain features exhibited by LSA assemblages of post 20 000 BP date are clearly the expressions of longstanding trends (e.g. in raw material use and mean artefact size) that extend back well beyond 30 000 BP, as Parkinson (1990a:48-49) has argued. Fourth, the stone artefact assemblage from Border Cave 1BS.LR/1WA is either transitional between MSA and LSA technologies or situationally specific, but to call it ELSA seems invalid on some of Beaumont & Vogel’s (1972) own criteria, while other assemblages to which this term has been applied have poor dating controls (Jubilee and Cave James, Wadley (1987)) or are not yet fully published (Henningeskrans, Beaumont (1981) or Volman’s (1981) use of the term at Sehonghong). Wadley (1991:129) has shown that use of the term at Rose Cottage is also inappropriate and the best solution in present circumstances might be to avoid it completely, rather than redefining it at the risk of additional confusion.

Border Cave is of particular importance for late Pleistocene archaeology in southern Africa in that it shows ostrich eggshell beads and bone points to have already been in use some 39 000 years ago. This suggests that these items may have had a different context of origin from changes in lithic technology (Deacon 1990) and that different explanations for the different elements of the LSA “package” (sensu Deacon 1984b:221-222) are therefore required. The same point is made by the probable association of the Apollo 11 art with a terminal MSA assemblage dated to 26 000 BP (Wendt 1976). That a range of different processes is likely to have been involved in the shift from MSA to LSA technology is indeed also evident in the stone tool assemblages themselves. For example, the Layer G assemblage at Rose Cottage has a raw material signature similar to that of the underlying MSA at the same site, but is otherwise similar to the Sehonghong OS/MOS/RFS assemblages, which are already opaline dominated. Similarly, a bladelet component is already evident at Umhlaluzana and Sehonghong by 20 000 BP, but may be absent from the approximately contemporary occurrence at Melikane.

Enhanced recognition of these points and of the long-term nature of some of the trends noted in these assemblages casts some doubt on the model that I have previously advanced for the MSA/LSA transition (Mitchell 1988b), in which I tried to link the shift from MSA to LSA technology to conditions of decreasing
ecological productivity at the onset of the Upper Pleniglacial. The merit of this model remains that it attempted to consider some of the processes that might have been at work, and the widespread cessation of MSA technology and appearance of unequivocally microlithic assemblages not much before 20,000 BP have still to be taken on board in future model-making, as does the subsequent shift to the much increased and more systematic bladelet production characteristic of the Robberg. What also requires consideration, however, is the possibility that the trajectories followed in the southern Drakensberg/Natal/Swaziland region may not have been the same as those that developed in, for example, the southern Cape, where there seems little sign in the Boomplas sequence of any long-term trend within the site's MSA occurrences towards the microlithic, quartz-dominated assemblages of the LP and LPC Members that date to ± 21,000 BP (Mitchell 1988a:63-68). A greater appreciation of local context and of inter-site variability within and between regions will be necessary in future studies of the MSA/LSA transition, as well as a focus on processes of change, rather than on contrasting artificially compartmentalised "MSA" and "LSA" entities (cf. Inskeep 1967:571; Parkington 1990b:222). Future work at Sehonghong and in eastern Lesotho as a whole will be continue to be directed at these goals.

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SEARCHING FOR SHIPWRECKS OFF ROBBEN ISLAND: AN EXERCISE IN CULTURAL RESOURCE MANAGEMENT*

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ABSTRACT

In February 1991, representatives from the Department of Correctional Services, the South African Navy, the National Monuments Council (NMC) and the Department of Archaeology, University of Cape Town (UCT) started a joint project which was completed in May of the following year. Codenamed ‘Operation Sea Eagle’, the project was initiated by the national government with the objective of assessing the underwater cultural resource in the area surrounding Robben Island. The combined results of underwater fieldwork and research in archives and libraries showed that this resource mainly consists of shipwrecks, dating from the 17th century to the present and originating from nine different nations. It could also be established that most shipping incidents were a result of a combination of natural, human and to a lesser extent technical factors. This article describes the research methodology which was followed and reports on some results of the project, which can be regarded as a first for Africa.

INTRODUCTION

Due to the changing political situation in South Africa, Robben Island is slowly becoming more accessible. No political prisoners are detained anymore in the maximum security prison and it has been indicated that responsibility for the management of the island will be transferred within the next few years. For some time the future of the area has been uncertain. Suggestions made ranged from commercial exploitation to placing the territory under the control of the National Parks Board (Weekend Argus 18 May 1991:19; Cape Times 31 March 1992:1). In March 1993 the cabinet decided that Robben Island would not be exploited commercially and that a development programme be set in motion with provisions for protecting fauna, flora and shipwrecks in the area (Cape Times 4 March 1993:1).

For years, diving aimed at removing rock lobster (Jasus lalandii) and perlemoen (Haliotis midae) took place around the island, but also illegal profit-orientated salvage activities have been reported on several occasions. Unlike salvage, ‘Operation Sea Eagle’ involved a non-destructive survey of Robben Island’s shipwrecks with the intention of providing advice on their future management. Although forming part of a larger management programme, the operation in itself was undertaken as an independent exercise (Werz & Deacon, 1992).

PHYSICAL SETTING

Robben Island is situated in Table Bay at 33.48S and 18.22E. The island measures 3.4 by 2 km and is approximately 7.5 km from the nearest land (Fig.1). Its shoreline is rugged and jagged rock projections interspersed with eroded gullies can be found in most areas. Only the east coast contains some small stretches of sandy beach. The seabed in the immediate vicinity of the island consists mostly of rocks, interspersed with unconsolidated deposits ranging from boulders to sand.

Two main types of bedrock have been observed in the area. Granite can be found at a distance of some nautical miles out to sea off the south-west coast of the island. To the east, the seabed is characterised by unconsolidated sediment belonging to the Malmesbury Formation which can also be observed in the whole Table Bay area. The seabed off the east coast is quite shallow and flat, with a sandy mantle. From here, the depth gradually increases towards the center of Table Bay while the western side of the island is characterised by a steep bathymetric profile (Woodborne 1982:4-6A).

The wave action is considerable due to the long fetch and the deep waters surrounding the seaward side of the island. Waves with a height of up to 6 m have been observed which result in strong undercurrents. In addition, northerly and westerly winds, which normally prevail during the period from April to September,
increase the wave size and make diving from the shore in winter virtually impossible. The south-easterly off-shore winds which are typical for the summer months have a positive effect in that they tend to decrease the wave size.

FIELDWORK

The objective of fieldwork undertaken during ‘Operation Sea Eagle’ was to assess the location and state of shipwrecks within the restricted zone of one nautical mile surrounding Robben Island. Information obtained from documentary research and seabed observations indicated that no other cultural remains were to be expected, except for the foundations of a jetty on the south-eastern shore of the island. Underwater observations later showed that the jetty’s construction is of little significance.

Preliminary arrangements for the operation were organised by a working group, which included representatives from the Departments of Correctional Services, National Education, Trade and Industry, Customs and Excise, Sea Fisheries, the South African Navy and the NMC. This working group was directly responsible to the cabinet and created a special task group to undertake the survey (Werz 1991a:1). The task group compiled an operations plan which briefly described the envisaged modus operandi for the exercise. A breakdown into three phases was suggested.

1. Establishing the exact position of those places where cultural material had been deposited on the seabed.
2. Identification of located shipwreck sites.
3. Recording of located sites with underwater video.

Personnel for diving operations was provided by the Operational Dive Team, naval base Simonstown, and other Navy divers who assisted the maritime archaeologist (Werz, 1991b:1-2). Other logistical support was the joint responsibility of the Department of Correctional Services and the South African Navy, while assistance during survey work was provided by the Department of Surveying, University of Cape Town.

Fieldwork started on 26 February 1991. A total of 45 Navy divers was involved in the first stage of the operation which ended on 9 April. On average, the diving team consisted of twelve to fifteen Navy personnel and the maritime archaeologist. During the second and third field seasons, from 15 October to 27 November 1991 and from 17 February until the beginning of May 1992, smaller groups of six to eight people were employed. Due to the nature of the diving operation it
was decided to use SCUBA-gear, with compressed air as a breathing medium. Throughout the operation a one-person recompression chamber was kept on stand-by in the event of a sudden incapacitating medical event, like air-embolism or pneumothorax. In addition, a high pressure compressor for filling SCUBA-tanks and two boats were allocated to the project.

To allow for the optical surveying of located wreck sites, fifteen datum points were established along the shores of the island, ranging from ‘Alpha’ to ‘Oscar’. In between these cardinal points, 62 sub-points were erected. Depending on the state of the terrain, several of these points were placed between adjacent cardinal points at an approximate distance of 200 m. The X- and Y-coordinates for each survey point were recorded in relation to the national gridsystem. Once located, wrecks were buoyed and plotted in from different stations by means of triangulation. The advantages of this method were the high level of accuracy obtained and its simple application.

Due to the size of the search area, diving operations were aimed first at locating and identifying those wrecks which foundered near the shores of the island. Relevant documentary evidence also indicated that the majority of wrecks were to be found in this area. Each day a section of several hundred meters long was demarcated parallel to the shore. Within the confines of this area the seabed was scanned systematically, using both parallel and perpendicular grid searches, from the low water mark to a distance of approximately 300 m off-shore. The conditions underwater and on the surface imposed severe constraints. Large swells combined with upcurrents caused by backwash, hampered the divers considerably. Besides that, most search areas were overgrown with thick kelp (Ecklonia maxima) which added an extra risk factor as on some occasions divers became entangled. As well, the kelp obscured large parts of the seabed from vision and covered several wrecksites which made observation difficult.

Before fieldwork started, the Navy suggested to undertake side-scan sonar and proton-magnetometer surveys to locate wreckage. It soon became clear, however, that such surveys were impractical due to the high risk of equipment being lost as a result of the presence of kelp and rock formations, the highly variable inshore bathymetry with limited waterdepths, often less than five metres, the strong swells and currents and the proximity to the shore. By using a hand-held underwater metal detector an alternative way of locating metal artefacts was attempted, especially in gullies which were sometimes covered by a shallow sandy mantle. Unfortunately, ferromagnetic minerals contained in the bedrock made this instrument unsuitable for detection purposes. All material located during ‘Operation Sea Eagle’ was therefore found through visual observations.

Efforts to identify wrecks, Phase 2 of the operation plan, were carried out at the same time. By using archival documents, contemporary newspaper reports, maps, charts, aerial photographs and information provided by people on the island, possible areas where incidents took place were indicated.

Located wrecks were at a later stage visually recorded with a Sony Handicam underwater video camera. During this third phase of the operation, many wrecks had to be relocated as buoys previously left on the various sites had washed away. A total of nine sites was filmed, including the "Bernicia", "Goel No.1", "Golden Crown", "Natal", "Rangatira", "Sea Eagle", "Solhagen", "Tantallon Castle", and an old anchor lying just south of the site of the "Sea Eagle" which was possibly lost by a ship when anchoring under the protection of the island's coast. Wreckage near Whale Rock was not recorded on video because of the high risk involved in diving this area. Weather and sea conditions were unfavourable at the time.

LOCATION AND IDENTIFICATION OF SHIPWRECK SITES

The underwater survey was reasonably successful. Many shipwreck remains were accurately located (Fig. 2). Nearly half of these sites could be identified positively based on data obtained from archival information and underwater observations. This interplay between documentary and archaeological research has proved to be essential when conducting preliminary investigations aimed at locating and identifying historical shipwrecks in the underwater environment.

The remains of ten located vessels could be identified with certainty. These were the "Sea Eagle", "Bernicia", "Tantallon Castle", "Natal", "Rangatira", "Golden Crown", "Solhagen", "Fong Chung No.11", "Goel No.1" and "Daeyang Family". Five other sites were located, but fragmentation beyond recognition and in many cases interspersions of materials from different sites prevented positive identification. Ships in this category probably include the "Kingston", "Bittern", "Timor", "A.H. Stevens", and "Il Nazareno". The wrecks of seven vessels could not be found although relevant documents provided information on approximate positions. These include the "Dageraad", "Flora", "Perseverance", "Gondoliere", "Forfarshire", "C. de Eizaguirre", and "Hypatia". In addition, two sites were discovered which only showed a limited quantity of cultural material, a boiler and some metal plates. This wreckage may have belonged to ships mentioned above (Appendix).

DOCUMENTARY RESEARCH

The main objectives of the documentary research undertaken during ‘Operation Sea Eagle’ were: to produce an inventory of ships which foundered around Robben Island; to retrieve information which would permit positive identification of wrecks located during diving operations; and to identify those areas where incidents took place, in order to use the time available for fieldwork more productively. It was acknowledged that without a study of documentary evidence, no proper assessment of the cultural-historical potential of the area could be made. The combined results of both fieldwork and documentary research have indeed shown that without
Fig. 2. Map of Robben Island, oriented to the true north, indicating the spatial distribution of shipwreck sites located during ‘Operation Sea Eagle’ (1993). The numbers correlate with the sites listed in the appendix. On the island, the position of roads, an abandoned airfield and Murray’s Bay harbour on the east coast are shown.

the inclusion of the latter, most important information would not have been revealed.

The documents indicated that the cultural resource deposited on the seabed surrounding Robben Island is in fact greater than could have been deduced if only the results of the diving operations were taken into account. This is illustrated by the fact that of the 22 shipwrecks recorded in relevant documents only 15 were located by diving operations. In most cases names, nationalities, ships types and dates of foundering, as well as additional information such as tonnage, cargo and details of factors which led to the various incidents could be traced back. Without this information, none of the located sites would have been identified positively. The documentary evidence also assisted in assessing the cultural-historical value of wrecks.

Extensive use was made of documents currently lodged with the Cape Archives Depot and the South African Library. The first stage was to draw up a list of wrecks known to have foundered in the area under study. Subsequently, detailed references to individual ships were traced. Contemporary newspaper reports provided valuable information on the foundering of vessels and goods which were salvaged from wrecks shortly afterwards (Fig. 3). Information provided by manuscripts proved to be of limited use. Short entries in the Registers of arrivals and departures of ships, for example, sometimes merely mention the fact that a vessel grounded or sank while the exact location was quite often not recorded (Cape Archives Depot 1/42, PC 3/1-3/21). Additional research in overseas archives might well provide more detailed information on the ships, specifically construction details, previous journeys, cargoes and people onboard (Werz,1991:d:1). However, the scope of the project, the limited time which was made available and insufficient funding did not allow for this.

An evaluation of available records brought some inconsistencies to light. For example, no references for the 18th century have been found as yet. Extensive research in the daily logs of events or "Dagregisters", which were kept at the Dutch East India Company’s settlement at the Cape, could reveal further information (Cape Archives Depot 1/1, C). In some cases confusion was caused by inaccurate reports in secondary sources as
a result of inadequate research undertaken by others. For example, the "Lancastria" was described as: "wrecked on Robben Island on 31 December 1880" (Turner 1988:162). A contemporary source, however, reads: "The barque Lancastria ...parted one of her cables, drifted, and ultimately got ashore at Robberstein" (Argus Annual 1889:172). The location of the wreck was confirmed by another source which stated that: "The British bark Lancastria ...now lying on the beach at Robbeinstein Point, near Blueberg" (Argus 6 January 1881:1). This evidence has placed the wreck-site on the mainland, at a distance of more than 7 km from Robben Island.

Incorrect interpretation of archival documents by others has not only lead to incorrect locations of shipwreck sites. It could be concluded that some vessels were in fact not even deposited on the seabed, contrary to what was stated in some reports. The Dutch barque "Johannes Jacobus", for example, was thought to have gone ashore at Robben Island (NMC n.d.). Archival research undertaken during 'Operation Sea Eagle' showed that this vessel stranded on 26 April 1890, but returned to her anchorage shortly after (Cape Archives Depot 4/1, (CC) 3/7/2/4 in dato 29 June 1890). A similar incident happened to the "King Bleddyn", which hit Whale Rock but was pulled off and managed to reach Cape Town harbour for repairs (Argus 16 February 1925:9; 9 March 1925:12; Cape Times 30 October 1929:11).

Unfortunately, the maritime archaeologist was only called upon to become involved in "Operation Sea Eagle" shortly before diving operations started. Within a time span of a few days a plan of action had to be produced and preliminary archival research could not be undertaken (Werz 991c:3). This affected the results of the first field season, since relevant historical information which would have assisted in the identification and position of some wrecks was not directly available. As a result, archival research was conducted parallel to fieldwork throughout the duration of the project.

RESULTS

'Operation Sea Eagle' has shown that the potential of shipwrecks around Robben Island is variable. At present, archival information is available on 22 wrecks in the area but the possibility that even more vessels foundered around the island should not be excluded.

The approximate location of 21 archaeological sites was established. Of these, two contained isolated finds which have not been recorded in documents. The remaining 19 contained varying quantities of diverse material. The possible position of three shipwrecks could not be established as neither documents nor underwater observations provided relevant data.

With regard to the periods during which vessels foundered it appears that only two such incidents were properly recorded for the 17th century, although only the "Dageraad" (1694) was partly deposited underwater (Cape Archives Depot, C 1902). The "Schaapenjacht" (1660) was cast ashore and its structure completely dismantled without leaving a trace in the archaeological record (Thom 1958:250, 254-255, 262, 267). No references were found to incidents occurring during the 18th century, but further research in the archives might well uncover more data. The majority of incidents took place during the 19th and 20th centuries in the ratio 11:10. Founderings during the 19th century are relatively evenly spread over the period, but the 20th century shows a more imbalanced trend.

It can be concluded from documentary evidence that in most cases a combination of events resulted in shipping disasters around Robben Island. In many cases, weather conditions contributed to these incidents including adverse winds and limited visibility due to fog or heavy rainfall. Also darkness, which made establishing an accurate position virtually impossible before the advent of modern technology, played a major role. Although the first lighthouse on Robben Island was built as early as 1864 (De Villiers 1971:106) a minimum of thirteen recorded incidents took place during the night.

Incorrect navigation procedures, calculations and failing navigational equipment has also been reported in some instances. An extreme example of this is the founderding of the "Fong Chung" in 1975. According to the ship's first distress call, its position was calculated at 120 miles south of Cape Town. Although this tunny boat was equipped with radar and other equipment it has been suggested that these instruments might have been switched off although visibility at the time was very limited (Cape Times 5 July 1975:21).

An analysis of the nationalities which are represented by the shipwrecks around Robben Island indicates an emphasis of British vessels. This can be explained by the important role played by the British in maritime traffic during the 19th century around the Cape. The ratio of British as compared to ships of other nationalities is 10 to 12. Others include: American (3), Dutch (3), Canadian, Italian, Korean, Norwegian, Spanish and Taiwanese.

The category of ships types is also diverse. A total of twelve sailing vessels is represented, consisting of four barques, four ships (proper), one or possibly two brigs, one clipper, one yacht and possibly one snow. The ten engine-driven vessels include two mail steamers, two steam whalers, one cargo steamer, one carrier, one research vessel, one steam liner, one steam trawler and one tunny boat.

Three areas where concentrations of wrecks occur can be distinguished: the north-west area, the south-south-east area and around Whale Rock (Fig. 2). This patterning is a result of the combination of factors contributing to the founderding of individual vessels. A subdivision between the spatial distribution of sailing vessels and that of engine driven vessels did not lead to any new conclusions. Analysis showed a relatively equal distribution of both types in the three areas. Based on this it can be concluded that environmental and human factors have played a much more significant role in the deposition of wrecks around Robben Island rather than vessel type.
ACKNOWLEDGEMENTS

The assistance of the following persons and institutions is gratefully acknowledged. Mr G. Hofmeyr, Dr J. Deacon, Lieutenant-General W.H. Willemse, Rear-Admiral P.R. Viljoen, Major A. Marais, Major J. Kammainga, Commander T. Odendaal, Warrant Officers P. Hutchinson and E. Ugolini, Mr C. Martin and all naval personnel who took part in ‘Operation Sea Eagle’ for their support. The Departments of Correctional Services, National Education, Trade and Industry, Customs and Excise, the National Monuments Council and the South African Navy without whom ‘Operation Sea Eagle’ could not have been realised. The Department of Archaeology, the Department of Surveying and the University Research Committee, University of Cape Town. Mr Royden Yates and Dr Duncan Miller for correcting the manuscript and providing useful comments. Support provided by KWV, Sanlam, Safmarine, M-Net, and Europcar Interrent for the furtheance of maritime archaeological research is hereby gratefully acknowledged.

APPENDIX: SHIPWRECKS AROUND ROBBEN ISLAND

The numbers refer to Fig. 2: Spatial distribution of shipwreck sites.

<table>
<thead>
<tr>
<th>Name</th>
<th>Flag</th>
<th>Type</th>
<th>Date sinking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A.H. Stevens</td>
<td>American</td>
<td>clipper ship</td>
<td>07-02-1862</td>
</tr>
<tr>
<td>2 Bernicia</td>
<td>British</td>
<td>barque</td>
<td>16-06-1861</td>
</tr>
<tr>
<td>3 Bittern</td>
<td>British</td>
<td>snow or brig</td>
<td>18-01-1848</td>
</tr>
<tr>
<td>4 Daeyang Family</td>
<td>Korean</td>
<td>carrier</td>
<td>30-03-1986</td>
</tr>
<tr>
<td>5 Flora</td>
<td>Dutch</td>
<td>ship (proper)</td>
<td>17-11-1821</td>
</tr>
<tr>
<td>6 Fong Chung No.11</td>
<td>Taiwanese</td>
<td>tunny boat</td>
<td>04-07-1975</td>
</tr>
<tr>
<td>7 Forfarshire</td>
<td>British</td>
<td>ship (proper)</td>
<td>15-09-1864</td>
</tr>
<tr>
<td>8 Goel No.1</td>
<td>Canadian</td>
<td>research ship</td>
<td>27-01-1976</td>
</tr>
<tr>
<td>9 Golden Crown</td>
<td>British</td>
<td>steam trawler</td>
<td>18-07-1923</td>
</tr>
<tr>
<td>10 Hypatia</td>
<td>British</td>
<td>cargo steamer</td>
<td>29-10-1929</td>
</tr>
<tr>
<td>11 Il Nazareno</td>
<td>Italian</td>
<td>barque</td>
<td>02-12-1885</td>
</tr>
<tr>
<td>12 Kingston</td>
<td>American</td>
<td>barque</td>
<td>23-12-1852</td>
</tr>
<tr>
<td>13 Natal</td>
<td>Norwegian</td>
<td>steam whaler</td>
<td>24-05-1914</td>
</tr>
<tr>
<td>14 Perseverance</td>
<td>British</td>
<td>ship (proper)</td>
<td>12-03-1826</td>
</tr>
<tr>
<td>15 Rangatira</td>
<td>British</td>
<td>steam liner</td>
<td>31-03-1916</td>
</tr>
<tr>
<td>16 Sea Eagle</td>
<td>American</td>
<td>ship (proper)</td>
<td>16-11-1856</td>
</tr>
<tr>
<td>17 Solhagen</td>
<td>British</td>
<td>steam whaler</td>
<td>11-09-1936</td>
</tr>
<tr>
<td>18 Tantallon Castle</td>
<td>British</td>
<td>mail steamer</td>
<td>07-05-1901</td>
</tr>
<tr>
<td>19 Timor</td>
<td>Dutch</td>
<td>barque</td>
<td>22-12-1856</td>
</tr>
<tr>
<td>20 isolated boiler</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21 metal plates</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.de Eizaguirre</td>
<td>Spanish</td>
<td>mail steamer</td>
<td>26-05-1917</td>
</tr>
<tr>
<td>Dageraad</td>
<td>Dutch</td>
<td>jacht</td>
<td>20-01-1694</td>
</tr>
<tr>
<td>Gondolier</td>
<td>British</td>
<td>brig</td>
<td>07-02-1836</td>
</tr>
</tbody>
</table>

Sites not located
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THE FAUNAL REMAINS FROM FOUR LATE IRON AGE SITES IN THE SOUTPANSBERG REGION: PART I: TAVHATSHENA*

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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 I describes the remains from Tavhatshena, a Central Cattle Pattern settlement with dates that range from the 11th to 16th centuries. The majority of the fauna comes from the latter half of this range. Cattle predominate, sheep/goats contribute a small amount and a wide variety of wild species are identified from the excavations. Cattle present a wide range of ages but mature animals are not in the majority for all units. Butchering practices and pathologies are also described. Skeletal part representations and distributions are then considered on an intra-site level, to assess whether the evidence is sufficient to delineate activity areas/disposal patterns, despite non-involvement in research and sampling designs and in the actual excavations.

INTRODUCTION

A recent archaeological project by Loubser (1988, 1991) on the Iron Age of the Soutpansberg region investigated the origins of the Venda people, their history, traditions, political economy, and relationship with the Shona of Zimbabwe and the Sotho-Tswana of the northern Transvaal. Chronologies based on ceramics from these sites helped to clarify conflicting interpretations in the literature. Tavhatshena, one of the earliest sites excavated by Loubser, is a Central Cattle Pattern settlement. The trenches were excavated near the residence of the headman. The dates obtained range from the 11th to the 16th century. The faunal remains, however, were not studied at the time.

Considering that the Soutpansberg samples were not principally selected for faunal research, often a problem when samples are presented to the archaeozoologist after excavation, it is not clear whether their limitations can produce meaningful intra- and inter-site results. Based on my analyses of the faunal remains from this and other sites (De Wet 1993), the presence of activity areas, cattle size variation and herd management strategies were explored. For present purposes, however, the aim is to describe the faunal remains from Tavhatshena and to assess the presence of activity areas/disposal behaviour at this site.

METHODS

Bones were identified using the Transvaal Museum skeletal collections and a wide variety of publications were consulted (e.g. Du Plessis 1969; Baker & Brothwell 1980; Smithers 1983; Meester et al. 1986; Iscan & Kennedy 1989). Sheep and goats were distinguished where possible with the aid of the collections and other studies (Boessneck et al. 1964). Little information exists however concerning local sheep and goat post-cranial skeletal anatomy. Unidentifiable fragments were sorted, then counted, weighed and where appropriate measured.

An awareness of taphonomic processes is crucial to interpretation (Gilbert & Singer 1984) particularly when assessing potential human activity areas. A large number of studies on taphonomy were examined, such as those pertaining to butchering and carnivore modification, natural attrition vs. humans as taphonomic agents (Gilbert & Singer 1984; Nicholson 1992), bone densities and rates of bone survival (Brain 1967; Lyman 1984, 1985, 1992; Livingstone 1989; Marean 1992). Unfortunately identification of all possible natural and anthropogenic biases was not possible.

I used several different quantification techniques for different purposes. The number of identified skeletal parts or fragments (NISP) is the basic enumeration unit. Considering the inherent weaknesses of the MNI (minimum number of individuals) method (Casteel 1977a, & b; Binford 1978; Klein & Cruz-Uribe 1984; Grayson 1984; Plug & Plug 1990; De Wet 1993) it was used mainly to determine age profiles, as they represent absolute numbers of individuals in each age class based on tooth eruption and wear data. To give a fuller view of the age profiles, post-cranial remains were also calculated into the MNI counts when necessary.
Because of the limitations of the MNI method, a more recent method, QSP (quantifiable skeletal parts), was used to make taxa comparable in order to assess relative animal abundances, contributions of meat to diet, skeletal abundance and the relative preservation of skeletal parts.

Briefly, the QSP method is a technique whereby the varying skeletal complexity between species or animal classes is corrected thus making different species or taxa comparable (Gilbert et al. 1981). This is done by dividing the number of skeletal parts retrieved by the skeletal parts in the living animal worth quantifying (Plug 1988; De Wet 1993). The bones worth quantifying are referred to as ‘quantifiable skeletal parts’. The resulting value is a proportion of abundance for that species.

This value can then be compared to the values derived from other taxa. Differences between taxa thus represent differences in relative abundance, not skeletal complexity. QSP counts also illustrate in a more realistic manner a taxon’s relative contribution of meat since QSP values, multiplied by the meat mass of different species, provides proportional representations between species and not the calculation of meat from whole individuals. To compare the inaccuracies of the MNI method in calculating meat contributions to diet, I used it against the QSP method.

Another factor in estimating meat contributions is those species or animal groups ascribed to the ‘non-contributor’ category. These animals are considered not part of the human diet (Plug 1988), and confirmation of these is based on Venda and Shona ethnographic data (Stayt 1931; Gelfand 1971).

QSP counts can also be used to estimate relative skeletal abundance and the relative preservation of skeletal parts. By carefully recording each fragment’s position on its respective skeletal element (Dobney & Rielly 1988) and correcting for skeletal complexity, and fragments become reconstituted into complete skeletal elements. This method is not an exercise in establishing numbers of individuals, but it can establish which parts of a skeletal element, or which elements or parts of the carcase were deposited or preserved and their frequency. This makes it possible to see whether assemblages are due to preservational bias and/or human activity. Some of the cattle remains from Tavhatshena are relatively numerous to warrant using this method to examine skeletal part representations.

**TAVHATSHENA 2329 BB2A**

Loubser (1991:170) notes several central cattle pattern settlements similar to Tavhatshena in the Soutpansberg area. Generally the lower part of the settlement is the front, the cattle byre is the centre, and behind the byre, or between byres, serves as the public assembly, or court. Behind this, there usually exists a slightly terraced platform on which the village or family head resides. His wives live on both sides, forming an arc of residential units around the byre. These central cattle pattern settlements span several centuries north and south of the Soutpansberg.

Tavhatshena is located south of the Soutpansberg range in the south-eastern corner of the Ben Lavin Nature Reserve (23.09.04S; 29.58.10E) (Fig. 1). The central dung concentration is surrounded by several mounds containing wall daga, small stones, and ash (Loubser 1991:194). In terms of political hierarchy Tavhatshena is a Level 2 site, and so the headman probably did not control more than a 20 km radius around the settlement. The pottery styles and the dates obtained at Tavhatshena show that this settlement was inhabited before and during the contact between Sotho and Shona speakers in the mid 15th to 16th centuries. The settlement therefore precedes the late 17th century Zimbabwe Singo expansion into the area.

Loubser excavated three trenches (Fig. 2), with Trench 1 (12 m²) placed over a peripheral mound on the settlement’s eastern side, Trench 2 (2 m²) placed just west of Trench 1 and Trench 3 (2 m²) on a disturbed ash and daga mound on the northern side of the site near to the probable residence of the headman. Trench 1 is a series of hut floors and burials with a dung concentration on the lowest level. Trench 3 has no features and is mainly a disturbed ash and daga mound. The trenches therefore appear to have been placed in the domestic areas of this settlement.

The taphonomic history of Trench 1 is complex, and the activities of aardvark and sprinshare exacerbate the problem. Despite this, Loubser established three ceramic components for Trenches 1 and 3. The faunal remains were analysed per square meter unit and then combined according to the ceramic components listed in Table 1. Table 2 lists the species and animal size classes in each level of all trenches.

**TOTAL FAUNAL SAMPLE**

The excavations yielded a total bone sample of 6 835 pieces with a mass of 51 455.3 g (Table 3). The lowest level of Trench 1 (T1/6) consisted only of a fragment of a child’s mandible. Included in the total sample are 48 fragments of a human skeleton from the lower component of Trench 1. These fragments were not identified during the initial sorting and are probably the remains of one of the two skeletons recovered. Trench 2 has few bone fragments, and these are probably related to the Mixed Moloko component.

**MEAT CONTRIBUTIONS**

The majority of the identifiable remains are cattle in both trenches and therefore cattle meat predominates in contributions to diet both in QSP and MNI percentages (Tables 4-7). Buffalo (Bov IV) remains in T3/3, Moloko component, sharply decrease the cattle meat yields based on MNI, but using QSP values, the contribution of buffalo meat is low (Table 5).

Sheep/goat remains are identified but their overall contributions to diet is low. The sheep/goats contribute little in the earlier component although a slightly higher percentage occurs in Trench 3. This is also the case for the Mixed Moloko component in both trenches.

Trench 1 has a wider variety of non-domestic animals
than Trench 3, and at face value it could be assumed that cattle meat was more often consumed in this area or that the remains were deposited here in preference over other remains. With the lack of broader horizontal excavations this difference may be due to trench size, rather than to spatial activities or preferences in meat consumption.

Non-domestic animals were also consumed but their numbers are not great. In the Moloko component of T1/4-5, (and to a lesser extent the Mixed Moloko component) the large number of non-contributors suggest that some of these may well have been hunted, but their contribution to diet is unknown as many have social and ritual significance, especially felids, canids, viverrids and primates (Stayt 1931:47). Some or all may have been traded, but the skeletal elements are not restricted to extremities as they would be if the skins were important (Welbourne 1975:8). Conversely, the lack of phalanges in the samples suggest that the skins (usually with the phalanges contained in the skin) may have been traded out for other items of use or importance.

**AGE DISTRIBUTION**

Based on MNI counts from teeth, mature (Thorp’s classes IV-V) cattle predominate except in the Moloko component in Trench 1 where the number of immature (Thorp’s classes I-III) cattle is slightly greater than mature (Table 8). Teeth recovered from T3/3 are all from adult cattle, but post-cranial fragments also represent juvenile and sub-adult animals. Reapplying the age classes to include the post-cranial remains increases the number of immature cattle. It is unfortunate that the cattle MNI count is low for both components in T3 and thus further comparisons between the two trenches are not feasible.

For sheep/goats, adults predominate with a few sub-adults present in the Moloko component of one trench and in the Mixed Moloko component of both trenches. In T3/3, there are more neonates present than adults. For this age class, only cranial and teeth fragments were recovered. It is doubtful if these very young animals were actually consumed, but the numbers are low and difficult to interpret: 11 neonatal to 14 adult fragments in NISP terms. Although the ratio is high, these remains may have been created by a one-off event, such as still births.

**SEXUAL IDENTIFICATION**

All sexually identifiable cattle material, mainly horncore and innominate fragments, come from Trench 1 of both components: two females from the Moloko component, and two males, one female and a probable ox from the Mixed Moloko component. Others include the
and in the later component, occasionally on tibiae and femora, indicating marrow extraction. This is a common damage pattern on many of the Soutpansberg samples. Carnivore gnaw marks are present on many of the cattle fragments. Although no dog remains were identified, these marks may be indirect evidence of their presence at this settlement. Rodent burrowing activity is confirmed from the gnaw marks present on some of the bones from the later component. The other species and bovid size classes also have butchering damage, but the numbers are few.

Vertebrae show various butchering practices with the majority being the removal of the dorsal spine only. In the Moloko Component more vertebrae are sheared through the body along the dorsal-ventral axis and few others through the cranio-caudal axis. This is the reverse in the Mixed Moloko component. Since the other butchering processes are relatively similar, this difference between components may be due to idiosyncratic preferences. More excavations in other areas are needed to determine butchering and allocation patterns.

The level of bone fragmentation is not always dictated by the butchering process. Post-depositional processes such as trampling or compacting are likely causes for creating smaller fragments in the later component. The high level of fragmentation in T2 is most likely also due to heavy trampling and repeated sweeping.

Little remains show any evidence of burning. No non-domestic animal remains show this damage. The majority of burnt or heat-exposed bone are mainly longbone flakes. In T3/3 Moloko component, more ribs are burnt.

**PATHOLOGY**

In the Moloko component, the distal tibia of a non-domestic Bov II is deformed; the articulation of the lateral malleolus had not formed properly. In the Mixed Moloko component various pathologies occur, mainly
Table 2. Tavhatshena: list of species/size classes per level.

<table>
<thead>
<tr>
<th>Species or Size class</th>
<th>T1/1</th>
<th>T1/2</th>
<th>T1/3</th>
<th>T1/4</th>
<th>T1/5</th>
<th>T2</th>
<th>T3/1</th>
<th>T3/2</th>
<th>T3/3A</th>
<th>T3/3B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bos taurus cattle</td>
<td>+</td>
<td>+</td>
<td>+</td>
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<td>+</td>
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<tr>
<td>Ovis aries sheep</td>
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<td>+</td>
<td>+</td>
<td>+</td>
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</tr>
<tr>
<td>Capra hircus goat</td>
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<td>+</td>
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</tr>
<tr>
<td>Homo sapiens sapiens</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
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<td>-</td>
</tr>
<tr>
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exostosis, on cattle and sheep/goat phalanges. Other pathologies include a cattle molar with signs of growth problems. All three lobes have a series of dents on one side near the junction of the root and crown. The tuber scapulae on a cattle shoulder blade is elongated in the medial direction as well as lipping on the glenoid. Animal bone pathologies are not often recognised or noted in analyses.

SKELETAL PART REPRESENTATION AND DISTRIBUTION

The non-identifiable fragments in both trenches and components show that skull and vertebrae are uncommon and rib fragments are generally more numerous except in the later component of Trench 1 where there are more miscellaneous fragments.
Table 3. Tavhatshena: total bone sample.

<table>
<thead>
<tr>
<th>Skeletal part</th>
<th>T1/1-3</th>
<th>%</th>
<th>T1/4-5</th>
<th>%</th>
<th>T2/1</th>
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<td>403</td>
<td>22.7</td>
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<td>7841</td>
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<td>22.4</td>
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<td>6240.8</td>
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<td>% of sample identifiable</td>
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<td>Skeletal part</td>
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<td>%</td>
<td>T3/3</td>
<td>%</td>
<td>TOTAL</td>
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* Median average calculated for TOTAL.

The higher count for rib fragments in general may illustrate the portions of the carcass more frequently consumed. Alternatively, it may reflect a segment of society who consumed this portion more than others. On the other hand, ribs are the most numerous skeletal elements in a living animal and also fragment relatively easily. Their high count could therefore be due to social, anatomical and attritional factors. The difference in the
Table 4. Tavhatshena T1/4-5: Moloko: meat contributions.

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<th>Species</th>
<th>QSP</th>
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Table 5. Tavhatshena T3/3: Moloko: Meat contributions.

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possible to derive post-cranial cattle skeletal element representations. There are a few instances of under- and over-representations of cattle elements for some of the units of the two components, but the QSP counts may be too low to make reasonable interpretations.

One instance where the QSP count is large and worth consideration is in the Mixed Moloko levels of T1/1-3. Adult cattle post-cranial remains represent most skeletal elements according to NISP figures (Table 9). According to reconstituted whole elements, however, the distribution shows a different pattern (Fig. 3). There is a greater representation of cattle hindlimbs than forelimbs. Tibia and calcaneal fragments make up more than eight 'individuals'. Although the representation of cattle scapulae is lower, Bov III has an over-representation of these. Scapulae are seldom complete and difficult to identify to species level; it may therefore be assumed that some of these bones are from cattle. If these scapulae are added to the Bos figure, scapulae would then be on par with the over-representation of tibiae and calcanei.

Almost all the small elements are underrepresented relative to the longbones. There are also no small elements identified as Bov III in this unit which may have come from cattle. No patellae were recovered but this is not an uncommon phenomenon. These elements are soft and spongy, and are often eaten by dogs and susceptible to natural attrition (Plug, pers. comm.). In relation to the major limbbones, there are few phalanges which suggests that they may have remained in the hides after skinning.

Differences in skeletal part representations must, however, be weighed against bone density in creating over- and under-representations. Lyman's (1992) bone density values (Table 10) were compared to the cattle skeletal element representations at Tavhatshena. Comparing the over-representations to the density values, upper component between Trench 1 and 3 may therefore be seen as evidence for differential consumption between residential units, or any of the other factors just noted.

The higher count of miscellaneous fragments in T1/1-3 is also difficult to interpret. These fragments include some or all skeletal parts. Taphonomic processes, from chemical to trampling, may have created this higher count. Overall the totals for the rib, miscellaneous and longbone categories are not too dissimilar, and therefore preferential consumption cannot be demonstrated. Cranial fragments are fragile, and I may have identified them as miscellaneous pieces. The low numbers of identified cranial fragments, however, may illustrate that animal heads were not often consumed or disposed of in these areas.

With regard to the identifiabilities, using the cattle NISP counts and QSP to correct for skeletal complexity, it is
the results are fairly well correlated. Calcanei, tibiae and metapodials have very high densities and are well represented. On the other hand, scapulae, have a good representation but are less dense. Scapulae fracture easily, however, and yet remain easily recognised, so these two factors could have caused the bias. The densities of other elements do not always correlate with bone density values, however, and natural attrition may not be the only factor involved. Cooking procedures affect bone as heat and water cause changes in surface area to volume ratio. Micro-organisms take advantage of this change and penetrate bone, breaking down its structure from within (Nicholson 1992).

Once natural attrition processes, such as bone densities and survival are assessed, human activities can be evaluated. Along with this, archaeological finds and

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Fig. 3. Tavhatshena T1/1-3: Mixed Moloko: Percentages of post-cranial remains represented after correction for skeletal complexity.

the presence or absence of non-domestic, socially significant animals must be considered. Correlating specific human activities with excavated remains is a daunting task. Not only are natural taphonomic processes to be considered, but most ethnographic studies including those on the Venda (Stauty 1931; Van Warmelo 1932; Van der Waal 1977, 1979) seldom include observations on the production and disposal of refuse. More recently ethnographers and ethnoarchaeologists are beginning to look at refuse and the prescribed locations for refuse disposal (Maggs et al. 1987; Mack et al. 1991). This aspect of ethnoarchaeological research needs greater attention. Despite these limitations, the Tavhatshena evidence can provide some interesting evidence alluding to activities concerning headmen and diviners.

I could not establish the horizontal distribution of the iron and ceramic finds, but I could note the distribution of ivory, worked bone and the remains of 'non-contributor' animals. Most of these finds and remains were located at the western end of Trench 1 in Levels 1-4 and include felids of differing sizes, mongoose, primate and jackal remains. Although the levels belong to two
Table 10. Bone density values for skeletal parts ranked highest to lowest. (Based on Lyman, 1992).

<table>
<thead>
<tr>
<th>Skeletal Part</th>
<th>Bone Density (gm/cm²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcaneus</td>
<td>64</td>
</tr>
<tr>
<td>Mandible</td>
<td>57</td>
</tr>
<tr>
<td>Metacarpus, proximal</td>
<td>56</td>
</tr>
<tr>
<td>Metatarsus, proximal</td>
<td>55</td>
</tr>
<tr>
<td>Tibia, distal</td>
<td>50</td>
</tr>
<tr>
<td>Metacarpus, distal</td>
<td>49</td>
</tr>
<tr>
<td>Astragalus</td>
<td>47</td>
</tr>
<tr>
<td>Metatarsus, distal</td>
<td>46</td>
</tr>
<tr>
<td>Ulna, distal</td>
<td>44</td>
</tr>
<tr>
<td>Radius, distal</td>
<td>43</td>
</tr>
<tr>
<td>Radius, proximal</td>
<td>42</td>
</tr>
<tr>
<td>Phalanx 1</td>
<td>42</td>
</tr>
<tr>
<td>Rib</td>
<td>40</td>
</tr>
<tr>
<td>Humerus, distal</td>
<td>39</td>
</tr>
<tr>
<td>Naviculo-cuboid (os centro.)</td>
<td>39</td>
</tr>
<tr>
<td>Scapula</td>
<td>36</td>
</tr>
<tr>
<td>Femur, proximal</td>
<td>36</td>
</tr>
<tr>
<td>Ulna, proximal</td>
<td>30</td>
</tr>
<tr>
<td>Tibia, proximal</td>
<td>30</td>
</tr>
<tr>
<td>Lumbar</td>
<td>29</td>
</tr>
<tr>
<td>Femur, distal</td>
<td>28</td>
</tr>
<tr>
<td>Innominate</td>
<td>27</td>
</tr>
<tr>
<td>Phalanx 2</td>
<td>25</td>
</tr>
<tr>
<td>Phalanx 3</td>
<td>25</td>
</tr>
<tr>
<td>Thoracic</td>
<td>24</td>
</tr>
<tr>
<td>Humerus, proximal</td>
<td>23</td>
</tr>
<tr>
<td>Sternum</td>
<td>22</td>
</tr>
<tr>
<td>Cervical</td>
<td>19</td>
</tr>
<tr>
<td>Axis</td>
<td>16</td>
</tr>
<tr>
<td>Atlas</td>
<td>13</td>
</tr>
<tr>
<td>Skull</td>
<td>no data</td>
</tr>
<tr>
<td>Carpals</td>
<td>no data</td>
</tr>
</tbody>
</table>

separate components it is possible that some mixing occurred. The association of these bones with ivory bracelets seem unusual, unless they are associated with a leader or diviner.

In Trench 3, ivory was also retrieved along with a Bov I tibia shaft, smoothed and bored at one end. This shaft is similar to those found by Thorp at Khami Hill (Thorp 1984), a Zimbabwe culture capital of the 15th century. It is believed that these were carried on necklaces by diviners. The animals associated with diviners at Khami Hill are similar to those retrieved in the western sector of Trench 1. Although the pendant and the wild species were not retrieved from the same trench, it does not preclude the idea that this area of this Central Cattle Pattern settlement was associated with diviner or headman activities. I include the latter because these animals can also be associated with the leader of a settlement. More research needs to be done on Central Cattle Pattern settlement layout, and exploring and defining activity areas and disposal patterns for these types of sites.

CONCLUSIONS

Tavhatshena has provided much information regarding the Late Iron Age of the Soutpansberg. Its faunal samples have limitations, however. The difficulties in presenting data from one site is exacerbated by the fact that archaeozoologists are not often involved in the research and sampling designs of the archaeologist. As a result, the data may become merely descriptive, particularly on the intra-site level.

Generally, it could be stated that at Tavhatshena, cattle were important and herding probably took precedence over other procurement activities, this being based on the remains of only two trenches.

When considering the ages of the cattle and sheep/goats, the imbalance between sample sizes of Trench 1 and 3, makes comparisons and interpretation difficult, especially since it appears that there were more immature cattle in T1 than in T3. Is this evidence for differential consumption and/or disposal patterns, or sampling bias?

There is some evidence for a different butchering pattern between the two components, but this is mainly descriptive; and its significance cannot be established with small samples. The sex of animals can become an important factor in cattle slaughter and mortality patterns, however, again the small size of the samples does not provide any meaningful information, for this site alone.

Pathologies of animals are also important and although they may not be fruitfully interpreted on the intra-site level at the present time, they can be examined for trends. Once aetiologies are known, however, pathologies may reveal information on culling practices, overcrowded byres, the terrain, general health and nutrition and the treatment of draught animals at a settlement.

Assessing the distribution of skeletal fragments is important in activity area research. Here, natural, animal, and human factors need to be constantly played against each other to fruitfully interpret the presence or absence of activity areas at an Iron Age site. Although these limited samples provide some information on intra-site activities, it needs to be expanded.

Ultimately, for sites such as this Central Cattle Pattern settlement to provide substantive information, and generate new interpretations and explanations, there is the need for developing questions that can be tested through excavations. The excavations themselves need to be reassessed. There is a need for broader, horizontal excavations. This is of course not recommended for every site but it will establish keys to understanding the layout, and activity areas of other Iron Age sites, where only several trenches are planned. Along with this, ethnographies need to be thoroughly examined, and new research needs to be conducted on the remaining traditional societies in southern Africa. Finally, theoretical bases need to be created before excavations proceed, because at this point, many archaeozoologists are asking questions after analysis, and not before the excavations are carried out.

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I am grateful to the Human Sciences Research Council and the University of the Witwatersrand for financial
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REFERENCES


CARTRIDGES AND CHRONOLOGY: AN EXERCISE IN RELATIVE DATING*

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ABSTRACT

The investigation of a Late Iron Age settlement near Winburg, Orange Free State, produced cartridge cases from excavations, while others were collected on the surface. These finds are described and discussed and are used to date aspects of the occupation. Excavated middens produced cartridge cases dating from the Second Anglo-Boer War (1899-1902) to about 1923. Cartridge cases collected on the surface included calibres manufactured for use during the Anglo-Boer War and to the time of modern day hunting ammunition. Based on this evidence it is argued that people were living at the site from before 1900 to about the early 1920s.

INTRODUCTION

Archaeological reconstruction of the history and lifestyle of peoples is often based on the remains of utensils from daily domestic use. Ordinary objects can supply important evidence to date the occupation of specific sites or certain historical events. A cartridge case, for instance, is normally rendered worthless after it has been fired and discarded. This paper deals with the dating of a site based on the information obtained from fired cartridge cases. It is argued that cartridge cases which were manufactured for war and hunting during a specific time place the occupation of the site between 1890 and 1923.

The site is located at the farm Doornpoort 19 near Winburg (Fig. 1). This region played an important role during the early history of white settlement in the Orange Free State (OFS). The town of Winburg originated on the Voortrekker route and it became a gathering point from 1836. During the long and drawnout border disputes with the Basotho of Moshoeshoe, from about 1848 to 1868, Winburg played a key role as a stronghold in a sparsely populated country. The town was attacked by the Basotho on a few occasions and in 1866 livestock were taken from the commonage and the herdsmen murdered (Jacobs 1952:21; Taljaard 1979). The area along the Vet River is part of the earliest white-occupied land in this vicinity. The farm Doornpoort was officially surveyed in 1881, but the first owner of the farm is already mentioned in the Land Records of 1848. This is followed by the names of successive occupants until, in 1923, it came into possession of the present owners.

Archaeological excavations at a stone-walled settlement (Fig. 2) revealed material from two phases of occupation.

Fig. 1. Locality: Doornpoort 19, Winburg.

The earliest phase is represented by circular stone-walled enclosures of various sizes (Fig. 3) and the remnants of
huts of reeds and mud plaster associated with baked clay pottery representing the Late Iron Age. Radiocarbon dating showed that this earlier settlement took place at about 1700 (Dreyer 1992).

The second period of occupation on the site is more recent. Occupants of this phase have demolished the stone walls of the first phase to build rectangular cattle byres and a row of adjoining four-cornered single rooms. Three middens found in association with these latter buildings were investigated (Excavations 2826DB 2 and 2826DB 11 A and B respectively) (Fig. 3). The remains of glass, porcelain, pieces of wire, nails and glass beads were recovered from the middens, indicating the presence of European trade goods. These, however, are not described in the present discussion.

The investigation also produced fired cartridge cases of different calibres from the upper layers of the excavations. The finds are described in Table 1. Simultaneously a surface collection was done in the vicinity and on a midden with associated stone buildings some distance away. This collection (Table 2) produced similar material, dating from the Anglo-Boer War, but followed through to the 1930s and 1940s and even included modern day hunting calibres. Information obtained from the cartridge cases is applied to date the younger occupation of the site.

**DISCUSSION**

The headstamp of a cartridge case produces the vital characters and codes for identification and dating. Usually it contains information identifying the manufacturer and calibre of the bullet as well as designating either military or hunting use. Not all the information is necessarily found on every cartridge case, but it can usually be derived directly from the codes given and from documentation.

To learn more about the history and background of cartridge cases it is also essential to be acquainted with the history of the rifles which fired these bullets. Rifles used during the last decade of the 19th century and since 1900 are discussed below.

**Martini-Henry .577/.450**

Since 1883 and particularly between 1896-1899, considerable numbers of these rifles were purchased by the Boer Republics (Scurfield & Tylden 1964:12), some of which were specially made for the South African Republic (ZAR) by Westly Richards (Bester 1987). Other Martini's of British Military origin were also used (Scurfield & Tylden 1964:12). The OFS Republic obtained their rifles from Webley, presumably assembled from used parts (Bester 1987:13).

Soft-case cartridges of rolled brass foil for the Martini-Henry were manufactured from 1871 to about 1880 (Simpson 1982) and were still freely obtainable up to the 1930s.

**Guedes 8X60R**

These rifles were originally ordered by the Portuguese Government from Steyr, Austria. Prior to delivery, certain modifications were suggested by the clients. The first consignment was sold to the republican governments of the ZAR and OFS, who were desperately in need of arms after the Jameson Raid in 1895-96 (Simpson 1982; Bester 1987). As some of the ammunition for the Guedes carries no headstamp, the specific manufacturer cannot be established.

**Mauser 7X57**

The 1888 and 1896 model Mauser firearms were most commonly used by the Boers who became famous for their ability to shoot accurately with these rifles. Incidentally, these weapons were used in many of the skirmishes that took place in the Orange Free State during the Anglo-Boer War.

Ammunition was supplied to the Boer forces by Ludwig Loewe & Co., Berlin (DM), during 1896-97 and from 1897 by the Deutsche Waffen und Munitionsfabrik (DWM), Karlsruhe.

**.303 Lee Metford & Lee Enfield**

The .303 calibre replaced the Martini-Henry as weaponry of the British and colonial forces after 1888 (Simpson 1982:26) and was used throughout the duration of the Anglo-Boer War (1899-1902). Although the Mark II cartridge was made from 1893 to 1903, most of those used during the Anglo-Boer War were made by the Royal Laboratory and contractors during the war years only. Due to an alleged lack of stopping power a better bullet, the Mark IV hollowpoint expanding bullet, was introduced in 1897. For technical reasons this ammunition had to be withdrawn in 1899 (Wilson...
Small supplies of the Mark V dum-dum cartridges were already in the hands of some of the British troops before its use was prohibited in 1899. The cartridges were therefore used in limited numbers in the early days of the War.

The Boer forces were equally familiar with the .303 calibre rifles, as Lee Metfords had also been issued to burghers of the ZAR and OFS prior to the War (Simpson 1982:27; Bester 1986:160). During the latter part of the war the Boers were also forced to use captured British arms.

CONCLUSIONS

The archaeological excavations at Doornpoort, Winburg, produced material dating from the Anglo-Boer War. Others from 2826DB 11A represented the time around 1910. The shells collected on the surface came from a wide selection of arms used during the Anglo-Boer War and from hunting by the local farmers in more recent times.

The interpretation of the material should be treated with caution, because the presence of cartridge cases on a site do not imply their use by the occupants. Furthermore, confusing implications arise when the occupants selectively collect materials from nearby sites. The damaged state and the way in which some of the cases were inserted into one another indicate that they could have been collected and brought to the site by children as toys.

The calibres of all the cartridge cases found at Doornpoort could be determined and most of the manufacturers identified. It is important to note that cartridge cases of the .44-40 and .45-75 Winchester, .500/.450 No. 1 Carbine and No. 2 Musket and 8x50R Austrian Mannlicher calibres, which predate the Anglo-Boer War, were absent at Doornpoort. Extensive collecting in the districts of Beaufort West, Calvinia and Britstown for instance, showed that these calibres were common in the Karoo (J.C. Loock pers. comm.).

The cartridge cases excavated at Doornpoort represent a period from the Anglo-Boer War (1899-1902), including the Rebellion (1914) and the occupation of German South West Africa (1915) during World War I,
Table 1. Cartridge cases from the excavations.

<table>
<thead>
<tr>
<th>PROVENANCE</th>
<th>NUMBER</th>
<th>CARTRIDGE</th>
<th>HEADSTAMP</th>
<th>INTERPRETATION</th>
<th>REMARKS</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2626DB2</td>
<td>1</td>
<td>.303 British</td>
<td>Royal Lab. Woolwich Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
<tr>
<td>Layer 1</td>
<td>1</td>
<td>.303 British</td>
<td>Kynoch, Birmingham Cordite Mark V</td>
<td>Hollow-nosed &quot;Dum-dum&quot;</td>
<td>Manufactured 1899-1903</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
<tr>
<td>2626DB2</td>
<td>1</td>
<td>8x60R Portuguese</td>
<td>No Headstamp</td>
<td>Manufactured unknown</td>
<td>Probably made in Austria</td>
<td>Used by Boer forces during first year of War</td>
</tr>
<tr>
<td>Layer 2</td>
<td>2</td>
<td>.577/450 Martini-Henry</td>
<td>No Headstamp</td>
<td>Drawn case</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
<tr>
<td>2626DB11A</td>
<td>1</td>
<td>.303 British</td>
<td>Royal Lab. Woolwich Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
<tr>
<td>Layer 1</td>
<td>1</td>
<td>.303 British</td>
<td>Kynoch, Birmingham Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
<tr>
<td>Layer 1</td>
<td>2</td>
<td>Lead bullets Martini-Henry</td>
<td>Drawn case</td>
<td>Manufactured Great Britain</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
<tr>
<td>Layer 1</td>
<td>1</td>
<td>.303 British</td>
<td>Royal Lab. Woolwich Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
</tr>
</tbody>
</table>

Table 2. Cartridges collected on the surface.

<table>
<thead>
<tr>
<th>CARTRIDGE</th>
<th>HEADSTAMP</th>
<th>INTERPRETATION</th>
<th>REMARKS</th>
<th>USE</th>
</tr>
</thead>
<tbody>
<tr>
<td>.577/450 Martini-Henry</td>
<td>Westley-Richards, Birmingham</td>
<td>Manufactured 1880-19007</td>
<td>Used by hunters before Anglo-Boer War 1903</td>
<td></td>
</tr>
<tr>
<td>.577/450 Martini-Henry</td>
<td>Rolled case brass foil</td>
<td>1871-c.1880</td>
<td>Used by hunters up to 1936</td>
<td></td>
</tr>
<tr>
<td>.577/450 Martini-Henry</td>
<td>Kynoch, Birmingham Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Anglo-Boer War 1899-1902</td>
<td></td>
</tr>
<tr>
<td>.303 British</td>
<td>Royal Lab. Woolwich Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Anglo-Boer War 1899-1902</td>
<td></td>
</tr>
<tr>
<td>.303 British</td>
<td>Eley Bros. Birmingham Cordite Mark II</td>
<td>Manufactured 1893-1903</td>
<td>Anglo-Boer War 1899-1902</td>
<td></td>
</tr>
<tr>
<td>.303 British</td>
<td>Kings Norton Metal Co. Birmingham Mark VI 1910</td>
<td>Military</td>
<td>Union Defence Force Suppression of Rebellion 1914</td>
<td></td>
</tr>
<tr>
<td>.303 British</td>
<td>Kynoch, Birmingham Mark VI 1911</td>
<td>Military</td>
<td>Union Defence Force Suppression of Rebellion 1914</td>
<td></td>
</tr>
<tr>
<td>.303 British</td>
<td>Kynoch, Birmingham Mark VI 1923</td>
<td>Military</td>
<td>Union Defence Force Target shooting.</td>
<td></td>
</tr>
<tr>
<td>7x57 Mauser</td>
<td>Deutsche Metallpatronenfabrik Karlruhe, 1897</td>
<td>Military</td>
<td>Anglo-Boer War 1899-1902</td>
<td>Used by Boer forces during first year of War.</td>
</tr>
<tr>
<td>7x57 Mauser</td>
<td>Deutsche Waffen und Munitionfabrik, Karlruhe</td>
<td>Manufactured c.1902-1939</td>
<td>Sporting</td>
<td>Used by hunters up to 1939.</td>
</tr>
<tr>
<td>7x57 Mauser</td>
<td>Eley Bros. Birmingham</td>
<td>Manufactured 1902-1923</td>
<td>Sporting</td>
<td>Used by hunters up to 1923.</td>
</tr>
<tr>
<td>8x57 Mauser</td>
<td>Manufacturer unknown</td>
<td>Sporting</td>
<td>Exact dates of use unknown. Used by hunters mostly between 1904-1950.</td>
<td></td>
</tr>
<tr>
<td>6.5x58 Portugese Vergueiro</td>
<td>Arsenal do Ejercito Lisbon, Portugal 1913</td>
<td>Military cartridge for the 1904 &quot;Portuguese Mauser&quot;</td>
<td>Used by Union Defence Force during Invasion of German South West Africa, 1915. Thereafter used by hunters.</td>
<td></td>
</tr>
</tbody>
</table>
up to 1920. Whether all these events were directly associated with the occupation of the site is doubtful. There is evidence, however, of a skirmish in the nearby hills at the adjacent farm Kareedam during the Anglo-Boer War and during the Rebellion some shooting took place at Mushroom Valley about 30 km to the east of Doompoort.

In view of the fact that a wide range of cartridge cases were found together, it is surmised that they were collected in the vicinity as curios or toys and were later discarded. Because of this selective collection of cases representing a long time span the date of initial European occupation of the site cannot be accurately determined. The cases were recovered from the upper layers and on the surface of the middens, indicating that the occupation was already in full progress well before the end of the nineteenth century when the oldest cases arrived. Shortly after 1920 the site was abandoned as is indicated by the cases from middens. In contrast, the surface collection produced dates up to the 1930s and 1940s and even included modern hunting calibres. It is therefore argued that the assemblage of cartridge cases by the occupants of the site only commenced by c. 1890 and ended somewhere after 1920, thus possibly representing the end of the occupation.

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REFERENCES


AN HISTORICAL ARCHAEOLOGICAL INVESTIGATION OF FORT DASPOORTRAND, PRETORIA*

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*Accepted for publication January 1994

ABSTRACT

This contribution deals with the historical archaeological investigation of Fort Daspoortrand, one of the thirty military fortifications erected within the municipal boundaries of Pretoria between 1880 and 1902. It was built for the South African Republic (ZAR) as one of four forts designed to protect the capital against possible attack, following the Jameson raid of 1895/96. The western ammunition tunnel, storeroom and entrance were specifically investigated to help with drawing up a plan of the fort. For this purpose use was also made of archival photographs and measurements made on the site. Artefactual remains contemporary with the fort, such as metal buttons, building material, porcelain and glass fragments were found. However, there is scope for further archaeological investigation.

INTRODUCTION

Thirty military fortifications are known to have been built within the municipal boundaries of Pretoria between 1880 and 1902. These include forts, redoubts, block houses, strongholds and ramparts and were identified through archival sources. Apart from three that have been preserved by the South African Defence Force (SADF) and the City Council of Pretoria, it was not known precisely how many had survived and what their present condition was. The study reported here forms part of a larger project (Van Vollenhoven 1992) which has, inter alia, established that only fifteen of the thirty fortifications have in fact survived. Most are in a bad state of repair.

One of these fortifications, Fort Daspoortrand, was partially investigated further in order to draw up a plan thereof as a first step for a future interpretation and reconstruction of the fort. Artefacts that were found can also be used for this purpose. This contribution deals only with the historical archaeological investigation of Fort Daspoortrand.

HISTORICAL BACKGROUND

On 29 December 1895, Dr L.S. Jameson invaded the South African Republic (ZAR) in an attempt to overthrow the government of President S.J.P Kruger. Although unsuccessful, it led to increased unrest amongst the so called "Uitlanders" on the Rand. This, as well as a number of other events, led the government of the ZAR to the realisation that the capital, Pretoria, had to be secured against any further possible attack by forces inspired by Britain (Van Vollenhoven 1992:96-97). Consequently it was decided to fortify Pretoria in order to prevent the British from annexing it as they had done in 1877 (Van Vollenhoven 1992:39). A Former French artillery officer, L. Grunberg, was appointed to draw up a plan to fortify the town, which was approved by the government on 24 March 1896. Eight strategic positions around the town were to be fortified by means of rotating towers with guns thereon. In the end, however, the government decided not to construct towers, but rather to build forts as proposed by two German engineers O.A.A. Von Dewitz and H.C. Werner (Ploeger 1968:1-21). The reason for this decision was that the commander-general of the ZAR, P.J. Joubert, wanted a substantial garrison in each fort, which would be impossible in the towers (Van Vollenhoven 1992:98).

The original plan was further modified when, through lack of money, only four of the projected eight forts were actually built between 1896 and 1898 (Barnard 1968:51; Holzhauser 1956:22-23, 59) (Fig. 1). The other four were not even started. Of these, Forts Schanskop, Klapperkop and Wonderboompoort were built by the German engineers, Von Dewitz and Werner. Fort Klapperkop is situated on the eastern side of the Elandsportrand, south of Pretoria, whilst Fort Schanskop is located on the western side of Elandsportrand. These two forts would be able to defend the southern approaches from Johannesburg. Fort Wonderboompoort is located on the Magaliesberg, east of Wonderboompoort, i.e. north of the town, in order to prevent an attack from the north. These three forts built by the German engineers, show a similar plan form (Ploeger 1968:25) (Fig. 2).
Fort Daspoortrand was built west of Pretoria, on the Daspoortrand, with a good view over the surrounding territory (Fig. 1). It differs from the other three, having been built by Grunberg, thus in French style (Transvaal Archives KG 255 Cr 3928/99:17) (Fig. 2). Grunberg had complained to the commander-general of the ZAR, P.J. Joubert, about not getting the contract to build the forts and was in consequence awarded responsibility for this fort. (Ploeger 1968:35) (Fig. 3).

Unfortunately little is known about the arrangement and manning of the forts. This is probably due to the fact that commander-general L. Botha ordered all secret documents to be destroyed during the Second Anglo-Boer War (1899-1902) (Transvaal Archives PWD 72 1092/03). However it is known that the forts at that time probably had the most advanced equipment of their kind in the world and that they contained electricity, telegraphic equipment and even telephones (Selby 1969:200).

The well known Creusot 155 mm guns (Long Toms) were imported from France to serve in the forts (Breytenbach 1969:86-87). Because of the course of the war, however, the forts were never fully manned and armed and the ZAR government decided instead to use these guns in the field against the British (Ploeger 1968:76). It was also decided not to defend Pretoria as the Boers changed their tactics to those of guerilla warfare, and to hand over the forts to the British military authority (Transvaal Archives W42/1). As a result of this decision on 1 June 1900, the British troops marched into Pretoria on 5 June 1900. The forts were completely disarmed and left unoccupied until the British troops occupied them between 5 and 7 June 1900 (Wood 1960; Van Vollenhoven 1992:116).

During the war (1900-1902) the British manned the four forts (Ploeger 1968:85). Royal engineers erected a number of other fortifications around the perimeter of the town in order to prevent the Boers from re-capturing Pretoria (Holzhausen 1956:22-23, 59; Barnard 1968:51). Soon after the war (approximately 1904) the forts were dismantled and left to deteriorate. Subsequently Fort Klapperkop (1966) and Fort Schanskop (1978) were restored and maintained as military museums (Ploeger 1968:94; Military Museum Fort Klapperkop 1978:13) while Fort Wonderboompoort was handed over to the City Council of Pretoria by the government of the Union of South Africa to keep the ruin intact (Behrens n.d.:43-44). Fort Daspoortrand (or West Fort as the British renamed it), was left to deteriorate. This lack of attention given to Fort Daspoortrand, coupled with its uniqueness as the only French fort amongst the four Boer forts built for Pretoria's defence, made the present project particularly worthwhile (Van Vollenhoven:1992)

SITE DESCRIPTION

The fort is situated on top of the Daspoortrand, west of Pretoria (Fig. 1), on the farm Broeksheur 318 JR (2528 CA Pretoria) (25.43.54S; 28.04.24E).
Fig. 2. Plan showing the difference in plan form between Fort Daspoortrand, the other three Pretoria forts and the Johannesburg fort (Transvaal Archives, S31750).

Fort Daspoortrand has an almost rectangular shape (Fig. 4). Concrete and bricks were used in its construction, and a natural rock outcrop was incorporated into the structure. The building was strengthened with sand against its walls and on the roof. The most striking feature of the fort is its entrance which features two sets of steel doors and five arches (Fig. 5). It also contains three ammunition rooms, partly underground, connected by tunnels as well as two lifts, for supplying ammunition to the guns on the bastions of the fort. The functions of some of the rooms are still indicated above the doors in the original Dutch e.g. keuken (kitchen), telegraaf (telegraph) and machinen (machine) (Fig. 6). Apart from the roof having fallen in, the fort is reasonably well preserved. However erosion of the earthen walls and vandalism are threatening the structure (Fig. 7).

ARCHAEOLOGICAL INVESTIGATION

During the research, a plan of the fort was drawn up (Fig. 4). Rather than excavate particular blocks within the 10 m x 10 m grid the investigation was focussed on specific structures. The following were excavated:

a. A test trench at the western ammunition tunnel.
4. Plan of Fort Daspoortrand.

b. A test trench in the storeroom (proviand).
c. The entrance to the fort.

The western ammunition tunnel
No stratigraphy was discernable in the infill. It was clear that the tunnel was filled with red sand that had washed into it during the years of abandonment and only ten artefacts were recovered.
What was thought to have been a cement floor was reached at a depth of 0.70 m through the infill. Further investigation revealed the ‘floor’ to consist of two parallel rows of cement slabs, as in a driveway. The slabs had been laid against the two walls, thus leaving a stretch of ground in between.

The storeroom
The excavation revealed that no stratigraphy existed in the infill and only two artefacts were found. The soil in the room probably originates from the roof, which was covered with soil to make it bomb proof. Some of the may also have been washed into the room.
Huge pieces of cement (probably parts of the collapsed roof) were also found which made it difficult to determine the floor level of the room. However, this was later determined from the level of a drain found in the courtyard (see Fig. 4).

The entrance
There were two reasons for excavating the entrance to the fort. Firstly to find the original floor level and to uncover features of the entrance located below the present ground level. Secondly as a practical measure, as an open entrance would allow vehicles to move into the fort and thus be helpful for future research.
The visible architectural features of the entrance were

Fig. 5. The entrance to Fort Daspoortrand.

Fig. 6. The names of the casemates are still legible.

used to divide the area into eight different sections for excavation purposes (see Fig. 4). Again no stratigraphy was found in the infill, for the same reasons as mentioned above. In relation to the amount of infill removed few artefacts (fifty-eight) were recovered. Two huge steel
doors give access to the entrance complex.

In the first section a 0.20 m thick layer of earth had to be removed to reach the approximated floor level which was estimated from a sump in the entrance complex. It is presumed that it was a earthen floor, similar to that of the other three forts (Transvaal Archives, F385; Cape Archives, Elliot collection 3502). Below this, on the eastern side of the entrance, a threshold was found. It consisted of a row of dressed stones with a steel bar across it. At the southern side a step, door and window, leading to a room (probably a guard room) were found. At the western side another threshold was located. This was made of cement, sided by iron bars, probably to tie horses.

The next section was sealed off from the first by a second pair of steel doors. A tunnel connecting the inner part of the entrance with the machine room was also found. As a result of the danger presented by large cement blocks which could collapse, the inner sections of the entrance were excavated by means of a back actor. As no stratigraphy existed this material could be removed as a single unit. It also led to quick results (South 1977:303). The loads of rubble were carefully monitored for artefacts.

ARTEFACTS

Artefacts both contemporary with the fort and of more recent origin were recovered from all the excavated areas. Discussion focuses on the former.

Metal

The majority of artefacts found were items of metal. Most of these seem to have been contemporary with the fort’s occupation (± 1898-1902). The bulk of them were part of the building materials of the structure e.g. nails and screws. In addition, three buttons were found and were positively identified as buttons from British uniforms of the period (Van den Bos 1991). As these were ordinary trouser buttons no more information could be gained from them. Parts of the chassis of a small carriage were also found, perhaps relating to the moving of supplies of ammunition within the fort. An interesting metal bar covered in porcelain, which probably had something to do with the electrical equipment of the fort, was also found. Quantities of wire were also recovered. No contemporary tin cans were found. The rubbish dump of Fort Daspoortrand has not yet been identified.

Building materials

Additional to those mentioned above, building materials included pieces of cement and bricks from the construction of the fort. An interesting find comprised pieces of pitch which had been used for waterproofing the roof.

Porcelain

A few pieces were found. Most of these formed part of the electrical network in the fort. Some fragments of household porcelain were found which were obviously of recent origin.

Glass

Although quite a number of glass sherds were found most of them were of recent manufacture. Some fragments of beer bottle glass were found to be contemporary with the fort’s occupation during the turn of the century (Hogewind 1991).

CONCLUSIONS

Some of the artefactual evidence at Fort Daspoortrand seems contemporary with its period of occupation (1898-1902). The only military artefacts that were found were the uniform buttons. More recent artefacts could have been discarded by people picnicking there and leaving their litter since 1902. This is still happening on the site.

Only three portions of the fort were excavated and more research is needed to determine differences (if any) in the Boer (1898-1900) and British (1900-1904) occupations of the structure. Further excavation might in addition, clarify whether artefacts from the various rooms reflect any activity-related differences and the extent to which such activities might be distinguished. It should always be kept in mind that Fort Daspoortrand was only occupied for a short period of time (1898-1904) and is unlikely to have accumulated a great deal of artefactual evidence.

Although the fort was only partially excavated a clear picture of its plan emerged. In addition, valuable information was obtained from archival photographs, some of them showing structures such as the underground water reservoir and two as yet unidentified rooms (Fig. 8). These latter require further archaeological investigation.

The question as to why the apparently strong roof collapsed has not been satisfactorily answered. A number of possible explanations were given to the writer during the research. None of these have yet be enproven.

While the German built forts, Klapperkop, Schanskop and Wonderboompoort had been reserved, Fort Daspoortrand, the French built fort, had been left to the ravages of time. The present study has highlighted the uniqueness of this fort and has gone some way towards salvaging it from obscurity.
Fig. 8. Photograph, taken in 1913, of the western side of the fort. It shows a similar entrance to that of the water reservoir at Fort Klapperkop, as well as the entrances to two other rooms. (Transvaal Archives photograph 20910).

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NOTES

AN OSTRICH EGGSHELL CACHE FROM THE VAALBOS NATIONAL PARK, NORTHERN CAPE*

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INTRODUCTION

The practice by Khoisan of burying or otherwise setting aside caches of ostrich eggshell containers, with or without contents, has been documented both ethnographically (Schapera 1930; Dunn 1931; Duggan-Cronin & Bleek 1942: fig. 22; Yellen 1977; Lee 1979) and archaeologically (Rudner 1953; Sandelowsky 1971; Humphreys 1974; McGregor Museum Collection). However the latter instances are known all too often through fortuitous post factum reports by farmers after turning up such finds in the course of agricultural activities (Humphreys 1974). In these cases one can never be quite certain of the context, and often the remains are somewhat damaged. A cache of ostrich eggshell containers was recently found during construction of a new tour route through the Vaalbos National Park at Sydney-on-Vaal (Fig. 1). Park officials had the foresight to leave their find until an archaeologist could investigate it, leading to its excavation and description in this short note.

THE CACHE

The discovery was made by Mr Willie Saulse, when he spotted two eggs in the entrance to a deserted antbear hole utilizing by warthogs, just off the new road. Another three were exposed in the side of the hole, about a metre below the surface. Mr Craig Bancroft, Park Warden, contacted the McGregor Museum, and the excavation, conducted during the following weekend, revealed a total of fifteen ostrich eggshell containers, which had been packed tightly together in the soft Kalahari sand. One was cracked and pieces from the top end of it were displaced by bioturbation, but the remainder were fully intact and probably retained the positions in which they were originally placed (Fig. 2).

The site is situated in a patch of Kalahari sandveld, bounded to the north east and west by a large bend in the Vaal River, a little under 2 km distant at its closest point. No other artefacts were detected in the excavation or in the immediate vicinity of the cache, but the presence of material covered over by sand cannot be ruled out. A Later Stone Age Khoisan context is inferred, however, on the basis of historical and ethnographic observations. Engelbrecht (1936) does not mention the use of ostrich eggshell containers among the Korana in the Northern Cape, who made a variety of wooden and ceramic vessels (cf. Smith 1985): but ostrich eggshell remains do occur on what are believed to be both hunter-gatherer and pastoralist sites in this region (cf. Rudner 1971), and it is conceivable that eggshells may have served certain categories of herder containerisation in the past. Burchell (1822-4) described an abandoned 'Bushman' encampment in what appears to have been a rather similar setting to this Vaalbos site, in a thicket of

Fig. 1. Map showing the position of the Vaalbos site near Sydney-on-Vaal. The point marked ‘1’ is the approximate location of an abandoned ‘Bushman’ encampment described by Burchell in 1811 and mentioned in the text. ‘2’ is the position of two shelters at Limerock, Ghaap Escarpment (Humphreys & Thackeray 1983), which yielded abundant ostrich eggshell mouth fragments and decorated pieces.
large Acacias near Schmidtsdrift, about 40 km to the south, in 1811 (Humphreys 1975).

On examination, very small traces of specularite were noted on the outsides of all the eggs, but none contained this substance (cf. Humphreys 1974). This may be taken as an indication that the people who used and/or buried the eggs possessed specularite, which was used on the body for cosmetic and ritual purposes (e.g. Bleek 1911). Fourteen of the eggs had mouths ground into the tapered end, while one had a hole in its side. Mouth diameters averaged 15 mm with a range between 13.0 and 17.1 mm. Several had been placed on their sides, and four with their openings facing downwards, yet all were very nearly (average 95%) full of sand. Rudner (1953), who describes an ostrich eggshell cache excavated north of Upington, found all but one of the seven shells there to be full of sand. The empty egg had its mouth facing downwards, and she concluded that the sand, in that instance, had trickled into the eggs after burial. However, it is difficult to account for the Vaalbos case except by suggesting that they were so filled prior to burial. No trace of any plug, or resin or beeswax around the mouths of the eggs (cf. Dunn 1931; Rudner 1953), was noted. Interestingly, along with the sand, small quantities of charred grass and burnt twigs (less than 1 g) were found inside the eggs. A most likely scenario is that the eggs were buried here for storage purposes for a projected return to the site. Perhaps they were filled with sand for strength in case of animals walking overhead; and in the process charred material blown from a nearby hearth came to be included. A close ethnographic parallel for this is described by Yellen, observing behaviour at a succession of encampments in the Kangwa region of Botswana, at one of which several items, including containers, were cached for a future return (Yellen 1977:152).

The condition of the eggshells suggests that they may not be more than a few centuries old, while in terms of local history they are unlikely to date back less than about 150 years.

**DISCUSSION**

In the ethnography, ostrich eggshells feature principally as water containers used by hunter gatherer groups (Moffat 1842; Stow 1905; Bleek 1911; Dornan 1925; Schapera 1930). Silberbauer (1981) notes that /Gwi encampments were seldom less than 1 km from any given water source, and eggshells were used to bring water to the camp (cf. Duggan-Cronin & Bleek 1942: figs 1, 2). They were also used by women when out gathering, but were too heavy and cumbersome to be taken on the hunt. Marshall (1976) and Lee (1979) noted among the /Kung that married women kept some five to ten eggs on behalf of each family or household. Animal skins or bladders were also fashioned into water containers, and these were favoured by some groups on longer journeys (Silberbauer 1981:221). Lee cites a personal communication from Campbell that on occasion /Gwi buried several hundred eggs filled with water at a single locality in the rainy season for later dry season use (1979:123; cf. Schapera 1930:143). Dunn (1931:35) records from his Upper Karoo travels in the 1870s that, while on the move in that arid region, a Bushman would bury an eggshell water container at intervals of "about 20 miles...near some mark that he alone would recognise". In this way a supply would be ensured for his return. But eggs also served other purposes; for holding 'Bushman rice' (Bleek 1911:261); for food (Silberbauer 1981:216); for carrying and storing ostrich eggshell fragments for bead and pendant manufacture (Sandelowsky 1971); and for transporting and keeping supplies of specularite and ochre (Sandelowsky 1971; Humphreys 1974). One eggshell containing specularite was amongst grave goods recovered from a burial near Upington (Rudner 1971), indicating a ritual dimension to their use.

Eggs occur in clutches of 10-15 in ostrich nests (Lee 1979). Among the /Gwi, not more than two or three eggs were gathered per nest (Silberbauer 1981:216). The contents were a great delicacy, though Marshall has recorded an avoidance associated with them in that men and women from the age of puberty until they were old enough to have had five children were not to partake of them (Marshall 1976:127; Biese 1993:107). Dorothea Bleek noted among the Naron that they were given chiefly to old men to eat (1928:7). Supernatural potency ascribed to them (Lewis-Williams & Dowson 1989) relates to concepts of 'luck' or 'suitedness' among the Ju/'hoan (Biese 1993). They believe that if a person who is 'lucky' with ostrich eggs eats them, rain will fall;

![Vaalbos OES Cache](image-url)
but that, conversely, it will not rain if they are eaten by one for whom they are ‘unlucky’ or ‘ill-suited’ (op. cit. 107). Biesele further records a prohibition against tossing ostrich eggs, a taboo which applies to some other foods and objects as well.

Turning the eggshells into water containers was observed by Lee (1979:276) to take about an hour, and these would last some two years. Such flasks were sometimes decorated (Dunn 1931). In rare examples of egg engraving among the !Kung, the designs signified ownership, according to Marshall (1976:77), but Lee (1979:122) has denied this as the reason for decoration. Unlike the cache excavated by Rudner (1953), none of the Vaalbos eggs bears any sign of such markings. But a wide range of engraved motifs is known from egg fragments from archaeological sites not far from Vaalbos (Humphreys & Thackeray 1983; fig. 1).

It would indeed be interesting to determine more closely the motivations and meanings behind decorating eggs, given the avoidances and potency noted, and the use of the shells for carrying water; and given the social and religious significance of water over and above its very material centrality in the lives of people in this dry region (Hoernle 1923; Lewis-Williams 1981; Humphreys 1993). Both figurative and, much more commonly, non-figurative designs occur (e.g. Rudner 1953; Rudner 1971; Humphreys & Thackeray 1983). Ostrich eggs do seem also to feature in rock engravings, as ‘dots’ in association with ostriches at Schoolplaats and Disselfontein (Fock & Fock 1989), and it is feasible that the several dot-cluster engravings at the latter site (Morris & Fourshé 1993), while they might be construed as entoptics or indeed be a conflation of entoptic and iconic forms (Dowson 1989), could well be further examples.

CONCLUSION

There remain questions for which the Vaalbos cache provides no answers. Apart from those raised in the above discussion, there is no way of telling more closely the identity of its owners, what became of them, or what it was that led to this particular cache being lost or abandoned in the sand. But the find is an interesting example from a category of archaeological sites that all too often have been destroyed before there has been a chance to describe them.

ACKNOWLEDGEMENTS

I thank Craig Bancroft of the National Parks Board for drawing the museum’s attention to this site and for giving up a Saturday afternoon to help in its excavation. I thank my family who also helped. Sephai Mngqolo assisted in the examination of the eggs; and Fiona Barbour brought my attention to some useful references.

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Of particular interest to archaeologists is the design and material used for the foreshaft and arrowhead. Apart from linkshafts, only a few fragmented pieces of this type of equipment have been reported from archaeological contexts. The presence of mastic on microlithic backed stone tools from several archaeological sites have given rise to speculation that these stone tools were used as projectiles for hunting equipment (Clark et al. 1974; Deacon 1976; Parkington 1980). Portions of arrows have been found at Big Elephant Shelter (Clark & Walton 1962; Waldey 1979) Pomone Cave (Cooke 1975), Melkhoutboom Cave (Deacon, H.J. 1976), De Hangen (Parkington & Poggenpoel 1971), Collingham Shelter Mazel (1992) and fine examples of two bone points with mastic mounts still in place have been reported from Faraoskop Rock Shelter in the western Cape (Manhire 1993). Stone tanged and barbed “arrowheads” have been reported from open sites (Wilson 1955; Humphreys 1969; Dreyer 1975).

Several early travellers and writers reported that stone and when obtainable also glass was used as arrowheads (see Rudner 1979). For example, Wikar, a Swedish runaway soldier who lived among the Khoisan groups along the Orange River between 1775 and 1779 reported that arrowheads were usually iron-barbed, but that they also used sharp-edged white stone. Arrowheads were also made of sharpened bones of gemsbuck (Mossop 1935). Dale (1870) described an arrow collected by a certain W.C. Palgrave from the Orange River area as being fitted with a small leaf-shaped flake made of quartz crystal with sharp edges and point and set in a “fine cement”. Dunn (1873) reported that an old Bushman in Bushmanland showed him how arrowheads were made. Two equal sized stone flakes were semented together so that the sharp ends coincided to form a piercing end. This description by Dunn agrees with the arrows made during 1878 for Dr W. Bleek by Jantje, a Bushman prisoner, using backed glass flakes. These arrows are housed in the University of Cape Town’s ethnographic collection (Goodwin 1945) and at the Pitt Rivers Museum at Oxford (Clark 1977).

Despite these reports not a single example of arrowheads fitted with stone is to be found anywhere. From Schapera’s (1927) report on the different types of arrows found historically among Bushmen groups of southern Africa, it would appear that bone and iron were the only materials used for arrowheads. This observation is confirmed by the survey done by J. Deacon (1984) who determined that all arrows in museum collections in Namibia and Botswana which pre-date 1920 are made of bone or beaten fencing wire and those in South Africa which pre-date 1920 are made of bone (Deacon J. 1984).

**STONE TIPPED ARROWHEAD FROM ADAM’S KRANZ CAVE**

Adam’s Kranz Cave is situated some 60 km north of Grahamstown in the eastern Cape Midlands (Fig. 1). The cave is located in steep cliffs some 200 m above the Great Fish River in the Double Drift Nature Reserve in the Ciskei. The surface units at Adams Kranz Cave consist of large patches of well-preserved plant material and during the excavation of these an almost complete arrow foreshaft was found. The very tip was broken off but a large piece of mastic was still attached to it. The end bit, a small chert stone flake set in mastic, was later recovered when material from the same floor was sorted. It fitted exactly the broken end of the foreshaft. A
The small, unretouched chert flake is 6.5 mm in length and estimated to be between 5 mm-6 mm wide which leaves approximately 2 mm of the flake set in mastic. The mastic completely covers the left lateral edge of the stone flake and it is therefore not known whether it is backed. The exposed right lateral edge of the stone flake is slightly convex with no visible damage. A few minute half-moon breakages are visible along the cutting edge on the ventral aspect when examined under a microscope. The flake is set in its length in the same plane as the wooden shaft (chisel hafted).

An interesting feature of the arrowhead is the tiny, thin, unknown material 'wedge' into the mastic where it joins the wooden shaft. The exposed wedge is 6 mm long and also bound over with plant fibre. The purpose of the 'wedge' is not known. No traces of poison were present.

**DISCUSSION**

As this is the first complete example of its kind reported on in southern Africa, it would be premature to draw too many conclusions from it. Nevertheless, it confirms the observations of the early travellers and writers that stone was used for arrowheads. However, it would appear that this example, for the moment at least, does not conform to the general idea that segments were used as arrowheads. An interesting aspect is the striking resemblance to stone tipped arrows (also chisel hafted) found in the tombs at Naga-ed-Der in Egypt dating between the VIIth and XII Dynasties (BC 2341-1991) (Clark et al. 1974). These arrows were no doubt used for hunting and warfare (Clark et al. 1974).

It is, however, difficult to imagine that the Adam's Kranz arrowhead was used for hunting. Experiments conducted by Simon Hall and myself with ethnographic Bushman bow and arrows fitted with segments similar to the Jantje example, chisel end hafted and shot at a dead calf, proved to be ineffective in penetrating the carcass (Binneman & Hall in prep.). In this example the flake is chisel hafted which would make it even more difficult to penetrate an object.

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A SHORT NOTE ON THE NAMAQUALAND DIARY ENTRIES OF W.G. Atherstone RELATING TO BUSHMEN BOWS AND ARROWS

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Dr William Guybon Atherstone was a nineteenth century medical practitioner and astute natural scientist who resided in Grahamstown but visited Namaqualand in 1854 to investigate the rapidly expanding copper industry. His diaries are housed in the 1820 Settlers Memorial Museum, Grahamstown. In diary Number 29 he records his encounters with a Bushmen group and briefly discusses their bows and arrows.

While prospecting for copper he visited lKosis (29.06.40S; 17.34.05E) some 35 km north-west of Koekfontein (later named Steinkopf). lKosis refers to a settlement named Kosies which is near the Kosiesberg. According to Atherstone he "awoke at dawn by wild singing, jumped up and saw two or three women walking off singing merrily to the Bushman’s huts in the next valley to see if there was any beer left" (page 73). These Bushmen, he noted, came from the 'Am Alip' Mountains which were situated some three miles to the east of lKosis and were the highest mountains in the region. It is possible that the 'Am Alip' mountains refer to the nearby Rooiberg.

His diary continues (page 74), "got the Bushman arrow, lit a fire and got a lot of information, respecting their bows and poison (see end of book), and got him to dig up one of the so-called poisonous worms, they say they never use snake poison". One page 76 he notes "I bought some real Bushman arrows for Johnny and tried hard to get the bow, but the man wanted it to shoot wild horses to eat".

His description of the bow and arrow is in the back of the diary and commences on page 10 (Figs 1 & 2).

I saw a real Bushman bow at (the name is omitted here). The arrow is 2 ft 6 inches, bow 4 ft 8 inches long, when strung. The string made of sinews of ostrich legg (3 strands) fastened at one end and coiled into 10 or 11 coils at the other end, bow tightened by turning the coils. When strung the end of the bow just came up to my chin. About one and a half
Fig. 1. The proximal end of an arrow shaft on the left and a complete arrow with linkshaft and arrowhead on the right.

inches thick in the middle - protected for 2 inches about 3 inches from end by smooth honey (?) bark of a succulent plant put on green and allowed to dry like the spiny pelargonium. The feather is glued to the arrow with a red resin. The poison (they say) is made from an insect (insect is deleted and 'grub' inserted (?) which is found in a succulent resinous plant, with a very thick stem and strong smell of Turpentine, and frequently a bulbous thickening towards roots. These grubs are stamped with the milk of the Euphorbium and some other ....

The description continues on page 12: "Bushmen Bow. Held vertical the thumb and finger of right hand grasping string with the forefinger quite over the string, its full length to bend it when is drawn aside as the string slips past" (Fig. 3). Page 16 continues,

the tip of Black aasvogels feather is used for the arrow, the feathers on the shoulder. They use a crysalis like a yellow maggot in a round covering which I saw and put one into the ventilation of my helmet - it is found under the tree of which I got the seed. They say it is deadly poisonous and they pound a number of

these maggots and mix them with the watery juice of the Euphorbia after the milk has been roasted out and with some of the burnt dry euphorbia shoots which renders it black - they have never tried the euphorbia juice alone - but knows instances of death from the bite of the worm! The bone of the leg of a quagga is used
for the shank of the arrow and is of this shape going into the reed by the sharp end or the blunt. The spear head with the poison fixes on this bone for which purpose it has a small piece of reed attached to the wood in which the spear head is fixed - the arrows are straightened by heating either on a piece of cow dung in fire (without flame) or a heated stone - the bone is always put in about 4 inches from a joint so that the bone goes into it halfway to the joint. The string is pulled by the first joint of the fore finger so that not the slightest strain is put on the arrow which is lightly kept in its place by the thumb and when it full stretch the fore finger slips on one side and the string flies back. The name of the maggot is "Aap" - the cement for the feather is euphorbid milk and red clay.

REPORTS

THE XI BIENNIAL SASQUA CONFERENCE

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The McGregor Museum hosted the XI Biennial Conference of the Southern African Society for Quaternary Research from 12 to 14 July 1993. Comment on the conference and three associated excursions has already been made (Avery 1993; February 1993; Kershaw 1993; Scott 1993), but for the benefit of non-SASQUA folk we highlight a few aspects.

The conference attracted 58 delegates who presented a packed programme of 39 papers and 6 posters, amongst which were notable contributions by overseas guests, from both hemispheres. These provided comparative insights into palaeoenvironmental features and research elsewhere, and useful measures against which to gauge local palynological progress. From south of the equator, Peter Kershaw (Victoria) presented impressive data on long palynological sequences from Australia; while Martin Iriondo (Argentina) put across a detailed account of Late Pleistocene to Holocene environments in South America. From the north, Yolanda Fernandez-Jalvo (Madrid) provided results of small mammal taphonomy studies at Atapuerco in Spain; and Lars Larsson (Sweden) illustrated a minutely documented and dated sequence of ice movements, sea level changes and human exploitation of rapidly shifting environmental opportunities in southern Scandinavia during Younger Dryas times.

Local papers and posters addressed an enormous wealth of Quaternary features ranging through periglacial to coastal, marine, fluvial, lacustrine, interior plateau and desert environments in southern Africa - viewed from perspectives as diverse as geomorphology, sedimentology, macro- and micro-faunal analysis, isotopic studies, palynology, taphonomy and archaeology. Spatially, the focus took in much of the coastline from Namibia to Zululand (Ward, Burkinshaw, Illenberger, Hattingh, Zhang, Brink, Scharf, Maud and others - see below), some of the adjacent hinterlands (Jacobs and others - see below), the escarpment areas (see below), and the inland plateau (Thackeray et al. and others); while chronologically the papers ranged from Mio-Pleistocene times to the present. The 90 metre core from the Pretoria Saltpan (Tswaing) impact crater (Partridge), recently dated by interpolation from a 220 000 year fission track age on the impact event, has yielded pollen, diatoms and a sediment sequence which together document pronounced moisture fluctuations over the past 200 000 years. In conjunction with other data, this remarkable sequence holds promise of providing more accurate palaeoclimatic models for the last glacial cycle in the southern hemisphere than presently exist. Preliminary results were presented of pollen analysis (Scott) from the Pretoria Saltpan as well as from a 20 000 year Cedarberg hyrax midden sequence, and palynological evidence from other sites in the subcontinent. Multi-disciplinary work including major archaeological input at Verloren Vlei and the south Cape coast covered terminal Pleistocene through Holocene to colonial times (Cohen, Jerardino, Meadows & Baxter, Parkington), while a number of papers addressed archaeological and archaeozoological aspects of the Late Pleistocene up-country (Behrens, Brink, Esterhuysen, Mitchell, Opperman). These were interestingly contrasted with studies of contemporary periglacial phenomena in the high escarpment areas of the eastern Cape (Lewis) and Drakensberg (Grab).

A keynote synthesis from the 1991 Conference (Tyson & Lindesay 1992) provided the springboard for "theme papers" on the final day, devoted entirely to the last two millennia. Several presenters considered in closer or amplified detail the data sets used in Tyson and Lindesay's synthesis, for example, a review of several
International guests at the XI SASQUA Conference, with museum director Liz Voigt (second from left) and conference organiser Peter Beaumont (fifth from left): Dr Peter Kershaw (Australia), Dr Martin Iriundo (Argentina), Dr Yolanda Fernandez-Jalvo (Spain), Mr Kenneth Juell (USA) and Prof Lars Larsson (Sweden).

fossil micro-mammalian sequences, mostly from the interior (Avery); new hyrax dung pollen records which again illustrated the potential of this method (Scott); oxygen isotopic data for a number of late Holocene sequences (Talma); and refinements and future possibilities in dendrochronology (February, Thackeray, Vogel).

New data were presented relating to Verloren Vlei sea level fluctuations (Jerdarino), and vegetation change (Meadows & Baxter); human impacts at Richards Bay (Cooks & Bewsher); new lake pollen data from the eastern Cape (Adams); and the innovative use of Oxygen isotopes in ostrich eggshell to deduce palaeohumidity (Talma). The potential of horizontal debris accumulations at Northern Cape specularite mines to yield high (Beaumont & Morris). Bone density profiles from Karoo archaeological sites were discussed in terms of their environmental implications (Sampson - and published in the last issue of Southern African Field Archaeology), while ceramic analytical methods used on some of these sites were outlined as a basis for detecting inter-group interaction (Jacobson). Shifting patterns of Iron Age settlement were shown to correlate meaningfully with the evidence of climatic change (Huffman). The session closed with general discussion on progress made in the preceding two years, and the need for further research into this time period.

Illustrated particularly well in this session was the value of collaborative projects, and where there had been a danger of people talking past each other, as in-coming SASQUA President Margaret Avery (1993) remarked, this concerted look at the last two millennia was evidence for the profitable way common problems could, and were being, addressed from different angles. The high level of collaboration was in fact one of the features of local research which Australian palynologist Peter Kershaw found impressive - along with the interaction he noted between "daters and users", the high quality of student presentation, and "the degree of innovation in environmental archaeology and in extracting data from sub-optimal Quaternary environments" (1993:7).

The conference papers are to be published in a single future issue of Quaternary International. For anybody interested, abstract booklets are still available from the McGregor Museum, P.O. Box 316, Kimberley 8300.

REFERENCES


CONFERENCE IN HONOUR OF DR MARY LEAKEY'S OUTSTANDING CONTRIBUTION TO PALAEONTHROPOLOGY.

HANNALE VAN DER MERWE

Department of Archaeology,
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A palaeoanthropological conference, "Four million years of hominid evolution in Africa: an international congress in honour of Dr Mary Douglas Leakey's outstanding contribution to palaeoanthropology", was hosted by the Ministry of Science, Technology and Higher Learning of Tanzania with the collaboration of the University of Dar es Salaam, the Muhimbili University College of Health Sciences and the Department of Antiquities and National Museum in the Ministry of Education and Culture. It was held at the Arusha International Conference Centre, from
8-14 August 1993. Some 150 delegates attended from countries such as Kenya, Uganda, Tanzania, Mozambique, United Kingdom, France, Germany, Spain, Netherlands, Israel, Slovenia, USA, Canada and Switzerland, and of course there was a strong contingency from South Africa. We received a warm welcome. Indeed, the delegates from South Africa were invited to a special lunch by the organising committee, and we all felt honoured.

The proceedings were organised in three sessions: 1. archaeological, 2. palaeontological and 3. palaeoenvironmental.

After the conference was officially opened Amini Mturi outlined the valuable contribution that Mary Leakey made to the history of Tanzania. The other keynote speakers were J. Desmond Clark, honouring Mary Leakey for her contribution to the archaeology of East Africa, and Richard Hay, the geologist primarily responsible for the interpretation of Olduvai. Both were long time colleagues of Mary Leakey.

A. Nkini opened the archaeological session by describing the palaeoanthropological research achievements in Tanzania after independence and the Government’s policy in the issuing of research and excavation permits. The remaining papers that day summarised current archaeological projects in East Africa.

The following day the archaeological session dealt mostly with Africa. Lyn Wadley (MSA), Amanda Estherhuysen (charcoal) and Joanna Behrens (stone tool residues) presented papers on Rose Cottage Cave. Kathy Kuman took us back further to the new findings at Sterkfontein. Tom Huffman gave new information on climatic changes during the Iron Age and this was followed by Judy Sealy’s paper in the revised chronology for Stone Age pastoralism in South Africa. We then made a jump back to Tanzania with two papers, the first by N.J. Karoma on the later Quaternary and the second by F. Masoa on ‘Sangoan’-like material from Kilwa, afterwards P. Menees talked on the Acheulian in Mozambique. J.L. Carmack from the UK gave us more on the ESA in Africa and O.B. Yosef closed the morning session with the ESA in Israel.

The afternoon session started off in Uganda with a paper on an Oldowan site at Nyabusosi, Lake Albert Basin, Toro (P.J. Texier). The following four papers dealt with land use and landscape archaeology: A.Z. P.Mabulla (Eyasi Basin, northern Tanzania), J.W.K. Harris (Lake Turkana Basin), M. Rogers (Koobi Fora, Kenya) and R. Blumenschine (Olduvai Gorge).

A session on rock art included papers by Lewis Matlyela on the Transkei, Tim Maggs on Iron Age art and Hannali van der Merwe on recent rock engravings in the north-western Cape. I. Lim closed the session with a paper on rock art in Tanzania.

On Wednesday we started off with the palaeontology session. The papers were divided between actualistic reports and fossil hominid research. Among the latter, F. Schrenk and T. Bromage announced a new early Homo mandible from Malawi, estimated to be between 2,5 and 2,3 mya on faunal grounds. M. Mbago, C. Msuya and T. Harrison described new projects in the Manonga valley of northern Tanzania.

Questions of taxonomy were of major concern. D. Lieberman and D. Pilbeam discussed the number of species required to account for the earliest Homo, while P. Rightmire argued that early Pleistocene forms in Africa should be classified as Homo erectus rather than Homo ergaster. Several participants presented papers on individual hominids or specific taxa (e.g. S. Cachal, A. Bilshorough, J. Thompson, S. Pfeiffer, L. Aiello and B. Wood), and Alan Morris brought Boskop back into focus. A. Zihlman and R. Tuttle considered Laetoli and the origins of bipedalism.

The palaeoenvironmental session included Andrew Sillen’s paper on the use of stable isotope geochemistry for habitat reconstruction. N. Sikes (Olduvai) and S. McBrearty (Simbi, a MSA locality) used similar evidence. Margaret Avery used micromammals as environmental indicators, while C. Denys was concerned with rodent evolution. Our own Francis Thackeray presented his environmental reconstruction of the Swartkrans area based on ungulate fauna. D. Rayner outlined a new environmental interpretation of Makapansgat, while C. Feibel, J.W.K. Harris and N. Boaz presented a new reconstruction for parts of East Africa.

The four days of scientific papers were followed by an excursion to some of the most important hominid sites ever discovered. Sixty eight delegates visited the Ngorogoro Crater, Olduvai Gorge, Laetoli and Lake Manyara. Dr Mary Leakey was present throughout. She addressed the conference briefly at the end of the formal sessions and it was a great privilege to meet her. She remains an inspiration to us all.
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This is the contents page of an academic journal, listing articles, opinions, notes, and reports published in the journal. The page provides a concise summary of the topics covered in each section, along with the page numbers for easy reference.
The aim of Southern African Field Archaeology is to communicate basic data to professional archaeologists and the public.

Manuscripts of original research undertaken in southern Africa will be considered for publication. These may include reports of current research projects, site reports, rock art panels, rescue excavations, contract projects, reviews, notes and comments. Students are encouraged to submit short reports on projects. Southern African Field Archaeology also welcomes general information on archaeological matters such as reports on workshops and conferences.

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### OPINIONS

Does it matter that the discipline of South African archaeology is dominated by white middle class males? Does the composition of the profession impact on the kinds of archaeological knowledge produced? Few disciplines today - even the 'hard' sciences - fail to recognise that knowledge is not absolute, but bears traces of the subjectivity of researchers. In archaeology internationally, the surge of interest in matters of gender since the early 1980s can be directly correlated with an influx of women into the archaeological profession, and into positions of influence. The conclusion that can be drawn from this is that the composition of the profession does indeed influence research designs and the kinds of questions deemed salient to explore.

At South African universities, women students make up a substantial part of the post-graduate contingent in Archaeology, and women have been the recipients of several of the doctoral degrees recently awarded. Country-wide, academic posts occupied by women include only one professorship, and only one senior lecturership. Although there are women who are qualified for such positions, current employment prospects in Archaeology are such that posts are infrequently available (Miller 1993). This situation clearly does not reflect the range and scale of involvement of women in Archaeology.

Examination of the kinds of work that male and female archaeologists engage in is telling: women tend to be concentrated in laboratories, curatorial positions, and other posts and specialisations which do not necessarily involve protracted fieldwork. We spoke informally to some women archaeologists, who felt that gender, family responsibilities and social roles had inevitably influenced their choice of career path. It was generally felt that career decisions had been made so as to minimise absences from home and family. Another point that was forcibly made was that the career trajectory of male and female archaeologists tends to diverge. Whereas men are freer to gather their degrees in a relatively uninterrupted
fashion, women are often compelled to take time off and work or study part-time in the interest of their children. But the academic system values early high achievement (for example, rewarding ‘young researchers’, under age 36). Women may take longer to establish their careers, or may only be free to pursue their careers without impediment after children are older. As a result, these women are grossly disadvantaged, and may not receive the benefits of patronage systems.

As noted, women members of SAAA tend - by choice or necessity? - to be located in positions which involve processing work, doing chemical analysis, archaeozoological research, or archival research. The predominance of women in Historical Archaeology has much to do with the fact that this sub-discipline does not necessarily require major expeditions into the country; excavations in and around the City can be more easily accommodated in the ordinary working week. Though some women are willing and qualified to conduct excavations, in some instances, men appear to be better suited to the work. For years, male students emerging from the clutches of the SADF have brought to their careers field skills and confidence acquired in the army. Contract archaeology, which commonly involves lengthy and frequent excursions into the field, is an area which is targeted for growth and future employment opportunities. Yet this is a field which is not particularly practical for many women, with the possible exception of single women. Given that contract work is likely to offer one of the few sources of employment for graduates, the question might be asked: is this an equal opportunity employment scenario for the future? Or will the development of CRM favour men?

The relative position of men and women in Archaeology is the result of historical conditions, not necessarily the result of a sexist plot. Nevertheless, given the predominance of men in archaeology, it is reasonable to question to what extent the discipline has been defined by men and bears the stamp of male interests. There remains, in archaeological understanding, an emphasis on the centrality of field work, especially excavation. Excavation is, of course, the source of primary archaeological materials. As analysts and curators in the second and subsequent stages of research, women are thus not always ‘in on the ground floor’. Yet, site reports and excavations alone are not in the forefront of contemporary archaeology, and the most influential work tends to be that which synthesises or presents an overview of developments in archaeological knowledge. Though such analytical work is of equal importance to the research process, there remains a certain elevation of the value of excavation, which is still seen as the fundamental task of the archaeologist. However, the way in which archaeology has developed challenges this perception of the primacy of excavation. The specialisation which has occurred over the past decades has been a consequence of increasing sophistication in the sphere of theories and technologies. The old archaeologist as Renaissance man is an endangered species. Few archaeologists are currently competent to excavate, conduct scientific analysis and stay abreast of theoretical developments in the field. Yet the move towards specialisation seems to have prompted a situation where some specialised skills are valued above others; excavation/field skills remain at the forefront. It may be suggested that this is an archaic understanding; though there will always be a need for excavators, there is not reason why archaeologists with other specialities should not have the status of the fully-fledged archaeologist. Rock art research, for example, is as ‘archaeological’ as research which is excavation-based, although it does not necessarily posit excavation as the starting point of archaeological knowledge. It is not excessive to suggest that the primary accorded to excavation is out-dated, and that its ongoing centrality to the definition of what archaeology ‘is’ may be a product of male perceptions and a male-defined disciplinary status quo. Given that excavation is one of the more narrowly technical activities of archaeology, there seems to be no reason why every archaeologist should be an excavator; might not CRM fieldworkers be contracted as specialist surveyors/excavators to those professionals who might otherwise find field work difficult to incorporate? It is time that excavation be acknowledged as one archaeological speciality, not the defining feature of an archaeologist’s competence.

Do women in Archaeology need affirmative action? Probably not, since women have shown themselves to be perfectly competent in all realms of archaeological research. Unquestionably, women choose to specialise in those areas of Archaeology that are compatible with their commitments. The problem is not that women are being denied access to certain realms of archaeology. Rather, it must be recognised that, while constraints arising from the organisation of society and the family remain the same, many women will need to select for career niches that are compatible with their life situation. As such, to privilege excavation is to subordinate the contributions of researchers (not only women) in other aspects of archaeological research. What is required is not ‘equality’, but acknowledgement of the equal importance of the services that different specialists provide, and an understanding of the determinants of different career choices and contributions.

Anne Solomon & Jeannette Smith.

REFERENCES


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HOLLOW ROCK SHELTER, A MIDDLE STONE AGE SITE IN THE CEDERBERG*

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*Accepted for publication January 1994

ABSTRACT

Hollow Rock Shelter is a small Middle Stone Age site in the northern Cederberg containing only stone artefacts in a shallow deposit. Observed changes in the deposit suggest a sequence of episodic occupation extending over perhaps thousands of years. Relative dating based on stone typology places the HRS sequence into the MSA 2. Bifacial points are a significant component of the retouched artefacts. Pigment nodules were also abundant, including a variety of worked forms. HRS has the potential for further research options, such as refit studies.

INTRODUCTION

The Middle Stone Age in southern Africa, only recently the subject of great attention, remains a relatively poorly understood period when compared e.g. to the Later Stone Age. Thackeray (1992) points out that the amount of interest shown in the MSA in the last ten years has put the southern African MSA into "the global archaeological spotlight" (1992:385). The international attention is drawn by a few, yet meaningful finds, such as the early anatomically modern humans from Klacies River Mouth and a possible infant burial at Border Cave (Beaumont et al. 1978; Singer & Wymer 1982; McBrearty 1990; Rightmire & Deacon 1991), the worked bone artefacts from Klacies River Mouth (Singer & Wymer 1982), Border Cave (Beaumont 1973), and Apollo 11 (Wendt 1976) and the incised OES from Apollo 11 (Wendt 1976). However, more ordinary issues also need further study. The meaning of geographic variability of site distribution and content, assemblage composition and possible differential site use, lithic technology and reduction sequence, and the symbolic implications of ochre are some of these issues.

The objective of this article is to report on the findings at a new MSA site in the northern Cederberg, called Hollow Rock Shelter (HRS). The site was excavated and provisionally analysed for the practical component of an honours degree. The analysis of artefacts at HRS adds to the database of regional information on the MSA, while the assemblage components are suitable for technological studies. The high incidence of bifacial points provides a particularly significant difference from other sites such as Klacies River Mouth, Elands Bay Cave and Nelson Bay Cave (Volman 1981). These features, as well as the abundance of ochre make HRS potentially suitable for the examination of some of the issues outlined above.

HOLLOW ROCK SHELTER: LOCATION AND SITE DESCRIPTION

Location (Fig. 1)

HRS is situated on the farm Sevilla, on the northern edge of the Cederberg range, about 40 km north-east of...
Clanwilliam at 32.05S; 19.04E. A few kilometres to the north-east lies the site of Klipfonteinrand which contains LSA, Howiesons Poort and then earlier MSA artefacts (Thackeray 1977; Volman 1981). HRS is one of a group of similarly sized boulders (about 2-5 m high) located on a level terrace of bedrock near the top of a ridge west of the Brandewyn River. The opposite bank of the Brandewyn River in the valley below is bordered by extensive rocky ridges which continue south-east into the farm Boontjieskloof. There are several small LSA sites in this area and it is rich in rock art. Evidence of LSA activity becomes scarce higher up along the western ridges and this is consistent with the observation that only MSA material is present at HRS.

Site Description

HRS is a small (6 x 7 m), well defined site situated in the hollow space created by a tumbled boulder (Fig. 2). Access is gained through a few low arches around the perimeter (Fig. 3). The floor is formed by a 20-350 mm sandy soil deposit above bedrock.

The site seems relatively undisturbed. Indications are that natural taphonomic forces have been the main post-occupational factors affecting the site. The most important one of these is the rainwater run-off which trickles through the boulder moistening the deposit. The acid environment would have caused the total disintegration of all organic matter. This may be why only stone artefacts remain. Some of the lithic material though, notably a coarse-grained local quartzite and some indeterminate fine-grained material, was left in an extremely friable state.

Artefacts are concentrated predominantly underneath the boulder, although a diffuse scatter of stone artefacts is present laterally as well as immediately downslope. It is noteworthy that no artefacts were found more than about 2 m behind the boulder on the upslope side. The source of the scattered material was thus undoubtedly from within the hollow boulder.

EXCAVATION

HRS was excavated in February 1993. The only perceivable variation in the generally brown sediments was a change to redder, gravelly soil just above bedrock, in which artefact numbers fell off sharply. Excavation took place in 50 mm spits parallel to the slope of the deposit, down to bedrock in most instances. The spits were named IA, IB, IIA, IIB with IIA and IIB being reached in the deepest squares in the centre of the shelter. A total of 17 squares were excavated, roughly across the diagonal of the shelter (Fig. 4).

The most noteworthy feature was a concentration of
charcoal roughly in the center of the shelter in squares AD13 and AD12, tailing off in AD14 and AE12 (Fig. 4). This persisted through almost the entire sequence, from the bottom of spit IA to the end of spit IIB, 150 mm lower.

**ANALYSIS**

All the stone artefacts from three of the richest squares were analysed (AC13, AC14 and AD14). This amounted to approximately 10,000 artefacts and was considered sufficiently representative of the site for the purposes of a provisional analysis. In addition, all the cores and retouched artefacts from the remaining excavated squares were analysed in order to increase the otherwise small numbers in these categories.

The analysis is based mainly on a scheme developed by Bordes for the European Mousterian and adapted by Volman (1981) to southern African circumstances. Other classifications were also integrated, notably that used at Klasies River Mouth by Thackeray and Kelly (1988) and at Rose Cottage by Wadley and Harper (1989). Because Volman's typology does not deal with bifacial points in sufficient detail and they are a significant component of the assemblage at HRS, other schemes were used for their description (Goodwin 1928; Goodwin & Van Riet Lowe 1929; Goodwin 1953; Malan 1955; Deacon 1979).

The assemblage was sorted by raw material as well as into the primary categories of cores, flaking product, debris, grindstones, hammerstones and manuports.

The analysis of the cores follows Volman's system (1981) with some minor modification. The category 'minimal cores' was changed to include blocks with one or two removals, since the strikes represent deliberate flaking, albeit not sustained. Some of these would have been included as 'debris' by Volman and called 'chunks' in other classifications.

The flaking products consist of flakes and blades larger than 20 mm. Blades are defined as mostly parallel-sided or convergent flakes with a length greater than twice the width. This definition of blades differs from that of Thackeray and Kelly's (1988) flake-blades, which appear not to have any proportional criteria. Any flaking products with intact platforms were individually numbered and described (platform shape and type based on a scheme by Thackeray and Kelly (1988)), while the length and breadth of whole pieces were also measured (Volman 1981). Fragments without bulbs and platforms, but larger than 20 mm were simply counted as 'flake fragments'.

Retouched artefacts, besides bifacial points were classified in terms of Volman's system (1981). Any artefact with modification not readily attributed to retouch, was evaluated in terms of possible natural damage or use wear, taking into account the raw material properties. Of these, only artefacts interpreted as damaged in use (persistent, patterned modification) were termed 'utilised'. The remainder were placed in an 'indeterminate modification' category. Not all utilisation is detectable so this distinction is subjective (Johnson 1975).

Debris consisted of small flaking debitage (SFD) of less than 20 mm and chunks (Thackeray & Kelly 1988). The size cut-off point for SFD is an arbitrary one, most researchers in the MSA favouring 20 mm over the LSA convention of 10 mm (Deacon 1984). For the sake of argument a separate count was kept of SFD greater than 10 mm (but <20 mm) and SFD smaller than 10 mm, except in the poor quality quartzite, where the distinction is meaningless due to its friability.

The raw materials consisted of quartzite (QE), quartz (QZ), hornfels (HF), silcrete (S) and cryptocrystalline silicates (CCS), while any material that did not fall into the above categories was termed 'other'. The quartzite was further divided into poor quality (PQ) and good quality (GQ). The poor quality has loosely cemented grains of mixed size and is prone to post-depositional degradation. The good quality has densely cemented usually small grains, and is thus more compact and durable.

**RESULTS**

Raw Materials

There is a distinct change in raw materials over time (Table 1). The frequency of quartzite decreases from 75% in units IIA and IIB at the bottom of the sequence to 57% at the top in unit IA. The fine grained materials (silcrete, hornfels and cryptocrystalline silicates) more than double their frequency at the top, increasing from around 13% in units IIA and IIB to 28% in unit IA. The
Table 1. Raw material frequencies in each unit.

<table>
<thead>
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<th>UNIT IA TYPE</th>
<th>QE(GQ)</th>
<th>QE(PQ)</th>
<th>OZ</th>
<th>HF</th>
<th>S</th>
<th>CCS</th>
<th>OTHER</th>
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<th>% TYPE</th>
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<td>121</td>
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<th>S</th>
<th>CCS</th>
<th>OTHER</th>
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<th>% TYPE</th>
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<th>CCS</th>
<th>OTHER</th>
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<th>% TYPE</th>
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<td>0</td>
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<td>0.8</td>
</tr>
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</table>

Fig. 5. Raw material frequencies in units IA, IB, IIA and IIB.

frequency of silcrete shows the most pronounced increase from 3.7% of the raw material in the lowest unit IIB, to 18.8% at the top in unit IA. Changes in quartz are less marked and the frequency tends to remain of the same order throughout (Fig. 5). Silcrete, hornfels and quartz often show a higher percentage frequency for utilised and retouched artefacts than for the flaking products in that unit (Table 1). So for example in unit IA silcrete constitutes 12.3% of the flaking product, yet 18.4% of the utilisation is on silcrete and more strikingly, 41.9% of retouched artefacts are made of silcrete. In unit IIB on the other hand, hornfels, with a flaking product of 5.8%, comprises 15.6% of utilised and 19.4% of retouched artefacts. In quartz the percentage of utilised artefacts significantly exceeds the percentage flaking product in all the units. Cortical elements indicate that a common raw material source for hornfels is medium sized river cobbles.

Retouch

The percentage frequency of major retouched elements (Tables 2 & 3) shows a predominance of bifacial points in units IA and IB, denticulates in unit IIA, while scrapers are notably most abundant in the deepest unit, IIB. The percentage of retouched artefacts in the whole assemblage is 1.4% (or 3.7% if the utilised artefacts are also included).

Table 2. Percentage frequencies of major retouched elements.

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<th>SCRAPERS</th>
<th>DENTICULATES</th>
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</tr>
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<td>9</td>
</tr>
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</tr>
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<td>IIA</td>
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</tr>
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<td>IIB</td>
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BIFACIAL POINTS

The bifacial points are numerous. Out of 48 bifacial worked pieces, 40 can definitely be related to points. Of these 40, 17 are whole or almost whole. The remainder
Table 3. Frequencies of retouched artefacts and raw materials from all excavated squares.

<table>
<thead>
<tr>
<th>UNIT IA</th>
<th>RAW MATERIAL (GQ)</th>
<th>RETOUCH TYPE</th>
<th>QUARTZITE (PQ)</th>
<th>HF S</th>
<th>CCS</th>
<th>OTH.</th>
<th>%</th>
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</thead>
<tbody>
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<td>1</td>
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<th>CCS</th>
<th>OTH.</th>
<th>%</th>
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<tr>
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<td>8.9</td>
<td>17.9</td>
<td>25.0</td>
<td>5.4</td>
<td>0.0</td>
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</tbody>
</table>

Fig. 6. Illustrations of large, medium and small bifacial points.
are broken and there are no refits amongst them. For the purpose of quantitative analysis this means that all the broken ones are countable as if they were whole. Bifacial points thus constitute 11.4% of all retouched and utilised artefacts (or 30.8% of retouched artefacts).

The bifacial points (Fig. 6) at HRS display the narrow 'willow-leaf' and wider 'laurel-leaf' shapes associated with the Stillbay type as described in the southern and western Cape by Goodwin and Van Riet Lowe (1929). There is a wide variation in size. The diversity in maximum dimensions ranges from a small quartz point of 38 x 14 x 6 mm to a large silcrete one of 107 x 43 x 20 mm. There seems to be no association of size with raw material except in quartz, where 3 of the 4 bifacial points are small. Although most of the bifacial points are made of silcrete, quartzite is the second most commonly used raw material. Poor quality quartzite is used more often than good quality in both large and small bifacial points. In unit IB there are more bifacial points made of poor quality quartzite than of silcrete, although the frequency of silcrete in the assemblage overall is still high.

Platform Types

Blades generally tend to have more multiple faceted platforms than plain ones, while the opposite is true for flakes (Table 4).

Table 4. Summary of identifiable platforms for flakes and blades in each unit.

<table>
<thead>
<tr>
<th>FLAKES</th>
<th>PLATFORM TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PLAIN</td>
</tr>
<tr>
<td>UNIT</td>
<td>n</td>
</tr>
<tr>
<td>IA</td>
<td>68</td>
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<tr>
<td>IB</td>
<td>168</td>
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<tr>
<td>IIA</td>
<td>139</td>
</tr>
<tr>
<td>IIB</td>
<td>119</td>
</tr>
<tr>
<td>TOTAL</td>
<td>494</td>
</tr>
</tbody>
</table>

| BLADES | | | |
|--------| | | |
| UNIT | n | % | n | % | n | % |
| IA | 18 | 33.3 | 17 | 31.5 | 19 | 35.2 |
| IB | 40 | 32.3 | 46 | 37.1 | 38 | 30.6 |
| IIA | 35 | 25.7 | 47 | 34.6 | 54 | 39.7 |
| IIB | 38 | 27.1 | 52 | 37.1 | 50 | 35.7 |
| TOTAL | 131 | 28.9 | 162 | 35.7 | 161 | 35.5 |

Artefact Lengths

The general tendency is an increase in length of artefact with the depth of the deposit. This is illustrated by comparing the flake:blade ratios of the units. These can be calculated from the numbers of whole flakes and blades in table 5. The ratio decreases consistently with depth (3.4 in unit IA, 2.9 in IB, 2.9 in IIA and 2.4 in IIB), which means that there is an increasing proportion of blades with depth. The length/breadth ratios in table 5 also give some indication of this trend. Furthermore flake:blade ratios calculated on the artefact counts from table 4 (platforms) support this finding, yielding ratios of 3.2 in unit IA, 3.0 in IB, 2.9 in IIA and 2.6 in IIB. It is noteworthy that the longest blades appear generally in hornfels except in unit IIA where good quality quartzite and quartz blades are longer (Table 6).

Cores

Minimal cores are numerous and occur almost exclusively in quartzite and quartz. However, of the more extensively flaked cores, radial forms predominate throughout, achieving the height of relative frequencies in unit IIB (Table 7). A small but consistent quartz bipolar component is present. One opposed platform bladelet core and four or five radial cores were so small that their final flaking product was less than 20 mm, i.e. the product would have been classified as SFD. Many cores, even in local poor quality quartzite, appear reduced to their useful limit.

Hammerstones and Grindstones

A total of seven hammerstones are distributed in the upper two units. Four of these are more correctly described as stones bearing evidence of percussion, because the pitting on them is not extensive. Cobbles and
Table 6. Blade length summary statistics for each unit (in millimetres).

<table>
<thead>
<tr>
<th>Unit</th>
<th>n</th>
<th>AVG</th>
<th>STD</th>
<th>MIN</th>
<th>MAX</th>
<th>Unit</th>
<th>n</th>
<th>AVG</th>
<th>STD</th>
<th>MIN</th>
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<td>14</td>
<td>59.0</td>
<td>9.5</td>
<td>44</td>
<td>78</td>
<td>QEQ(N)</td>
<td>38</td>
<td>56.9</td>
<td>14.9</td>
<td>31</td>
<td>91</td>
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<td>61.5</td>
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<td>31</td>
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<td>44.2</td>
<td>3.7</td>
<td>27</td>
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<td>18.7</td>
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<td>59</td>
<td>OTHER</td>
<td>74</td>
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<td>31</td>
<td>31</td>
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<td>18.9</td>
<td>21</td>
<td>97</td>
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<td>74</td>
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<td>15.3</td>
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Table 7. Core types and raw materials from all excavated squares.

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Fig. 7. Notched ochre. 12.5x magnification.

Fig. 8. Close-up of notched ochre. 20x magnification.

Fig. 9. Notched ochre. 33.5x magnification.

Quartzite slab fragments that show a measure of smoothing have been termed grindstones. There are seven of these, also in the upper two units. None have the well developed morphology characteristic of some LSA forms.

Manuports
The manuports consist of quartzite pebbles and cobbles, a CCS pebble and numerous small needle-like quartz crystals as well as a few large ones. Some cobbles show glacial scoring. They most probably originate from the glacial band that runs in the upper shales of the Cederberg and which is exposed in the area of the Pakhuis Pass (Haughton 1969).

Pigment
The pigment at HRS is predominantly red ochre. Besides a significant amount of ground and unground ochre of various sizes, a very large, striated ground piece
(110 x 70 mm) was recovered from unit IB in square AD15. Two notched pieces mentioned earlier came from square AD14 units IIB and IIIB. These are less than 20 mm in length, the one being rectangular about 1 mm thick and notched around much of the perimeter, while the other is narrow and curved 2-3 mm thick, and notched on the concave edge which is thinned down by grinding (Figs. 7-9). The lowest pigment density is found in unit IIA indicated by the high stone: pigment ratio (13.0) (Table 1).

**DISCUSSION**

For the purpose of an honours degree with its time constraints, it was possible to establish and implement a thorough classification scheme and provisionally to analyse a representative sample of the assemblage. This provides some of the groundwork for a future more comprehensive analysis. Although the purpose of this paper is primarily to present a summary of the more well-defined patterns and observations from HRS, some aspects deserve further discussion.

**The Occupation and Assemblages**

HRS is small with a shallow deposit. Artefact preservation is disadvantaged by the moist, acid depositional environment, which certainly implies that organic material such as bone, leather or plant material has long disappeared. Considering the bias in preservation it is thus difficult to establish the manner of the occupation of HRS with any degree of certainty. It seems reasonable to suppose that overall stone working was fairly intensively carried out because cortical elements are present in moderately good numbers. Furthermore, a roughly 50% SFD component throughout the sequence suggests a certain intensity of on site stone knapping rather than the transport of detached blanks. Core frequency in the pre-Howiesons Poort MSA at sites like Montagu Cave, Die Kelders 1, Nelson Bay Cave, Paardeberg, Hojedjipsant and Sea Harvest varies between 1.8% and 0.2% (Volman 1981). At HRS the core frequency is between 0.7% and 1% which falls about midway within this range. This may be considered slightly low if much stone knapping was indeed done on site. However, this figure may be deceptive since indications are that many cores have been reduced to the extent where they must have yielded large numbers of flaking products.

The most prominent stratigraphic feature is the hearth or an area of charcoal density which persists through several units. It is unlikely that the charcoal was washed down through the deposit because of the compact nature of the sediments and the fact that large pieces of charcoal were present even in the lower units. At HRS the deposited material could have resulted from either a short period of continuous occupation, or a longer period of interrupted visits that are not stratigraphically apparent, possibly due to leaching of the sediments. A number of factors however, point to the second of these possibilities being the more likely.

The assemblage composition changes significantly with depth and thus time. Bifacial points are essentially confined to the upper 100 mm, while scrapers and denticulates are much more common in the lower two units than in the upper 100 mm. These changes, as well as variations in raw material and size of products, indicate a considerable development in tool preferences, retouch techniques and overall stone-working technology. These in turn could be linked to changes in raw material availability, resource exploitation or functional considerations. It is uncertain to what extent social change is expressed in these changing patterns of stone artefact type. Thackeray (1989) points out that MSA assemblages often seem to lack the formal tight patterning of stone artefacts which is more commonly seen in the LSA and interpreted there in terms of social factors. However, she notes that the presence of bifacial and unifacial points may sometimes be regarded as evidence for such patterning in the MSA. It may therefore be that the distribution of bifacial points at HRS does reflect changing social trends. Given the shallow nature of the deposit such pronounced changes would indicate a far greater elapse of time than could be suggested by the absence of stratigraphy. Furthermore, if the changes in the sequence at HRS in a shallow deposit broadly followed those documented in other longer sequence sites, it would suggest a telescoped deposition reflecting the elapse of a great deal of time.

**Stratigraphy**

One major concern in the interpretation of the material from HRS is the effects of spit excavation in the absence of natural stratigraphic differentiation. To what extent are the changes documented a reflection of admixture of occupational episodes in each spit rather than 'real' assemblages? Some admixture is inevitable, yet the compositional profile of each spit presented above indicates patterns which cannot be attributed to mixing. For instance, the lithic: pigment ratio of unit IIA at 13.0 is not possibly derived from combinations of entities reflected in units IB: IIB with ratios of 7.8 and 6.8 respectively. Likewise, the unit IIA percentage of retouched artefacts in hornfels (31.3%) is much higher than those immediately above (IB at 6.4%) and below (IIB at 19.4%). The abovementioned pronounced changes in the sequence indicate that sensitive spit excavation has allowed the detection of dominant trends in time. Although the units do not represent occupations as such, the spits appear to adequately represent distinctive trends through the occupational episodes.

In a number of respects these trends at HRS accord with those documented in MSA sequences elsewhere. The distribution of bifacial points and denticulates through the sequence agrees with Volman's findings of what he terms MSA 2a and 2b. According to Volman (1984), retouched artefact frequency and diversity increases from MSA 2a to 2b, denticulates are common in 2a and bifacial points first appearing in MSA 2, are nonetheless rare or absent in 2a. Observations have been made at several sites that lengths of artefacts generally drift towards a slight decrease with time within MSA 2 (Volman 1981; Volman 1984; Thackeray & Kelly 1988). The lengths and length/breadth ratios of the artefacts in the HRS
assemblage also display this tendency.

In the light of these arguments, the persistence of the charcoal feature through a number of spits could be explained by the nature of the site. The central location of this feature in such a small, circular shelter is logical and it could have been repeatedly used through time. It is thus most likely that episodic occupation of HRS spanned a fairly long period, possibly even several thousands of years.

Chronology

MSA sites dating to periods beyond the capability of radiocarbon have had to rely on relative dating in the past. However, recent improvements in such techniques as Electron Spin Resonance, Thermoluminescence and Uranium Series dating means that absolute dating is becoming more of a reality for the MSA (Deacon 1989; Rightmire 1989; Thackeray 1992). At HRS the chronology relies on a relative framework at this stage. Several pieces of fine silicic material with potlid fractures which suggest heating are however present in the assemblage and could in the future be subjected to TL dating.

As noted above, the physical properties of the material at HRS such as size, shape and type (with the exception of the bifacial points) compare very favourably with Volman’s MSA 2 which includes infinite radiocarbon dated material described by Singer and Wymer (1982) for the MSA II from Klasies River Mouth. The deposition of MSA II layers at Klasies River Mouth is ascribed by Deacon and Geleijse (1988) to the period between 100 000 and 80 000 BP. Carbon was collected at HRS and submitted for radiocarbon dating. The results are expected to yield infinite radiocarbon dates. Confirmation of this and the other abovementioned factors strongly suggest that the HRS assemblage fits into the MSA 2 and if so, perhaps that it includes the transitional period between Volman’s 2a and 2b.

Bifacial Points

Deacon (1979) attempts to put the term "Stillbay" into perspective. She is of the opinion that the variation in shape and size of what are loosely termed Stillbay points, may reflect the presence of a number of distinct forms not yet resolved by current classifications. She concludes that the nature of the assemblages from which these points have been described often lack stratigraphic integrity, which makes them unsatisfactory for type comparison. The bifacial points at HRS are termed "Stillbay" with these limitations in mind.

HRS has numerous bifacial points. This is in striking contrast to Klasies River Mouth where no completely bifacially worked oval Stillbay type points were found in a pre-Howiesons Poort context, although some unifacial points and incompletely worked bifacial pieces were present in the MSA II strata (Singer & Wymer 1982). Other large, well described sites like Elands Bay Cave, Nelson Bay Cave and Montagu Cave have insignificant numbers of bifacial points (Volman 1981). An exception here is the Peers Cave Complex at Fishhoek in the western Cape, where the "Stillbay" points are described (Goodwin 1953; Malan 1955), though quantitative information is unavailable. Klipfonteinrand near HRS has no bifacial points in the pre-Howiesons Poort MSA, although unifacial points are well represented at 9.8% (Volman 1981).

In small shelters like HRS and Dale Rose Parlour in the western Cape, Garcia State Forest Shelter recently excavated by Chris Henshildwood in the southern Cape, and Sibebe Shelter in north-west Swaziland (Price-Williams 1981) on the other hand, bifacial points are a significant retouched artefact component. These sites have not been securely dated and if they are not contemporaneous, grouping them together in this way may be misleading.

The dimensions of the bifacial points described by Malan (1955) from Skildergat Kop near Peers Cave, portray similar length variations to those from HRS. Indications are however, that the points from HRS are thicker in their dorso-ventral measurement.

Deacon (1979) mentions an association of silcrete with Stillbay points, which is in keeping with the points from unit IA at HRS. However, at HRS the points made of poor quality quartzite in unit IB are more numerous than those in silcrete, despite the relative abundance of silcrete in this unit. The reason for this is open to speculation. It may indicate technological preferences or perhaps social convention. The size of the finished artefact does not seem to be dependent on raw material, except perhaps in the case of quartz where three of the four points are small.

Besides complete points, several incompletely retouched bifacial pieces have been found at HRS which seem to be unfinished bifacial points. Singer and Wymer (1982) report on similar findings at Klasies River Mouth. In the light of these, the manufacturing process of bifacial points can be examined more closely. From the evidence of unfinished pieces at HRS it seems that some rather unlikely blanks that bear no resemblance to the finished product, may have been used. The process of production of a bifacial point could thus be likened more to the act of sculpture rather than to the simple shaping of a blank that already suggests the final shape and form. This implies that relatively complex cognitive processes as well as considerable technical ability were engaged in the production of bifacial points.

Technology

Several technological aspects are obvious from the HRS assemblage. A small, yet consistent bipolar component is present in quartz. Although the bipolar technique is more commonly associated with the LSA it is not an unusual finding in MSA assemblages (Volman 1981). This may have been an obvious way to deal with raw materials available in small units such as quartz, or it could be that the cleaving properties of quartz were recognised by the hominids to be conducive to this form of reduction (Barham 1987). In all materials with the general exception of quartz and excluding minimal cores, radial cores predominate. Flakes rather than blades are produced from such cores. The number of blades in the assemblage however, presuppose more opposed platform,
blade yielding cores than appear to be present. Either blades were being struck elsewhere or the cores used for their production on site were then further reduced in a radial fashion. According to Volman (1981), the reduction of cores at Die Kelders shows this pattern. Regarding the distinction made between flakes and blades, it is notable that at both Klasies River Mouth (Thackeray & Kelly 1988) and at HRS the production of blades is more often proceeded by the preparation of the platform on the core than is the case in flake production. This would imply that the flake/blade distinction is not merely a classificatory construct and that different techniques were emphasised in the search for specific end-products.

Raw Materials
The raw material shift in the HRS sequence may reflect a change in environmental resource acquisition, brought about by a different mobility strategy rather than simple availability. Hornfels and silcrete are not locally available. The most likely source of hornfels in this locality would be the Doorn River (Halkett 1982) whilst silcrete is more abundant immediately east of Picketberg, where it may be found in association with deeply weathered sediments derived from the Malmesbury Formation (Theron 1984). The increased frequency of exotic raw materials in the upper units may indicate that greater distances were more often travelled during the latter part of the occupation sequence than earlier on, or that exchange networks were more extensive. Although silcrete is extensively used for the manufacture of bifacial points in unit IA and IB, the shift in importance in the fine-grained exotic raw materials is not exclusively determined by technological demands, because the local poor quality quartzite was also favoured for the production of bifacial points.

It is obviously easier to detect edge wear where it has been well preserved in harder materials such as quartz and silcrete which could, for example, be the reason that quartz shows a particularly high frequency of utilised artefacts. However, if preservation and detection were the main determining factors, retouch in quartz should equally be as high. But it is not. Similarly, in good quality quartzite, which has been well preserved and offers a sharp, hard cutting edge, retouch and utilisation frequencies are much the same and even sometimes lower than the flaking product frequency. There thus appears to be a specific selection of a raw material for utilisation and/or retouch, which is demonstrated by the higher percentage in those categories than is the case for the flaking product. For example, silcrete seems to be selected for retouch in unit IA, silcrete and quartz in unit IB and hornfels in units IIA and IIB. Similarly for utilisation quartz seems particularly favoured throughout, silcrete is selected in IA and IB, and hornfels again in unit IB (Table 1).

Pigment
Ochre is ubiquitous in the MSA, yet not much is known about its uses and the way it was processed. In contrast to findings in the LSA the grinding marks are often coarse and multidirectional. Some pieces seem to have been discarded long before their useful end, while other minute scraps are worked to exhaustion. In spite of the evidence of extensive grinding few ochre stained receptacles or grindstones are ever found, unlike in the LSA. These observations would imply a different mechanical and mental approach to the manufacture and use of ochre powder in the MSA.

At HRS the lowest frequencies of retouch and utilisation occur in unit IIA, which is also the unit with the least pigment. If this correlation can also be demonstrated in other sites it may have wider significance and possible behavioural implications.

CONCLUSIONS AND PROSPECTS
The classification of the material from HRS adds to the body of information about the MSA in the western Cape. Some trends such as platform preparation for the striking of blades, are borne out by sites elsewhere, whereas other features such as the presence of bifacial points, stand out in contrast to some MSA deposits in larger sites in the southern and western Cape. The chronology rests on comparative assemblage typology at this point and is highly suggestive of being confined to the MSA 2. HRS thus represents a relatively discrete window into a specifically defined period, even though this may have spanned several thousand years. A correct chronological assessment is important if HRS is to be useful for comparative analyses.

In the MSA ochre has a speculative link with body decoration and thus with the expression of ritual behaviour and personal or group symbolism. This makes it an important assemblage component that could be used to extract information about the emergence of ‘modern’ behaviour. For this new schemes for analysis and greater emphasis on site comparisons would be necessary. The preliminary analysis at HRS did not include extensive ochre analysis due to time constraints. However, the presence of the two notched pieces mentioned above indicates that further time spent on this aspect may be useful, especially if studied in comparison to material at other sites.

Because HRS is a small, confined site, where indications are that most stone-working took place within the shelter it has the potential for complete excavation for the purpose of retit studies. Through this a better insight may be gained into reduction sequences, which facilitates the interpretation of how hominids approached choices concerning raw material, technique and artefact use. This would engender a broader understanding of the hominids’ interaction with their environment. The information gained from stone artefacts would thereby expanded beyond the few inferences that can presently be drawn from the traditional descriptive analysis (Dibble & Rolland 1992). However, the standardised classification of artefacts such as reported here for HRS is a prerequisite of any such study.

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AN EARLY DUTCH SETTLEMENT PATTERN ON THE NORTH EAST FRONTIER OF THE CAPE COLONY*

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ABSTRACT

Pioneer trekboer farm boundaries in the Seacow River valley, northeastern Karoo are described. Data are collated from the survey diagrams attached to original quitrent title deeds drawn up between 1823-1841. Three of the land surveyors engaged in this work included the rectangular outlines of the much older Loan Places on which some quitrent farms were based. The list of places thus recorded fits best with an archival Loan Place request list dated 1808, but a few others may be some years older. This frontier settlement pattern was based on irregular clusters of rectangles, and not on the evenly spaced, 3000 morgen circles prescribed for Loan Place occupancy of the Karoo districts. Although the frontier was ideal terrain for applying the "one-hour rule", this was ignored in the interests of having neighbours within easier reach. The dangers of frontier life, including stock thefts by Bushmen, would have been a factor in shaping this pattern.

INTRODUCTION

Pioneer travellers' accounts indicate that trekboers first attempted to settle in the Sneeuberg headwaters of the Seacow River valley (Fig. 1) in the 1770s (Raper & Boucher 1988), but several were driven out by Bushmen. A few farms were reoccupied in the 1780s and 1790s, with signs of new settlement in the middle reaches of the valley (Barrow 1806). Isolated new farms had appeared in mid-valley by 1803 (Plumptre 1815; Godée-Molsbergen IV 1932; Blommaert & Wild 1937; De Kock 1965), and by 1808 a minor land rush had occurred between the Sneeuberg and the border of the Colony at van Plettenberg's Baaken (Hutton 1887; Moodie V 1960). Before the border was moved to the confluence with the Orange River there was a further surge of settlement between 1810-1820 (Campbell II 1823; Burchell 1824; Sales 1975).

These eyewitness impressions have been checked against archival sources listing contemporary Loan Place requests in the Seacow valley. The Request Lists name many more farms than appear in travellers' journals, but the whereabouts of some listed farms are uncertain thanks to later name changes and duplications. Because there are no maps, other than the very incomplete and inaccurate examples with some travel journals, early Dutch settlement topography is not easily reconstructed. None of the V.O.C. maps taken back to Holland before the British occupation of the Colony describe the farm distributions north of the Sneeuberg (Koeman 1984), where the Seacow River originates.

It is of particular interest, therefore, that outlines of
Unlike freehold grants, a loan farm grant did not require that a surveyor draw up a diagram of the requested property to be attached to the license.

By 1760 the trekboer frontier had expanded so far across the Karoo that the government had all but given up collecting rents, although leases were automatically renewed and requests for new lands continued to be recorded. Links between the farthest flung colonists and the Cape were strengthened in 1778 when Governor van Plettenberg journeyed to the frontier and, among other things, re-set the northeast limit of the Colony at van Plettenberg’s Baaken some way down the Seacow River. Government control was consolidated in 1786 when a Landdrost was installed at Graaff-Reinet. Loan Place rents were again collected, and transfers to new owners became dutiable at a rate calculated by the worth of buildings, fields and improvements (opstal).

Comprehensive instructions appeared in 1793 to regulate the whole system of allocations, collections, transfers and inheritance. These were also designed to prevent speculation in frontier land. The license for a new Loan Place was renamed the ordonnantie, a name retained by the Batavian administration when they issued further rules in 1804. These were formulated into a resolution of the Governor in 1805. Again, no surveyor’s diagram was required with the ordonnantie.

**The Hour Rule**

Ordonnantien were issued under specific conditions. The applicant had to establish a beacon, known to the local Field-cornet, in the middle of the requested property. Required since 1714, this beacon could be a rough shelter, usually the intended site of the homestead, or a large stone, or a natural prominence. Through common usage, the beacon itself became synonymous with the license, and was also called the ordonnantie. At first, the applicant did all this himself, but field inspections by officials became common after 1805. Application was then made through the Landdrost and Heemraden to the Governor. If the request was granted, the Landdrost was instructed to define the limits of the Place and this duty fell to the local Field-cornet. The latter then walked for half an hour in each direction from the central beacon “at a normal pace” and a roughly circular outline was thus defined. For a while, long-legged Field-cornets were popular, but the distance was soon standardized at 750 roods (about 3 km). As a circle of that radius is 2946 morgen, the designated area of a Loan Place soon became 3000 morgen.

Although boundaries were fixed by the Field-cornet, farmers were indifferent about maintaining beacons, nor were they pressed to do so. The outline was there not to contain the applicant, but to reduce possible friction with encroaching neighbours. The original intent was that neighbours should be distributed at least one hour apart (South African State Archives [SASA] Stellenbosch 1/4:120), but in the Karoo where water was scarce, the hour rule was more often honoured in the breach. Barrow (1806:380) observed that the real average separation was closer to two hours travel. As long as the distance

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**Fig. 1.** The Seacow River drains the Sneeuberg and Roode Bergen (Agter Renosterberg) Mountains (stippled) and flows into the Orange River in the north eastern Karoo (inset). The survey diagram for Paarde Valley (shaded) is shown in Fig. 2.

some pioneer farms have been preserved on later survey diagrams, drawn up in the 1820s and 1830s, when Loan Places were being converted to quitrent tenure. Here, we present the case for dating most of these earlier outlines to the year 1808. The frontier settlement pattern thus obtained, nicely reflects the local adaptations made to official land tenure policy.

**THE LOAN PLACE SYSTEM**

Applying for a Loan Place (leenplaats) from the V.O.C. was a relatively simple routine (de Smidt 1895; Botha 1919; Denoon 1947; Baker 1958; Duly 1968; Guelke 1984). Any person could apply for land on loan from the Land Revenue Office by giving the shortest possible description of its whereabouts and by satisfying the officials that the request did not encroach on neighbouring land grants. At first there was no fee, but after 1711 an annual rent was charged. From 1714 licences were issued to the applicant, at additional cost.
between neighbours did not exceed two hours walking time, no new lands could be allocated between their properties.

From Circles to Rectangles
The system was obviously wasteful because it created large amounts of unappropriated land (uitval grond) between contiguous circles. Also, the various parties had great difficulty with the computing of the areas of circular farms. For a while, the notion of hexagonal outlines was introduced to cut down on the waste, but hexagons were beyond the skill of the Field-cornet to compass (Denoon 1947:331). Circles and hexagons were dropped in favour of squares of 1341, 64 roods per side or, simplest of all, rectangles with sides of 1500 roods by 1200 roods. Although the central beacon was retained, corner beacons would have become the significant markers. Thus far, no clear guidelines for the selection of corner beacons have been found. Nor have we found any official document ordering that farms be laid out in rectangles rather than circles, consequently we are unable to fix the date at which this practice took hold.

Although a Proclamation issued on October 16, 1812 ordered landowners "...to cause conspicuous Beacons to the placed at the Angles of their respective properties..." (Anon 1827), we doubt whether this refers to the rectangular Loan Farm layout. By this date, preparations were under way by the British administration to replace the Loan Farm system with a properly surveyed quitrent system.

THE SURVEY DIAGRAMS

The Cradock Proclamation of 6th August 1813 gave the right to Loan Place holders to apply for their lands to be held in Perpetual Quitrent, and Provision 13 of the Proclamation required that survey diagrams be prepared and attached to the new documents of ownership (Anon 1827). As soon as they learned of the new regulations, most Seacow valley farmers petitioned for an indefinite delay on the grounds that they had no coin to pay the fees and were too burdened with other hardships to carry the new costs (SASA, CO 58, 13 Oct. 1813). They need not have bothered, as the authorities were hopelessly short staffed with poorly trained surveyors. A huge backlog of survey work built up throughout the Colony while new surveyors were trained. In the following ten years only 2-3 farms in the south east corner of the valley were surveyed, but these inadequate diagrams were never used. Only one has survived, drawn up by H. Azerond in 1819 (SASA, LBD 1819). His successor C. J. Abo complained repeatedly that he could not find Azerond's beacons (Co. Q. 5-45, 1841).

The subsequent history of land surveys done in the Seacow valley between 1823-1875 is detailed in Sampson & Sampson (1994). Although several surveyors worked here, only three recorded the earlier Loan Place outlines on the new diagrams drawn up for quitrent agreements. The diagram S.G. Dgm. No. 430/1830 for Paarde Valley (Fig. 1) is a typical example (Fig. 2). On this copy of

Fig. 2. Part of the survey diagram made by C.J. Abo in 1830 and attached to the original quitrent title deed for Paarde Valley (see Fig. 1). The rectangular Loan Place outline denotes an even earlier, but undated land grant boundary.

Abo's 1830 original, a tributary stream is marked "Branch of the Seacow River having Pools of water in rainy seasons". The Klein Seekoei River channel is marked "Stream of Seacow River with Pools of water of rain". A wagon track runs parallel to the stream channel. The only structure is marked "Dwelling House". The open circle marking the "Ordonantie" may have been a small barn which still stands at this spot today. The blob-and-squiggle marking the spring eye is here annotated "weak fountain some times dry". The scale is in Rhynland Roods. The outer, near-pentagonal boundary is the 1830 quitrent property outline, but contained within it is an undated rectangle prominently labelled "Loan Place Paarde Valley". One corner is fixed to the peak of an easily recognized kopje, but beacons for the other four corners are not marked. The ordonnantie is markedly off-centre.

The Surveyors

Figure 3 shows all such Loan Place outlines in the Seacow valley, culled from original quitrent survey diagrams. Those in the central valley were drawn by Abo in 1827 and 1830. He drew another in 1839 and one more in 1841. It is important to note that at least seven diagrams of other former Loan farms surveyed by Abo in 1827 and 1830 contain no trace of the original rectangular outline.

His colleague J.L. Leeb, who surveyed nearly all the lower reaches of the valley, contributed the five original Loan Place outlines nearest the colonial boundary (Fig. 3), plus the one inferred from its quitrent outline. Leeb omitted the original outlines from three other former Loan Place diagrams in this area. Although the work was
completed in the 1820s (SASA, LBD 30, 1823, 1825) they were only attached to title deeds in 1836-7. Unlike Abo, Leeb marked the corner beacons on the rectangular outlines and some even have beacons placed along the sides of the rectangle.

Only one outline in the upper valley (Fig. 3) was drawn in by the surveyor C.L. Stretch in 1841, but he omitted the rectangles from two neighbouring places. Diagrams drawn up by the surveyors C.H. Rodgers and G.D. Greaves, who covered most the upper valley in 1839, consistently omitted the original outlines. Although some of their work mentions that the new quitrent farm was a "former loan farm" (Fig. 3) neither of them was consistent in doing this. One original outline can be inferred from the shape of its quitrent boundary (Fig. 3).

Clearly, Loan Place outlines were not recorded consistently by any of the five surveyors working in this area, nor were such outlines plotted during a specific run of years. All former Loan Farms in the valley had been surveyed by 1841, which explains why no further rectangles were recorded after that year. This raises the question why individual surveyors recorded or omitted the original outlines from the diagrams they produced. Their instructions on this subject were vague. The most complete guide to surveyors appears in a Government Advertisement of 16 July 1813, spelling out in detail how diagrams were to be drawn up, yet there is no mention of this topic (Alexander 1902:200).

A more direct clue comes from Provision 2 of the Cradock Proclamation (August 6, 1813) which required that the 3000 morgen (maximum "core" of the Loan Place be distinguished from the other Crown Land normally used by the farmer. This raises the question whether the rectangles thus demarcated (e.g. Fig. 2) were hypothetical constructs of the surveyors (P. Whitlock pers. comm.) or were really marked out on the landscape. As will be shown, the balance of evidence supports the latter interpretation.

Although the tone of Provision 2 suggests that the authorities did not take the RcoreS boundaries (and corner beacons) seriously, not all officials held this view. For example we have J. Melvill complaining to the Colonial Secretary as early as 1812 that "the colonists claim 3/4 more land than they have legal right to" (SASA, CO 53, 23 July 1812). It would seem, then, that the farmers continued to expand their use of surrounding land until they abutted on to their neighbours who were likewise expanding, leading to the polygonal farm outlines entrenched in the quitrent survey diagrams.

**DATE THE LOAN PLACE OUTLINES**

There are no clues on the quitrent diagrams about the age of the original Loan Place outlines. As they are all located behind the border defined by Plettenberg’s Baaken, they must predate 1822, when the border was shifted to the Orange River. To arrive at a more exact date, we conducted an archival search for all land applications made to the authorities at the Cape in the Zeekoe (later Seacow) valley prior to 1822. The goal was to locate a dated list containing the largest number of farm names that coincided with the farms for which original outlines are available. Lists of quitrent applications (SASA CO. 8495) and annual payment records (SASA GR 14/31) for 1814 include all of the outlined farms, but they also contain as many farm names for which there is no outline, so the fit is not good. This also holds for all records later than 1814. The closest to the list of outlined farms is an 1808 Request list (SASA CO. 2564), which is headed:

Bericht van Zodaanige op Requist verzogte Nieuwe Leeningsplaatsen onder Het Drostant Graaff Reinet, als Tot nog toe door Landrost en gecommitteerde Heemraaden suksesiwelyk onderzogte zynde bestaanbaar bevonden, en volgens hun best voordeels, zonder nadeel van iemand zeinde kunnen werden uitgegeeven.

Overgelegd In vergadering van Landrost en Heemraaden voornoemd op den 4 du January 1808. (Report of requests for certain new loan
farms falling under the Drostdy office Graaff-Reinet, to date, the Landdrost and delegated Heemraaden have accordingly investigated their existence and find that they can be granted in their best interests and without disadvantage to anyone else. Deliberated at a meeting of the Landdrost and above mentioned Heemraaden on 4th of January 1808).

The list that follows is numbered consecutively in the left hand column. The Field-cornetcy appears in the second column. The third column contains the applicants’ names, grouped by Field-cornetcy, and the fourth column has the farm name. Table 1, column 2 shows all listed Seacow valley farms. Nos. 47-8 are listed under Voor Sneeuuberg Field-cornetcy and the others from Zeekoervier Field-cornetcy.

We have original Loan Place outlines for all but three of these listed farms (Fig. 4). Of the three exceptions, two (Nos. 47-8) are in the upper valley. These were diagrammed by Rodgers, who never included the original outline. Although the third case (Klipkraal) at the northernmost edge of the border (Fig. 4) was diagrammed by Leeb, who included most Loan Place outlines, he may have omitted the older outline because the new quitrent boundary was almost identical (Fig. 3).

From this we conclude that corner beacons were being fixed by an official and maintained by the owner at least from 1808 onwards. Exactly when this practice was introduced is more difficult to determine. Seven Loan Place outlines do not appear on the 1808 list, five of them at the southern end of the settlement pattern (Fig. 4), and the other two still farther south in the valley headwaters. Because settlement was spreading northwards

Table 1. Seacow valley: two Loan Place Request lists and a Recognitie (annual fee) record, compared with the list of quitrent survey diagrams showing original Loan Place outlines.

<table>
<thead>
<tr>
<th>Requested in 1802-4</th>
<th>Requested in 1808</th>
<th>Recognitie 1808-12</th>
<th>Outline Surveyed</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1 GR 14/16 Part I)</td>
<td>(C. 2564)</td>
<td>(1 GR 14/16 Part I)</td>
<td>(Farm No. of diagram)</td>
</tr>
<tr>
<td>47 hartebeestefontein</td>
<td>-</td>
<td>-</td>
<td>Hartebestefontein (Co. 80)</td>
</tr>
<tr>
<td>48 Zuerefontein</td>
<td>-</td>
<td>-</td>
<td>Rietontein (Co. 145)</td>
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<td>80 hartebeestefontein</td>
<td>folio 803</td>
<td>folio 805</td>
<td>Morgenwacht (Co. 109)</td>
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<td>81 Rietontein</td>
<td>folio 804</td>
<td>folio 805</td>
<td>Klip Kraal (Co. 104)</td>
</tr>
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<td>82 Veltersfontein</td>
<td>folio 805</td>
<td>folio 806</td>
<td>Klip Kop (Han. 81)</td>
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<tr>
<td>83 Elandsfontein</td>
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<td>folio 806</td>
<td>Schui Hoeck (Han. 81)</td>
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<td>84 Mooyefontein</td>
<td>folio 808</td>
<td>folio 806</td>
<td>Allemans Fontein (Nou. 83)</td>
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<td>85 Klipkraal</td>
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<td>folio 808</td>
<td>Damfontein (Nou. 114)</td>
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<td>folio 811</td>
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<td>folio 811</td>
<td>Caroels Poort (Nou. 166)</td>
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<td>folio 812</td>
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<td>folio 814</td>
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<td>folio 816</td>
<td>Uitzicht (Mid. 3)</td>
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<td>folio 817</td>
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<td>102 Oppermanskraal</td>
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<td>folio 826</td>
<td>Zaayfontein (Mid. 65)</td>
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<td>103 de fontein</td>
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<td>folio 698 (1807)</td>
<td>folio 832</td>
<td>Cephanjes Poort (Mid. 143)</td>
</tr>
<tr>
<td></td>
<td>folio 672 (1807)</td>
<td>folio 833</td>
<td>Riet Valley (Ric. 112)</td>
</tr>
<tr>
<td></td>
<td>folio 675 (1807)</td>
<td>folio 834</td>
<td></td>
</tr>
<tr>
<td></td>
<td>folio 700 (1807)</td>
<td>folio 835</td>
<td></td>
</tr>
</tbody>
</table>
our assumption was that all these outlines would pre-date 1808. A letter (SASA C.O. 2564) written a few months after the 1808 request list, from Landdrost A. Stockenström (the elder) to the Earl of Caledon, probably refers to the aforementioned group of five farms.

"My lord, The district or track of land situated between the Roodeberg and the Zeekoerivier, usually called after the said river, seems to have been formerly inhabited, but is now reduced in consequence of the ravages committed by the Bosjemsans, to only 5 Loan places at the upper part, which have hitherto been looked upon as belonging to the district of the hinder Renosterberg". We suggest that his "5 Loan places" are the five unlisted outlines shown in Figure 4. They are Elands Heuvel, Gordon's Fontein, Wonder Heuvel, Paarde Valley and Hoogemoeds Fountain (Table 1). Annual payments were made in 1807 by the occupants of four of them (Table 1, column 3), and all five can be shown to have existed before 1808. Barrow (1806) found four families living together for safety at Gordons Fontein in 1797. Wonder Heuvel was a registered Loan place since 1798 (SASA 1 GR 14/15 Part II) and Paarde Valley since 1770 (SASA RLR 78a No. 4). The latter may have been abandoned, but was re-registered in 1801. Hoogemoeds Fountain is mentioned in four sources dating to 1803 (Plumptre 1815, Godée-Molsbergen IV 1932, Blommaert and Wiid 1937, de Kock 1965).

This leaves the two southernmost outlines (Fig. 4) to be accounted for. Cephanjes Poort (Mid. 143) was a registered Loan Place since 1772 (SASA RLR 78a no. 22) in the Voor Sneeuberg. It is mentioned by Barrow in 1797. The other is Riet Valley (Ric. 112) which was registered since 1775 (SASA RLR 78a no. 51) in the "district" of Op Sneeuberg.

It is unlikely that rectangular outlines were being laid out at such early dates. Perhaps the corner beacons of these older farms were also fixed by Stockenström in 1808, because they were being transferred to new applicants. If, however, their beacons were fixed some years earlier, then they should occur on the preceding request list. Working back through archival records from 1808, we came to an 1802-1804 list (SASA 1 GR 14/16 Part I) which included 24 requests for land in the
Seacow valley:

Lys der Plaatse welke op verzoek van de volgende personen alhier syn aangetekend onder die Conditie dat so dra een m[ag]istraat Present is, sig by syn WELED. te moeten vervoegen en om deselve in leening te hebben verzoek te doen. (List of farms which are on request by the following persons who are already in occupation; recognized on condition that as soon as a Magistrate is present, they must attend upon his Worship in order to request that they may have the same on loan).

None of the seven outlined farms with older occupation histories, described above, appears on this 1802-1804 list (Fig. 5 and Table 1, column 1). If their rectangular outlines were fixed before 1808, then this was done at some time between 1805-1808.

Of the 24 farms requested in 1802-1804, nine were again requested in 1808 (Table 1, column 1). Significantly, eight of them were requested by new applicants, indicating a transfer of land (and sale of opstal). The ninth was occupied by a farmer who was making two additional requests for adjacent land in 1808. The outlines of all these twice-requested farms have been recorded, except Zuurfontein which was skipped by the surveyor Rodgers (see above). No other farm on the 1802-1804 list has its outline recorded, so the fit between this list and the list of outlined farms is generally poor. We conclude that the corner beacons of the nine farms on the 1802-1804 list were not fixed in those years, but during the later (1808) transfers.

Had the corner beacons of any other 1802-1804 farms been known, there can be no doubt that Abo and Leeb would have recorded them. This leads us to suggest that corner beacons were not established during the 1802-1804 grants, and no outlines date to that land grant episode.

DISCUSSION AND CONCLUSIONS

The dozen or so grazing places granted before 1802 in the headwaters of the Seacow valley (Sampson et. al. in prep.) were allocated piecemeal, probably without official field inspections. It is possible that these pioneer grazing places had central beacons and ill-defined, circular boundaries fixed by applying the hour rule. However, two of this group have been recorded with rectangular outlines, perhaps laid at a later, unknown date.

If any of the 24 properties allocated between 1802-1804 (Fig. 5) was inspected and marked with beacons, no certain record of the operation has survived. Although eight (probably nine) of them were laid out as rectangular farms, we believe they were done in 1808. If any, of the others had fixed boundary markers, they could have been either rectangles or circles.

The most parsimonious interpretation of all other rectangular Loan Place outlines, captured on later quitrent survey diagrams (Fig. 3), is that they resulted from a single land grant exercise executed in 1808 on the east side of the valley (Fig. 4). The five previously established farms at the south end of this area were probably laid out at the same time. A model for future field testing is that Landdrost A. Stockenström (snr.), who was then in charge of field inspections of new land requests, saw to it that substantial beacons of piled stone were erected, and he impressed upon both new and former occupants that these were to be maintained in good order. In each survey, a prominent kopje was selected for one corner of the rectangle, with the other beacons placed in the veld at measured positions. Consequently the applicant’s original claim beacon (ordonnantie) was not always at the centre of the property (Fig. 2) as it would have been under the old one hour rule. Subsequent land grant operations probably followed rectangular principles, but were not as rigorously executed, so the beacons were forgotten.

If the rectangular outlines were hypothetical constructs drawn on to later quitrent diagrams by surveyors under instructions to differentiate the "core" Loan Place, then several coincidences must be explained. Why did later surveyors draw in the core rectangle on some but not all the farms in their areas? Why are the cores areas of different sizes and shapes? Why do Leeb’s diagrams show circles at the corners and even along some edges of the rectangles? Finally, why does the sum of all recorded outlines match the 1808 listing this closely? The chances of such a coincidence are remote in the extreme.

The settlement pattern glimpsed in the 1808 data (Fig. 3) is one of irregular clusters of rectangular farms, not the evenly spaced circles generated by the so-called hour rule. The latter pattern is seen mainly in areas such as the Overberg and the Cape coastal ranges, dating to almost a century earlier (e.g. Liebenberg 1979:16-17). Although even spacing was still entrenched in the layout of (rectangular) farms at the foot of the Sneeuberg in the later 1700s (P. Whitlock pers. comm.), the extreme north east frontier pattern abandoned this in favour of irregular clusters of rectangular farms. We suggest that the threat of stock theft by Bushmen living on the Crown Land between the clusters made the hour rule (~ 6 km spacing between homesteads) maladaptive. In 1808 there was still sufficient danger (Moodie V 1960) to justify small clusters of homesteads spaced at less 6 km apart. Unlike drier parts of the Karoo where scarcity of water forced a spacing of up to two hours travel between homesteads, this was not a problem in the Seacow valley. Another factor causing farms to cluster would have been the need for arable land, available mainly on the river and stream banks where alluvium was deep enough to be ploughed. Thus many good springs and seeps were left unclaimed, where residual Bushman groups were able to survive between the clusters of farms.

ACKNOWLEDGEMENTS

Colin Martin gave us early guidance in research. We also thank the staff of the State Archives, the Surveyor General’s Office and the Reference Section of the South African Library for their friendly help and advice.
Special thanks are due to Peter Traut of the Cape Town Deeds Office for his expert guidance in our searches. To Peter Whitlock we are also specially grateful for his stimulating criticism of our text. This program is supported by the National Science Foundation, Washington D.C. and the Foundation for Research Development, Pretoria.

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THE METALLURGICAL ANALYSIS OF ARTEFACTS FROM JAKKALSBERG, RICHTERSVELD, NORTHERN CAPE*

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ABSTRACT

Jakkalsberg, an open site on the banks of the Orange River, has been dated to between the 7th and 8th centuries AD. There are a number of indicators suggesting that this is a pastoralist site. The faunal sample is dominated by caprines, the pottery is typical Cape Coastal Ware, and the informal lithic artefact assemblage and the mean size of the ostrich eggshell beads is consistent with local pastoralist sites. A number of corroded iron fragments from the site were subjected to metallurgical analysis. The microstructure, composition, and fabrication techniques indicate that they are likely to be of indigenous manufacture. The absence of any evidence for the smelting of iron on site may point to trade with Iron Age communities further north.

INTRODUCTION

The sites of Jakkalsberg A and B (28.10.50S; 16.53.15E) are located on the southern bank of the Orange River within the Richtersveld Rural Area and about 5 km from the boundary of the Richtersveld National Park (Fig. 1). A local herder alerted the Parks Board to the presence of these sites when he noted a burial being exposed by the wind. The human remains were collected from the edge of the large surface site termed Jakkalsberg A in June 1992. The bone remains and hearths were in danger of rapid disintegration, so a grid was set out and exposed stone artefacts, bone, pottery and ostrich eggshell beads collected. A further concentration of material was noted some 40 m to the southwest of Jakkalsberg A. This second site, Jakkalsberg B, lies partially buried under a small hill and offered the potential of sampling in situ material. The Parks Board provided the financial assistance necessary for a thorough investigation of these sites in November 1992 (Webley 1993).

The sites are situated on the edge of a dry river-bed, a tributary of the Orange River which flows some 200-300 m to the north (Fig. 2). The bed of the tributary lies 10 m below the level of the sites, suggesting that it accommodated a considerable flow of water in the past. A number of tree types such as *Euclea pseudebenus*, *Rhus vininalis*, *Ziziphus mucronata*, *Acacia karoo*, *Tamarix usneoides* and reeds such as *Phragmites communis* are found in a broad band along the Orange River (Van Jaarsveld 1981). There are a number of dead tree-stumps on Jakkalsberg A which may be contemporary with the occupation of the site. Topographically, the area along the river consists of low sand-dunes with occasional outcrops of shale. The area is dominated by the Jakkalsberg mountains, several kilometres to the west, after which the sites are named. The sites are only one kilometre downstream of Skate's Drift, a natural drift across the river.

EXCAVATION STRATEGY

During the initial two-day rescue operation at the site the burial was removed and a total of 81 square metres of material from Jakkalsberg A was sampled. During follow-up work in November 1992 material from a further 18 square metres was collected from the surface of site A, while 26 square metres (called SS or sub-surface) were excavated to archaeologically sterile
soils. The division between surface and sub-surface material is quite arbitrary as there is no stratigraphic layering, which would suggest that we are dealing with successive occupation horizons at the A site. Four hearths were identified, plotted and charcoal removed for radiocarbon dating. All the material was excavated, sieved and removed for analysis at the Albany Museum. This material has been studied and a preliminary report is available (Webley 1993).

With respect to site B, this concentration of artefactual material is bounded to the north by a small hill and to west and south by the dry river bed. Material from 38 square metres was collected and excavations concentrated on rows K, J and I (Fig. 2) which abut the hill and contain the greatest depth of deposit. Hearths in these rows were stratified one above the other indicating that re-occupation of the site occurred in the past.

DATING

Hearth 1 from Jakkalsberg A was dated to 1330 ± 60 BP (Pta-5958), which calibrates to AD 664(691)783. Hearth 2 dates to 1300 ± 25 BP (Pta-6100), calibrated to AD 691(762)777 (J. Vogel pers. comm.). Both dates are from hearths only 4 m apart suggesting an occupation during the 8th century AD. At Jakkalsberg B, Hearth 1 in square K11 which was partially wedged into the side of the hill, produced a date of 1420 ± 25 BP (Pta-6122), calibrated to AD 640(652)660. Hearth 2, situated between squares J13-14 in the first occupation unit (MOU) has been dated to 1380 ± 50 BP (Pta-6101), calibrated to AD 648(668)691 (J. Vogel pers. comm.).

The fact that some of the hearths, such as in square K12, were superimposed one above the other suggests that this site was occupied on a number of occasions over a relatively short period. Sites A and B are separate but contemporary sites and this is borne out by the analysis of their cultural material.

METAL FRAGMENTS

While excavating in squares J13 and J14 at Jakkalsberg B a badly corroded fragment of iron some 20 mm in length was recovered within the same unit (MOU 2) and only 50 mm from Hearth 2 subsequently dated to 1380 ± 50 BP. It was clearly in situ, there being no indication of a pit or burrow to suggest that it had been introduced from above. Subsequently, sorting through the surface material a number of iron fragments as well as an iron bead and a copper percussion cap were recovered. The iron fragments recovered from Jakkalsberg A were concentrated on the northern portion of the site and were not associated with any formal stone artefacts or worked bone implements (Fig. 3). With respect to the spatial distribution of metal items at the B site, a very small area was sampled making it difficult to observe any clear patterning. Nevertheless, the majority of the fragments were found outside the area of densest stone artefact scatter.

The percussion cap and gunflint recovered on the outer edges of the artefact concentration at Jakkalsberg A cast doubts on the integrity of the assemblage and a metallurgical analysis suggested a means by which the nature and possible origins of the metal artefacts could be determined.

ANALYTICAL METHODS

The remains of eight iron artefacts, the one brass percussion cap, and three nodules of possible slag were submitted for analysis to the Materials Laboratory, Department of Archaeology, University of Cape Town (Table 1). All the specimens were photographed, weighed, sketched, measured, and their visual appearance described. Selected samples were sectioned with a water-cooled rotary diamond saw. A polished thick section was prepared for each sample. The sections were mounted in acrylic resin under vacuum to remove air bubbles and ground and polished on rotary laps, with a final 1/4-micron diamond polish.

All the sections were studied with a Reichert-Jung Polyvar dual metallographic/petrographic microscope, using plane polarised light and Nomarski differential interference contrast (Snyman 1989) where appropriate. Grain size was established by visual comparison with standard charts (ASTM 1981; Scott 1991:52-53). Microhardness determinations were made with a
Figure 2. Map of the location of Jakkalsberg A and B on the banks of a dry river bed, some 300 m to the south of the Orange River.

Table 1. Metal and slag samples submitted for analysis.

<table>
<thead>
<tr>
<th>Number</th>
<th>Site</th>
<th>Location</th>
<th>Object</th>
<th>Material</th>
<th>Mass (g)</th>
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<td>J15 S1</td>
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Shimadzu microhardness tester fitted with a Knoop indenter. The Vickers indenter on the available instrument was damaged, necessitating the use of the Knoop indenter, which is not standard for archaeometallurgy. This means that the microhardness measurements quoted here are suitable only for internal comparison. The Knoop indenter is sensitive to anisotropy, both microstructural and crystalline, so measurements were taken in various orientations on the specimens in order to minimise this effect.

The chemical analyses were carried out on a Cambridge S200 scanning electron microscope with a KEVEX energy dispersive X-ray fluorescence micro-analysis system (EDS). Analyses were done in spot mode with an analytical volume approximately 1 micron in diameter and in raster mode where appropriate for the determination of bulk compositions. Software ZAF corrections were applied to the analytical results to produce semi-quantitative analyses expressed as elemental or oxide percent, normalised automatically to 100 percent. This system has a precision of about 1 percent for the detectable elements, in this case those with atomic weights heavier than sodium. The lower limit of detection is about 0.1 percent under optimal conditions and values below 1 percent only represent presence or absence information.

DESCRIPTIONS AND ANALYTICAL RESULTS

The metallographic descriptions are presented below and the results of the EDS analyses are listed in Tables 2 and 3. The phases and components were identified primarily on the basis of their optical properties in reflected light as described in standard texts (Samuels 1980; Craig & Vaughan 1981). Where necessary the identifications were confirmed by X-ray fluorescence micro-analysis.
Table 2. Results of energy dispersive X-ray fluorescence analyses of non-oxide phases. The values are significant only to the first decimal place. (r = raster, s = spot).

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Table 3. Results of energy dispersive X-ray fluorescence analyses of oxide phases. The values are significant only to the first decimal place. (r = raster, s = spot).

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Sample JAK 1: Jakkalsberg B J15 S1, iron rod

This was a fragment of corroded iron rod (Fig. 4), 26.5 mm long and with a square cross-section of about 8 mm. It was dark brown, with adhering sandy corrosion products, had a mass of 2.38 g and was magnetic.

A polished transverse section (Fig. 5) showed that it was almost completely corroded with only tiny traces of the original metal, but with numerous 2-phase inclusions typical of bloomery iron (Samuels 1980; Piaskowski 1992). These inclusions were elongated and convoluted, indicating substantial hot-working of the original metal. The original metal microstructure was not discernible.

The inclusions in this sample, and all the other completely corroded samples, were not analysed chemically but by the impossibility of distinguishing in the SEM between the predominantly oxide inclusions and the surrounding oxide corrosion product.

Sample JAK 2: Jakkalsberg B J15 S, brass percussion cap

This was a brass percussion cap (Fig. 4) in the form of a cylindrical tube, with both ends splayed, and one split raggedly. It was dark brown with bright green corrosion products, had a mass of 0.23 g and was not magnetic.

The polished longitudinal section consisted of yellow brass, with some dezincification along grain boundaries and at the margins where secondary copper had crystallized. The etched longitudinal section showed that the metal was intensely deformed, with characteristic slip bands criss-crossing the original grains (Fig. 6). The average grain size was about 0.15 mm although the size varied considerably. At either end the deformation was particularly severe, with grains flattened and sheared. The Knoop microhardness in the central region wasHK = 200 (100 g load, 15 s, range 185-232, n = 5). This is a high value which reflects the extensive cold-working undergone during deformation of the cap. There were numerous small oval inclusions with blue-stained, etched surfaces. At both ends there was extensive intergranular corrosion and corrosion along slip lines in the most severely stressed regions.

The bulk composition was approximately 65:35 Cu/Zn (Table 2:2a). This is about the upper limit of zinc for a soft single phase alpha brass (Scott 1991:19). The inclusions, forming typical small elongated globules on grain boundaries, all contained lead (Table 2:2b-f), up to 77% in one analysis, and also a trace of thorium, which was probably an accident contaminant of the lead. Lead is a common additive to brass, making the alloy softer and easier to work. In the case of this percussion cap, easy deformation was evidently a desired advantage. This
brass object was obviously modern, the product of a mechanised process, and a relatively recent addition to the assemblage at this site.

Sample JAK 3: Jakkalsberg B J14 Mou2, iron bar
This specimen consisted of two fragments of a very corroded iron bar (Fig. 4). The two fragments totalled 46.5 mm in length and the cross-section was approximately 10 mm square. The fragments were dark brown, with adhering sandy corrosion products, had a combined mass of 3.75 g and were magnetic.

The polished longitudinal section showed that the original metal was virtually all oxidised with only a few very tiny remnants left. The original outline of the pointed bar was clearly visible in the corrosion products (Fig. 7) but there was no preservation of the original microstructure. Typical 2-phase bloomery inclusions were lacking but there were some glassy stringers that may have represented original inclusions. There was thus no unequivocal evidence that this material represented bloomery iron. The median crack (Fig. 7) may indicate that the object was fabricated by bending a flat bar back over itself during hot-working.

Sample JAK 4: Jakkalsberg B F14, iron bar
This was a very severely corroded iron bar which had disintegrated into a number of fragments. The largest was cigar-shaped, about 15 mm long and 5 mm in maximum diameter (Fig. 4). It was dark brown, magnetic and had a mass of 0.80 g.

The polished longitudinal section showed that the metal was completely corroded and delaminating (Fig. 8). There were strings of very elongated single-phase glassy inclusions and also numerous strings of 2-phase
inclusions consisting of yellowish-grey blobs of wüstite in a darker glass (Fig. 9). These typical bloomery iron inclusions were elongated and transversely fractured, indicating initial hot-working followed by cold-working below the glass transition temperature of the inclusion matrix. This temperature is strongly composition-dependent but is typically between about 500°C and 700°C (Babcock 1977:26).

Sample JAK 5: Jakkalsberg B G14, iron bead

This was a corroded iron bead, about 4 mm in diameter, 2.9 mm thick, and with an approximately 1 mm diameter hole (Fig. 4). It was very dark brown, had a mass of 0.10 g and was magnetic.

A transverse section showed that the bead was corroded both on the outside and around the hole, although the roughly hexagonal original outline was clearly visible (Fig. 10). There was an unwelded join on one side. Corresponding opposite sides were not parallel so the object was not a small nut.

The metal was inhomogeneous, with inclusion banding and chemical segregation banding. The latter was due to inhomogeneity in the carbon distribution, visible after etching for 10 s in nital. Segregation banding is very common in bloomery iron (Miller 1992:149) and is usually caused by inhomogeneity in the distribution of minor amounts of arsenic or phosphorus, which in turn affect the stability of ferrite (Tylecote & Thomsen 1973). The EDS analysis of the metal detected no significant alloying elements other than about 0.3% silicon (Table 2:5a, b)². The overall carbon content was low, about 0.01-0.02% C and the average Knoop microhardness was HKᵢ = 236 (100 g load, 15 s, range 190-263, n = 65). The range in microhardness reflected the range in carbon composition and associated grain size. The low carbon areas consisted of large ferrite grains (ASTM 5) while the higher carbon areas had much finer grain size (ASTM 9-10)². These areas consisted of ferrite with islands of coarse pearlite and thick cementite envelopes (Fig. 11). This structure implies a slow cool from anneal at temperatures between about 723°C and about 900°C (Samuels 1980:67).

The bead was annealed before the final cold-working. There is grain deformation at the join and the orientation of the inclusion strings indicated that the metal in the join area had been cut with a chisel before being hammered closed (Fig. 12). The inclusion strings also followed the hexagonal outline (Fig. 10), so the bead had been forged into shape, and not faceted by subsequent grinding. The inner grains had been compressed and the outer grains
flattened during fabrication. The areas of most intense cold-work, and hence residual strain, have been corroded preferentially.

There were elongated strings of transversely fractured 2-phase inclusions consisting of light blobs of wüstite in a darker material (Fig. 11). The EDS spot analyses of the dark phase showed that it had the composition of fayalite (Fe$_2$SiO$_4$) with an insignificant 1% CaO and 0.5% Al$_2$O$_3$ (Table 3:5c-e). These are typical bloomery iron inclusions.

This bead was fashioned from a hot-worked strip which had been annealed and cooled before cutting the ends, bending it around, and flattening the sides. The composition and fabrication technique are consistent with its being of indigenous manufacture, although to my knowledge no similarly shaped hexagonal iron beads have been reported from other southern Africa sites.

Sample JAK 6: Jakkalsberg surface, "slag"

This sample consisted of three nodules of what appeared to be some form of slag. They were all three reddish-brown, very vesicular, amorphous and very weakly magnetic. They were designated A, B, and C, and had masses of 11.10 g, 9.35 g and 3.05 g respectively. They were roughly cuboid chucks measuring between 38 mm and 20 mm per side.

The polished sections revealed that they were all very similar. They were very porous, sandy, ferruginous, glassy nodules. A and B had very irregular porosity (Fig. 13) while C had more spherical pores. All three consisted of partly-fused quartz sand grains in a vesicular matrix of glass, which contained areas with lath-like crystallites and scattered patches of small, highly reflective dendrites (Fig. 14).

The bulk compositions, determined by using a large EDS raster size, were all very similar with average values of 62% SiO$_2$, 14% Al$_2$O$_3$, 13% FeO, 4.5% CaO, 3% MgO, 1.5% K$_2$O as the major elements in common (Table 2:6Aa, 6Ba, 6Ca). The bulk compositions were so similar that these three nodules must be the result of the same process. Raster analyses of the glassy areas themselves showed much greater variability, even within single nodules, because of the local inhomogeneity of the glass and the variable density of inclusions (Table 3:6Ab-e, 6Bb-d, 6Cb-e). The glass was predominantly SiO$_2$, with very variable amounts of Al$_2$O$_3$, CaO, and FeO, but unfortunately the composition gave no clear indication of its origin. Part of the variability in the FeO values of the analyses was due to presence of inhomogeneous distributions of clouds of minute magnetite crystallites and dendrites. Some of these crystals projected into the gas cavities forming the porosity in the glass and could be analysed without too much interference from the surrounding glass. The EDS analysis of such tiny crystals was difficult because they were each only a few microns across but they consisted predominantly of iron oxide (Table 3:6ae, 6Be). They were identified as magnetite on the basis of their composition, dendritic form, high lustre, and the ability of the samples to attract a sensitive compass needle.

The origin of this glass is discussed below, but it is very doubtful that it is the product of a metallurgical process.

Sample JAK 7: Jakkalsberg A I32 SS, "slag" and iron spatula

This sample consisted of one small piece of "slag" and a very fragmented iron spatula. The apparent slag was a small glassy nodule similar to those of JAK 6, but not appreciably magnetic. It had a mass of 0.07 g. Unfortunately, the sample disintegrated during preparation so there was no opportunity to describe it more fully. The five iron fragments could be reassembled into a small spatulate object (Fig. 15), possibly a small knife blade or adze-like scraper, with a total length of about 45 mm and about 9 mm at its broadest. It varied in thickness from about 1 mm at its pointed end to about 6 mm at the broad rounded end. The total mass of iron was 1.60 g and all the fragments were magnetic.

Two transverse specimens were prepared. Both were severely corroded, but distinctly curved, with the original outlines still visible (Fig. 16). The object had a laminated structure, evident from the orientation of the small areas of original metal. Etched in nital, these had fine grain size (ASTM 8-9) consisting of equiaxed ferrite with
Fig. 15. Photograph of the reconstructed iron spatula JAK 7 (scale in mm).

Fig. 16. Polished transverse section of iron fragment JAK 7, showing curved cross-section (7 X).

Fig. 17. Etched section of metal in JAK 7, showing white ferrite and dark coarse pearlite (280 X).

Fig. 18. Polished section of iron fragment JAK 7, showing fractured glassy inclusions (450 X).

Fig. 19. Photograph of iron fragments JAK 8 (scale in mm).

but there were elongated and transversely-fractured glassy inclusions (Fig. 18). These consisted predominantly of SiO₂, with subsidiary amounts of FeO, CaO, Al₂O₃, MnO, K₂O, and TiO₂ (Table 3:7f-i). There is nothing special about this glass composition. The CaO and K₂O act as a flux in glass formation, and the Al₂O₃, MnO, and TiO₂ resist reduction at the relatively low temperatures of bloomery iron-smelting and consequently end up in the slag-derived inclusions (Todd & Charles 1978). The inclusion morphology showed that the object had been hot-worked, and then worked below the glass transition temperature (500 - 700°C), before being annealed and cooled. This is typical of temperature cycling in a forge and is a common feature of indigenous bloomery iron objects (Miller 1992).

Sample JAK 8: Jakkalsberg B G12 S, two iron fragments

This specimen consisted of two pieces of very corroded iron. Both were dark brown and magnetic, and had a combined mass of 0.26 g. The smaller fragment was irregular but the larger was in the form of a curved strip (Fig. 19) with overall dimensions of 8 mm by 5 mm by about 4 mm thick. A transverse section was cut from the larger fragment.

The metal was almost completely corroded except for very minute areas of residual iron (Fig. 20). The original
Sample JAK 9: Jakkalsberg B G14 S, iron strip
This specimen was a piece of heavily corroded iron strip or flattened bar, fractured at both ends (Fig. 21). The length was 22 mm, the breadth 10 mm, and the thickness about 4 mm. It was dark brown, had a mass of 1,70 g and was magnetic.

A transverse section showed that it was virtually completely corroded (Fig. 22). There was residual pearlitic structure preserved in places in the corrosion product but the original carbon content could not be determined. The sparse, elongated, transversely-fractured, glassy inclusions were evidence for cyclical hot- and cold-working.

Sample JAK 10: Jakkalsberg B G15 S, three iron fragments
This sample consisted of three flat, irregular iron fragments (Fig. 23). All three were very severely corroded, dark brown and magnetic, with dimensions under 10 mm square and about 4 mm thick. The combined mass was 0,71 g. The specimen selected for sectioning disintegrated while being sawn and the friability of the other two precluded their being sectioned.

Sample JAK 11: Jakkalsberg B J12 S, iron strip
This specimen was a fragment of broad iron strip with one side bent up slightly (Fig. 24). It was 12 mm by 11 mm by about 3 mm thick, had a mass of 0,61 g and was magnetic.

In section it was very corroded with a few tiny remnants of iron (Fig. 25). There were some rounded, pinkish globules associated with dark areas, which appeared to be 2-phase inclusions. In places there were ghosts of pearlite structure in the corrosion product, but the overall carbon content could not be estimated.
DISCUSSION

The Little Namaqua are reported (Godée-Molsbergen 1921) to have worn copper and iron beads on their clothing and around their arms and legs, as well as chains and plates. "Their only industry is working in copper and iron, from which they make very neat beads and chains", reported van Meerhoff in 1661 (Moodie 1960:233). The source of their iron, according to Goodwin (1956:48), is likely to have been the "Briqua" (BaThlaping) but with regard to the copper he refers to Mentzel's (1944) account of a demonstration of copper smelting by the Namaqua dating to 1762. From the description Goodwin suggests that they could have acquired this technology from Iron Age groups.

The Little Namaqua Khoikhoi owned iron spear heads and arrow heads during historical times. Alexander (1967:96) described a group of Namaqua men whom he encountered in the Komaggas area of Namaqualand in 1836 as having assegais or spears "five feet long with a small blade of iron inserted into the upper end, which was bound with leather", while only "occasionally a few of the arrows have barbed heads of iron". These same groups apparently moved to Arris Drift (new spelling: Arriesdrift) some 40 km downstream from Jakkalsberg, along the Orange River, on a seasonal basis.

With respect to the presence of metal items pre-dating the 17th century, a number of iron fragments and copper beads and ear-rings have been recovered from archaeological sites which confirm their use by people with a stone tool technology. Four copper beads were recovered from a unit in the Numas Entrance Shelter in the Brandberg dated to 870 ± 100 BP (SR 46) (MacCalman 1965); a single copper bead from Bamhata Cave immediately postdates 2140 ± 60 BP (Pta-3072) (Walker 1983) and a copper bead from the top of DGL at Boomplaas Cave is associated with a date of 1630 ± 50 BP (UW-337) (Deacon et al. 1978). A single copper or brass bead from Byneskranskop 1 was recovered from a unit dated to 255 ± 50 BP (Schweitzer & Wilson 1982). Conical copper ear-rings have been found associated with two Riet River burials, one dated to 110 ± 50 BP (Pta-247) and the other to 890 ± 50 BP (Pta-2898) (Morris 1992:33). These were very similar in form to two others from a burial at De Hoop in the Kimberley District, but these appear to have had iron cones (Miller, Morris & Evans 1993). Iron fragments have been found in a 1230 ± 80 BP (Pta-4592) spit at Wildebeest Kuil 2 (Beaumont & Vogel 1989) and are also reported from the Swartkop sites which date between 400 BP and 700 BP (Morris & Beaumont 1991).

Although brief mention is made in the historical literature of the Little Namaqua’s ability to smelt metal, no archaeological evidence has yet been recovered from Namaqualand to support the claim that they actually mined copper or iron. It seems more likely that they obtained their metal items from Iron Age groups such as the Tswana.

The brass percussion cap is obviously not of indigenous manufacture and is a historical import, unrelated to the radiocarbon date of 1330 ± 60 BP (Pta-5958) obtained from a hearth on this site (Webley 1993). Similar-looking artefacts (which in some instances have been identified as clothing fittings rather than percussion caps) have been found in Late Iron Age contexts at the Tsodilo Hills (Miller 1992:217) and in the Waterberg (M. Küsel pers. comm.).

The glassy "slag" is problematic. The presence of magnetite indicates that the glass had formed under oxidising conditions, such as may obtain at a forge. But it lacks the fayalite one would expect to see in forging slag; and if forging were done on the site there should be far more evidence for it. It is not fulgarite, or natural glass formed by lightning strikes, because it is incompletely fused, and fulgarite is essentially fused silica. The Jakkalsberg glass has a relatively high CaO content probably derived from plant ash, which can act as a flux and considerably lower the melting-point of a silicate glassy phase. We suspect that these nodules are an accidental product formed in a fire made with wood with a high alkaline earth content.

The iron bead is very intriguing. It is made of low-carbon bloomery iron, using fairly simple fabrication techniques which do not differ in any significant way from those employed indigenously in the fabrication of numerous iron beads. The hammered hexagonal shape is unusual, though, and the possibility cannot be excluded that this bead was imported, or was a fairly recent addition to the deposit.

Nevertheless, when considering the iron materials as a whole the impression is that these are no different in composition or structure from numerous examples of indigenous metal working. They were formed into simple shapes; the metal was characteristically inhomogeneous and banded; there is nothing unusual about the carbon contents or the grain sizes; the inclusions are typical transversely-fractured glassy stringers and elongated 2-phase slag globules; and they almost all show evidence of cyclical hot- and cold-working typical of fabrication in an open forge reaching about 900°C. There is nothing to distinguish the bulk of this material from iron found at other Early Iron Age sites like Divuyu (Miller 1992) and
it may well relate to the associated Jakkalsberg radiocarbon dates of circa AD 690.

CONCLUSION

Although the percussion cap and the gunflint date to the mid-19th century or earlier, the analysis of the iron artefacts indicates that they are probably of indigenous origin and therefore possibly contemporary with the rest of the cultural assemblage. The gunflint and percussion cap may have been dropped by a traveller passing through the area, subsequently becoming incorporated within the assemblage because of the deflation of the intervening soil horizon. These sites would appear to have been covered by wind-blown sands soon after being abandoned around 1300 years ago and were initially protected from the action of the wind by trees. They have only recently become exposed again, as is evident from the preserved bone and hearths.

The significance of the iron fragments may be determined from an examination of the composition of the rest of the cultural assemblage. The almost total absence of any formal stone artefacts in a toolkit numbering in excess of 9000 stone artefacts suggests that iron may well have been used for certain artefacts such as adzes and arrow tips. Iron and copper items have been recovered from numerous stone age contexts and the results presented above would indicate that they featured in the cultural assemblage of stone age pastoralist groups some 1300 years ago.

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Notes

1. Although Knoop microhardness is not standard for archaeometallurgical purposes values can be compared approximately with Vickers microhardness values by dividing by 1,087. Knoop hardness numbers are expressed as mean indentation pressure values according to the equation K.H.N. = 14.23 W/F, where W = load (g) and 1 = indentation length (microns). Vickers hardness numbers are expressed as load divided by pyramidal surface areas of indentation according to the equation V.H.N. = 1,854 W/d2, where W = load (g) and d = mean indentation diameter (microns). The mean pressure PM = 2W/d2, so V.H.N. can be expressed in terms of mean pressure values by multiplying by a factor of 1,087 (Ross 1985:5). It should be noted that microhardness values determined at different loads are not strictly comparable because the apparent hardness rises steeply with diminishing load, but this effect is more pronounced in harder materials than the soft alloys described here.

2. Segregation banding can develop with concentrations of alloying elements too low to detect with the KEVEX.

3. The higher the number, the finer the grain size.

REFERENCES


LATER STONE AGE FUNERARY PRACTICE IN THE MATOPOS, ZIMBABWE: A CONTRIBUTION TO UNDERSTANDING PREHISTORIC DEATH RITES IN SOUTHERN AFRICA*

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ABSTRACT

This paper describes the few human remains found in Later Stone Age contexts in the Matopos and considers their relationship to the ancestry of the remnant hunter-gatherer populations in Zimbabwe before comparing funerary modes in the archaeological record for the rest of southern Africa. Burial practices among San people are also briefly reviewed in an attempt to learn about accompanying beliefs and decipher any regional patternings. It concludes that there were different concepts about the afterlife in different parts of the subcontinent and that the challenge is to try and explain this.

INTRODUCTION

Few Stone Age human skeletal remains have been recovered in the southern African interior. In Zimbabwe, for example, in spite of excavations in more than 60 Stone Age sites, only three burials may date from the Stone Age - at Ziwa shelter in Inyanga (Robinson 1958), Outspan Shelter (White 1905) and Nswatugi Cave (Walker 1980) in the Matopos. There is in fact, some doubt as to whether the first two are even Later Stone Age - they may date to the Iron Age (see below). Human remains from near the Umguza River, just north of Bulawayo, are less certainly of a burial and might date to the Middle Stone Age (Robinson unpubl.). A highly mineralised human mandible from a pan in Whange Game Park is probably also Stone Age, but there is no evidence that it came from a burial (National Museum & Monuments of Zimbabwe records).

In contrast, Later Stone Age (LSA) human remains are numerous in the southern and eastern Cape as a result of the widespread practice there of people having buried their dead in graves within their living sites (Deacon 1984; Inskeep 1986; Hall & Binneman 1987). This contrast in the richness of human remains between the interior and the Cape south coast suggests that different mortuary practices were in operation in different parts of southern Africa during the LSA. It is therefore of interest to note evidence for other ways of disposing of the dead in the Matopos and elsewhere in south-central Africa. This paper discusses the evidence from the Matopos with these other finds.

MATOPOS LATER STONE AGE RESEARCH

The Matopos is an area of about 2 200 square km of hilly granite country with thousands of rock shelters (Fig. 1).

These shelters were frequently used by LSA people and some 800 sites have so far been located in them. Most were only used for painting and any related ritual (Walker in press) or limited processing and maintenance work (Walker in prep.), but about 30% were lived in and have up to 2 m of LSA deposit in some cases. The Later Stone Age dates from about 13 000 to about 1500 BP in the Matopos and overlies Middle Stone Age (MSA) in the larger shelters. The MSA is in need of re-analysis, but current interpretation suggests that all of it might be more than 20 000 years old (Walker 1990).

To date 14 rock shelters have been excavated, some extensively (White 1905; Hall unpubl.; Arnold & Jones 1919; Armstrong 1931; Jones 1933; 1940; Paterson
unpubl.; Cooke & Robinson 1954; Cooke 1963; Walker 1980; 1992, in prep.) and so observations on shelter usage can be considered as reliable. The rarity of human remains is unlikely therefore to be a factor of limited research. Nor can the sparsity of human skeletal remains be attributed to poor preservation. Bone weathering is variable between sites, but faunal remains have survived well in all LSA levels. It is of course possible that some human bones may not have been identified in the past. If this is the case however, such remains are unlikely to have been complete burials, as these should have been more easily recognisable.

STONE AGE HUMAN REMAINS IN THE MATOPOS

Human remains have been recovered in four probable Stone Age contexts in the Matopos.

The Outspan Shelter burials

In 1905, Franklin White published a brief report on his excavation in the Outspan Shelter (White 1905). He identified two Stone Age layers at the site. He uncovered an apparent Iron Age burial interred into the upper layer plus another burial in the lower level. He regarded the latter grave as being contemporaneous with the layer. Considering the shallow deposit at the site it would have been a very shallow grave. There are no details about this burial or the skeleton and the material is no longer available, but White regarded the two assemblages as being distinct. Judging by the range of artefacts present in the dipline and on the talus in front of the shelter (scrapers comparable with the Pomongwe Industry, bone tools and backed tools comparable with the Amadzimba Industry), the lower level may well have been early Holocene (c. 9800 to 9000 years ago) and the upper level late Holocene on typological grounds (Walker 1991a). Of course, White could be wrong in considering that the burial was not also inhumed in more recent millennia.

Tshangula Cave human bone

This cave was excavated by Cooke (1963:134,142-5) to check on his findings at Pomongwe Cave, but never fully written up. Considering the sections illustrated and the typology of the associated cultural material, it seems that layer 1 has both late (2150 ± 100 (SR-75) BP) and early (8560 ± 80 (Pta-2472) BP) Holocene material; layer 2 is fairly pure early Holocene, dating to between c. 9000 and 9400 BP on typological grounds; while layer 3 is a mixture of early Holocene (9800 ± 90 (Pta-2473) BP) and late Pleistocene material (Walker 1991a, 1992). A human tarsal was found in a recent analysis of the faunal remains from level 2. This has a deep incision near the proximal articular end which had been cut at or shortly after death, as if for suspension.

The Nswatugi Cave burial

A contracted burial (Fig. 2) was located against the south wall at a depth of 1.2 m (Walker 1980). The body was lying on its right side, with its head to the east, facing north. The thighs were at right angles to the body and the legs were tightly flexed. The right hand rested on the left hip and the left hand on the neck. The bones were in a poor state, in part because the grave was situated near the edge of the drip line where the deposit is periodically dampened and in part because of damage by termites. Soft, uncarbonised organic matter is usually soon destroyed by termites in the tropics, even in rock shelters, especially along shelter walls where they are most active. Bone is usually ignored, but in this instance they had made their chambers and passages in the long bones and skull, destroying and moving various parts of the skeleton in the process. The loss of soft bone, in particular facial bone, vertebrae, limb extremities and phalanges complicated recovery. This made analysis difficult, but H. de Villiers (pers. comm.) has tentatively identified the skeleton as that of an adult Khoisanoid woman, approximately 40 years old. Stature was about 1,51 ± 0.04 m.

No grave profile was recognisable because of leaching, termite activity and subsequent disturbance during later occupation, but it was possible to estimate the antiquity and type of burial by considering the orientation of the larger flakes in the grave fill. Normally, large artefacts lie approximately horizontal or parallel with the natural shelter slope, but in backfill the angle of repose is variable. The relevant stratigraphy is: (1) MSA, capped by (2) a thin sterile layer with a date of 10270 ± 90 BP (Pta-2218), below (3) LSA dating from about 9790 ± 90 BP (Pta-1771). The site was then used intensively for nearly another 4000 years or so before being abandoned (Walker in prep.).

A shallow oval depression some 0, 20 m deep had first been scraped out of (or already existed in) the sterile layer and top of the MSA, approximately 0, 60 by 1, 0 m in area along the southern cave wall. The body was then laid to rest, a stone slab placed on the knees and the hole backfilled. Only a slight mound was made over the grave (although this may have been flattened by subsequent use) and this was soon covered by occupational debris. The burial thus dates to late in the formation of the sterile unit, perhaps before the cave was regularly lived in, or in the first centuries thereafter, and is most probably between 10300 and 9500 years old.

The only artefact clearly associated with the burial is a large, core-like basalt flake tool, showing no sign of use, that had been placed carefully on the head. No ornaments, colouring matter or stains that might have been derived from organic grave goods, clothing, sprinkled ochre or body paint were noted with the body.

Nswatugi Cave child remains

Some smashed, burnt and scattered limb bones of a child (6 to 10 years) were found in an ash layer (Fig. 3) in unit IV dating to 7880 ± 70 (Pta-2046) years ago in the centre of the cave (Walker in prep.). None of the damage occurred at or shortly after death (Kobus pers. comm.) and it is presumed that fragmentation followed
by cremation occurred much later, but before the bones had completely dried.

STONE AGE DESCENDANTS IN ZIMBABWE

Little research has been carried out on recent hunter-gatherers in Zimbabwe. Distinct ethnic groups of foragers have largely disappeared or been absorbed by more powerful neighbours, following the increased demand for land in previously under utilised areas and land reforms in the last few centuries. Some are remembered in myths, for example, the 'Dzangara Mudzimu' or 'will o' the wisp' little people of long ago (Beach 1980) and they point to a widespread distribution of hunter-gatherers in low-lying areas until relatively recently. Thus, in the Masvingo and Sabi region there was a group remembered as master hunters and honey collectors, who could not speak siKaranga, and who bartered honey and skins for iron (Dorman 1917; Von Sicard 1954; K. Robinson pers. comm.). Some may have been early Bantu-speaking farmers who lost their stock or who mixed with hunters and relied on foraging in remote parts into which they had been displaced; the 'Knobnos' who grew a few crops along the Limpopo river (Mauch 1871; Elton 1873; Von Sicard 1954) and the Vadoma in the Zambesi Valley (Nicolle 1959; Tamayi 1959) might be such people, but without more serious study the question cannot be fully answered.

Many foragers in north and west Matabeleland succumbed during the turmoils of the 19th century, when they were often ruthlessly hunted down (cf. Chapman 1966; Mohr 1876; Finnaughty 1957). No study has been made of the click speakers in the Karoi-Gokwe area, many of whom may have become victims of the recent wars (P. Locke & S. Nduku pers. comm), nor those reported in the central parts of Mocambique (P. Sinclair pers. comm.). Many of their words may linger on in place names in the Zimbabwe midlands (Summers unpubl.). The recent hunter-gatherers in the northwestern parts of the country (Nicolle 1959; P. Fox pers. comm.; Hitchcock & Nangati 1993) are or were Khoisan people speaking Tshukwe (i.e. Central) Bushman languages (Westphal 1971), as are the Basarwa (San) groups in southwest Zimbabwe and adjacent Botswana (Baines 1946; Mohr 1876; Dorman 1917; Hitchcock 1982; pers. records). Coupled with the continuity in the rock art and its links with recent Khoisan beliefs (e.g. Lewis-Williams 1981), the evidence indicates that the last Stone Age or foraging people of Zimbabwe are or were Khoisan people. This is in keeping with the tentative evidence from the Nswatugi burial, the cranium from Umgusa (Robinson unpubl.) and possibly the Inyang burial (Tobias 1958; but see Rightmire 1984).

The shortage of Later Stone Age burials has complicated our understanding of the physical type of these people. This is in contrast with the Iron Age
situation, thanks to traditional Bantu mortuary practice, in which burial is widespread and often accompanied by elaborate ritual (e.g. Bullock 1927; Gelfand 1962) and which certainly has been important for at least a thousand years (see e.g. Walker 1991b).

ARCHAEOLOGICAL OBSERVATIONS IN OTHER AREAS

Numerous LSA burials have been found in the southern Cape (over 300 are listed in Inskeep (1986)) and formal interment dates back some 10 000 years (Deacon 1984). These graves are found both at or near open and rock shelter camps.

In spite of the large sample of excavated burials, few meaningful data were collected in the early days. Nevertheless, the majority are flexed burials. There is a tendency for the burials at certain sites or in specific levels to be placed on a particular side, but there are no consistent trends and it seems unlikely that side had any special meaning. Similarly, orientation was also apparently random (see data in Goodwin 1938; Inskeep 1986; Hall & Binneman 1987).

Grave goods, including ostrich shell canteens (originally with water?), shellfish (some are unopened bivalves) and meat bones are sometimes present, especially with adults. Ochre was often sprinkled over the bodies (Louw 1960; Deacon 1976). Hall and Binneman (1987) have suggested that regional variations in ornamentation and grave goods may reflect different levels of gift exchange to bolster social relations, but their sample is small and other data (e.g. Goodwin 1938; Deacon 1984; Inskeep 1986, 1987) indicate greater local diversity and until a larger sample with better dates or more conclusive data are available, we cannot discount change in ritual or fashion over time as a factor (Inskeep 1986).

Several burials contained painted stones some of which were originally grindstones, coloured in red wash or with actual pictures, although most graves lack them and painted stones have been found unassociated with graves (Rudner 1971; Deacon et al. 1978). Mural art is rare along the Cape coast, perhaps because of dampness from sea mists (Willcox 1984) and portable art may just have been devised to facilitate safeguarding the paintings, but more likely this is a distinctive religious tradition in which the art played a more active role than in areas with mural art; three quarters of the painted stones have been found along the coast in a relatively small area. Rudner (1971) also notes how many have faded since excavation and, considering the likely loss because of the dampness of some deposits, possibly there were once a great many more.

In spite of a relatively small sample size one cannot but note the absence of eland, which is otherwise so common a symbol in South African art, the high incidence of the colour black and the frequent depiction of buffalo and cetaceans, elsewhere rare elements in the paintings. In the Matopos art buffalo were avoided as subject matter (Walker in press) and black frequently occurs with wildebeest. Vinnicombe (1976) suggests that wildebeest had negative values to explain their rarity in South African art. Charcoal is in fact often an ingredient in medicine and so perhaps certain animals and the colour black may have been linked with death or curing. We thus cannot dismiss the possibility of some of the southern Cape painted stones being funerary art, perhaps either representing failed attempts at curing or possibly painted especially for the last journey or afterlife. This is not at variance with the current model of much of the rock art dealing with curing and contacting the spirit world (e.g. Lewis-Williams 1981), although it suggests that ancestors here may have played a more active role in supernatural activities.

Children often had more elaborate ornamentation than older people and Hall & Binneman (1987) suggest that this may be because individual exchange (hxaro) relationships are planned and inherited at an early age but become less important in later life. As noted, their sample of adult burials is small and elsewhere there are exceptions to this model. The G/wi in fact redistribute beadwork to daughters at death (Silberbauer 1972) and of course children would have no one to pass on property to if they died prematurely. Hxaro is not universal among Khoisan people (e.g. Kent 1990) and seems to be a strategy developed by some peoples in fairly marginal areas for maintaining links between relatively small, dispersed and mobile groups; it is unlikely that the two regions are ecologically comparable. Inskeep (1986) however notes that ornamentation in the southern Cape has a chronological basis, being commonest in the early Holocene. This might reflect fashion or other trends as with the change in arrow design implied by the increase in backed tools in the mid Holocene, although this in itself does not preclude changes in intensity of reciprocity relationships with time. The mid-Holocene is a period when more property was buried with the body including food and water, which probably relates to perceived
needs in the afterlife and perhaps the mediation of suitably propitiated ancestors in spiritual matters, as suggested above. This implies additional social or ritual forces in operation.

Some 200 graves have been opened up in the northern Cape and eastern Free State (van Riet Lowe 1931; Dreyer & Meiring 1937; Mason 1954; Humphreys 1970, 1982, Humphreys & Maggs 1970; Morris 1992). They are often deep with side niches and covered by stone cairns. None has been found in shelters and they are rare at living sites. Most appear to be late or relate to recent pastoralists (Humphreys & Maggs 1970; Inskeep 1986; Morris 1992; but see Humphreys 1974).

Only a few LSA burials have been found in Namibia (Vogel & Visser 1981), Botswana (Rubin unpubl.; Campbell 1992), the Transvaal (Mason 1974) or adjacent regions, despite considerable research in these areas. These few graves are apparently also relatively recent and the Nhabe River burial more correctly was associated with a pastoralist site (Campbell 1992). The burial from near Makgadigadi Pan is of interest because it was a flexed burial, but one foot had been disarticulated and placed on the chest (Rubin unpubl.). Populations were lower in this broad region during the mid-Holocene (Deacon 1984) and parts were probably uninhabited, but a low density cannot explain the rarity of graves in Zimbabwe throughout the LSA, where sites are numerous sites.

Human remains are more common in LSA contexts further north in Zambia, where about 60 individuals have been recorded. Clark (1950:113) found a very mineralised contracted burial "lying on the left side facing west" associated with "two LSA macrocrolithic flakes" at the Maramba river near Livingstone. Further east, several shallow burials were discovered at the Gwisho living site (Gabel 1963; Fagan & van Noten 1966). They were in a variety of positions and orientations, but tended to be extended, making them unusual for the Later Stone Age. Some skeletal parts are missing, but the excavators considered this to be a result of random scavenging by animals as the graves were shallow. No grave goods were noted, only occasional stains from ochre body paint. The burials date to between about 3500 and 4900 BP Fagan & van Noten 1966).

Several Zambian shelters have also yielded human remains in the LSA levels, but data are few. At Mumbwa, Dart and Del Grande (1931) recovered 16 very fragmented human remains. Some of the lower ones came from three 'beehive enclosures', stone lined 'tombs' (i.e. graves), together with stone implements along the cave wall. The excavators surmised from the positions of the surviving bones that the bodies had been placed in sitting or foetal (flexed) positions, but it remains uncertain whether they were complete skeletons. Dart and Del Grande (ibid.) do not mention how many bodies were found in each grave. They also describe an oval stone-lined feature with ash from the base of the LSA as a 'furnace' but there is no support for this and Clark (1942) probably correctly considers that it was another grave. Certainly, we can dismiss the idea of smelting at this remote time and the ash content is therefore significant. Clark (ibid.) recovered several scattered human teeth, including five canines (i.e. at least two individuals) from his own excavations at this site. Unfortunately the data are far from satisfactory, but there seems to have been a development from burying the dead in relatively elaborate formal graves, perhaps in ceremonies that included cremation and/or other posthumous ritual treatment to a phase that allowed the scattering or 'dumping' of the remains (Clark ibid.). Here we cannot exclude exhumation from shallow graves by scavengers.

At Chipongwe Cave near Lusaka 'scattered' human bones from at least four individuals were found on the surface associated with a "few Wilton artefacts" (Clark 1950:113) showing "no evidence of burial" (Clark 1955:108). At Leopard's Hill the LSA skeletal parts are described as extremely fragmented and "worn" (Clark 1950:113), but nothing is stated about their antiquity.

A few isolated human remains (an ulna, a phalange and teeth) were also found in the LSA levels at Nachikufu Cave (Clark 1950:117) but no details were given about the depth they came from. At Kalemba, the bones of four humans had been deliberately smashed and sometimes burnt before burial in neat but incomplete arrangements under stones (Phillipson 1976). Clearly, they had been ritually dismembered before burial and Phillipson (1976:169) suspects that cannibalism might have even been practised. These burials are early to mid-Holocene in age (Phillipson ibid.).

**CONTEMPORARY SAN BURIAL PRACTICES**

Customs have apparently changed among the Kalahari San, as they have long been influenced by Bantu-speaking neighbours (e.g. Wilmsen & Denbow 1990) and more recently by political pressures to conform. Funerary rites have regrettably been ignored by most recent researchers among the San. Traditionally burial may not have been very common and the old may have been abandoned or had their bodies left for scavengers (Dornan 1917; Bleek 1928; Hahn et al. 1928). Burial is now fairly widespread although influenced by a person's status, by terrain type and by circumstances, such as time of year, who else is present and intra-group stress (Wiessner 1983). Deep graves at times with side recesses for the body are sometimes dug in soft sand by some Tshukwe groups (Dornan 1925; Bleek 1928; Silberbauer 1965), but often handy antbear holes in termitearia are used (Schapera 1930).

There are apparently no differences in burial according to sex (Wiessner 1983). Bodies are placed on their side in a contracted foetal position and often buried facing east (Arbouset & Daumas 1846; Dornan 1925; Bleek 1928; Wiessner 1983), perhaps reflecting beliefs of where they originated (see Schoeman n.d.:37) or that the spirits of the deceased leave via the head before taking up residence in the east (see Marshall 1962). Roos (1931) however, states that bodies are faced north. Bleek (1928) states that the body is placed on the left side, but
Wiessner (ibid.) and Roos (ibid.) say that it is laid on the right side. These contradictions might reflect regional variations, but this suggests that less significance is attached to placement by these people than by Bantu people (for example, Shona-speaking males were often placed on the right side and females on the left side (J. Thokozone pers. comm.) as part of strict gender symbolism (cf. Huffman 1982)). Buchu or ochre may be sprinkled over the body or anointed on the head before the grave is filled (Schapera 1930). Arbousset and Daumas (1846) also mention burning the deceased's hut over the body prior to filling the grave. In general adult graves tend to be away from living sites, except temporary camps, when in any case the group immediately moves. This is because of a fear of spirits.

There seems to be different opinions as to whether possessions or goods are specially placed with the body, but Morris (1992) concludes that the interment of objects was characteristic of the San. Clothing and ornaments are left on the body usually which might be wrapped in a skin blanket, but some groups redistribute property (Steyn 1971; Silberbauer 1972; Wiessner 1983) while others place weapons, personal effects and at times water and food in or on the grave, sometimes breaking artefacts first (Blek 1928; Silberbauer 1972). Stones may or may not be placed in or on graves (Dornan 1925; Schapera 1930; Morris 1992). K!ung women have a stone placed above the head (Wiessner 1983). Unfortunately there are no details on the symbolic meaning behind these various customs. Clearly, more research is needed into Khoisan funerary rites for it is uncertain whether differences reflect the break up of traditional practice, recent adoption of new ideas, regional variation or simply inadequate data collection. It is relevant to however note the lack of standardisation, the general but not exclusive inclusion of grave furniture or goods, the lack of elaborate treatment of the body and the subsequent avoidance of the burial location.

CONCLUSION

To summarise a picture complicated by inadequate data, different LSA funerary modes were observed at different times in various parts of southern Africa. The practice of burying the dead may date from the MSA (Beaumont 1980), but the evidence is far from conclusive and they only become common in the Holocene. Along with art they indicate a growing concern for spiritual matters. Burials were in shallow graves, unlike more recent Khoisan practices, probably relating to the difficulty of digging with organic implements. Apparently, burial, occasionally in living sites, was fairly widespread albeit rare in the early Holocene, but there were shifts in funerary beliefs and practices thereafter.

By the mid-Holocene, three major modes had developed, with burials in living sites being very much a feature of the Cape coastal belt, but less so in the interior (between latitudes 18 and 32 S). This is too strong a pattern to be simply a factor of inadequate sampling or low population density in the interior. For much of Zimbabwe, eastern Zambia and perhaps the southern African interior itself, bodies may have been ritually dismembered and disposed of, perhaps even used for example, in ceremonies that included cremation, although scavenging and death and mutilation by predators cannot be completely dismissed as a factor. Burial seldom took place at home sites in the southern interior. Only in eastern Zambia was there any consistent attempt to bury these ritualised remains in formal graves at living sites. Perhaps western Zambia represents a further tradition of non-ritualised burial at living sites. Apart from western Zambia there is little evidence of any formal burial of complete bodies in the interior before simple burial customs were apparently adopted within the last two millennia, possibly from immigrant farmer populations. One conclusion then is that recent Khoisan burial modes - burial with minimal ritual treatment of the bodies in graves - have no clear continuity with the past prior to the arrival of new social forces, although burial in graves away from living sites may have taken place.

The manner of disposal incorporated beliefs and concerns about the afterlife, but it seems that it was only in the southern Cape that some preparation for the last passage was deemed necessary. The people of the Cape Folded Mountains thus seem to have had a distinctive set of beliefs from the rest of the subcontinent as indicated in their art and burial modes, despite continuities in economy and technology with other parts. The strong correlation of graves with living sites and again with art suggests that ancestors may have become important in ritual activity, which is atypical of traditional San practice.

The development of mortuary practices can be viewed from a perspective of evolving cognitive systems, with initially perhaps more an emotional concern about abandoning the body of a loved one to scavengers, hence no growth of a formal mode of disposal. The introduction of fairly standardised practices as the Later Stone Age evolves suggests an appreciation of religious aspects to death that needed to be addressed, although different parts responded in different ways. Brandt (1988), quoting Chapman (1981) and others, suggests that at times of high population or increased sedentarism people needed visible graves by which they could display territorial rights to land. However, this seems unlikely for even semi-mobile foragers, where affinities with other groups needed to be maintained and in the southern African LSA we do not get the necessary monumental graves. Still, the idea that increased stress during the interior was a factor in investing less effort in the disposal of the dead is in agreement with Wiessner's (1983) observation, while it may not be coincidence that graves were commonest in more productive areas such as along the Cape coast and in Zambia, where groups may have been less mobile, but other factors might have been involved. With the advent of pastoralism we do get the appearance of cairns on graves and this might be part of a display legitimising land tenure. The often very elaborate graves of senior agropastoral people represent a still further level where they in fact served as shrines.


This variability and the changing practices outlined above introduce a cautionary note to the indiscriminant use of recent ethnographic models to systems operating many millennia ago. Considerable variation was allowable at most times but, as noted by Inskeep (1986) more careful recording and research of human remains is needed in future for us to better understand the rich symbolism being expressed. The Cape in fact, because of the abundance of graves, offers tremendous potential, not only for insights into demography, diet, disease, genetics and religious practices, but also deeper social organisation along the lines of the work of Hall and Binneman (1987). Such research needs to be couched in a theoretical framework which can address questions as to why these differences emerged and thus needs to consider the broader socio-economic background than is possible in a paper of this nature.

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EARLY IRON AGE POTTERY FROM CANASTA PLACE, EAST LONDON DISTRICT*

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ABSTRACT

The Early Iron Age pottery assemblage from Canasta Place is of special interest because it represents the southern-most inland find of this kind so far. Despite the fragmentary nature of the potsherds and small size of the sample, decorative motifs and vessel profiles suggest that there is a relationship with Natal Early Iron Age phases i.e. Msuluzi, Ndondondwane and Nshekane as well as Transkei's two Early Iron Age phases.

INTRODUCTION

Canasta Place (33.00 S; 27.47 E) is 12 km west of East London and lies on the west bank of Buffalo River (Fig. 1). The vegetation in the study area is valley bushveld that has been cleared in patches to make place for pineapples fields. Summer rainfall starts in August and the climate allows the growing of tropical fruits like pawpaws, pineapples, oranges, apples and guavas. Water is available from fountains and the Buffalo River. Game such as bushbuck, porcupine and wildpig is still abundant.

The presence of large quantities of Iron Age pottery fragments were observed by the owner of Canasta Place, Mrs Horrmann, during gardening activities. The pottery was identified by Professor H.J. Deacon, of the University of Stellenbosch, as belonging to an Early Iron Age (EIA) variant. This has created some interest because it is the southernmost inland occurrence of such ware found so far. An archaeological investigation of the site by the author took place during field work lasting six months from March to October, 1992.

Previous investigations into the EIA in the Transkei and Ciskei includes work at Buffalo River Mouth (Wells 1934; Laidler 1935), at Chalumna River Mouth (Derricourt 1977) and additional research by Feely (1987) and Prins (1989). There is also a recent find in the Kei Valley which is currently under investigation (Binneman et al. 1992). In Natal, the study of the EIA is more advanced through the endeavours of Maggs and Michael (1976), Maggs (1980b, 1980c, 1984) and Maggs and Ward (1984). The main aim of this report is to describe the pottery finds at Canasta Place and to indicate possible relationships with Transkei and Natal assemblages.

SITE DESCRIPTION AND EXCAVATION.

At Canasta Place and adjacent farms, pottery is observed in patches over an area of several kilometres but the main pottery site (80 m x 30 m) is in an orchard close to the farm homestead (Fig. 2). Ploughing activities have caused considerable disturbance and breakage of the pottery. Material belonging to the contact period is to be found together with the EIA ware in the topsoil.

Excavation was conducted by a system of trenches using 50 mm spits with each trench 60 m long, 2 m wide and 0,20 m deep (Fig. 2). No features such as grain pits or hut floors were encountered. Archaeological material
occurs to a depth of 0,50 m. In the topsoil this includes a mixture of pottery fragments, glass beads, copper bangles, porcelain pieces and household items while lower down only pottery associated with baked clay beads were found. The pottery is mostly concentrated in the eastern section of the excavation. A description of the material belonging to the contact period is not included in this report.

**POTTERY ANALYSIS**

A total number of 240 diagnostic fragments were recovered. These include decorated body sherds, decorated rim sherds and plain rim sherds (Table 1). Analysis took place at the Natal Museum under the guidance of Mr F. Prins and Ms V. Ward. The methodology was similar to that used in the analysis of material from EIA sites in Transkei and Natal. Analysis focused only on decoration because the fragments were too small to reconstruct rim diameters and vessel profiles with confidence, but an attempt was nevertheless made to reconstruct vessel shapes by using technologies developed by Natal Museum (Fig. 4b, c & d). The purpose of the analysis was to compare the Natal/Transkei wares and Canasta Place ware.

Some of the sherds indicate that a coil technique was used in the construction of the vessels (Gitywa 1970:2). A possible site for the firing *i.e.* kilns or ovens, was discovered in a ploughed lucern land close by at a depth of 0,50 m under the surface. Baked clay pieces, pottery sherds, quantities of charcoal, burnt wood and ash occur. Black burnish has been identified on very few sherds. A detailed analysis of decorated body sherds and decorated rim sherds is shown in Table 1. A total of 57 plain rim sherds were also identified. The thickness of the body sherds varies between 5-14 mm and the majority of the sherds lie in the range of 8-10 mm thick. The diagnostic rim sherds (excluding plain rims) have the following forms: inward sloping neck, 18 (Fig. 3c); everted neck, 4 (Figs 3b & 3d); inward sloping neck, 18 (Fig. 3c); hemispherical, 12 (Fig. 4a); open, 5 (Fig. 4c); wide-mouthed, 1 (4b) and subcarinated, 5 (Fig. 4d).

![Fig. 2. Location of the excavation at Canasta Place.](image)

**Table 1. Canasta Place: Motif categories and total number of both the diagnostic rim sherds and diagnostic body sherds (excluding plain sherds).**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Number of Rim Sherds</th>
<th>Number of Body Sherds</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hatching</td>
<td>8</td>
<td>49</td>
<td>57</td>
</tr>
<tr>
<td>Even cross hatching</td>
<td>18</td>
<td>27</td>
<td>45</td>
</tr>
<tr>
<td>Uneven cross hatching</td>
<td>0</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>Opposite hatching</td>
<td>2</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>Opposite hatching with intervening groove</td>
<td>0</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Hatched interlocking triangles</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Band of opposite hatching below a band of cross hatching</td>
<td>0</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Applied bosses</td>
<td>2</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Lip notching</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Plain band above even cross hatching</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

**ASSOCIATIONS**

The general consensus amongst pottery analysts at Natal Museum is that there are aspects of Natal's EIA *i.e.* Msuluzi, possibly Ndondondwane and Ntshekanj phase at Canasta Place. There is no evidence of an earlier Matola phase.

Pottery from Canasta Place shows characteristics that link it with the EIA from Natal and Transkei. Lip decoration (mostly cross-hatching) in figures 3f & 3g which is common at Canasta Place occurs also in Natal but not frequently at sites in the Mgeni Valley (Gavin Whitelaw pers. comm.). Interestingly this method of decoration has not been recognised in Transkei (Prins pers. comm.). Hatching on the lip has however been found at Chalumna and Buffalo River Mouth by Derricourt (1977:113).

Decorative motifs found in Ntshekanj include even cross-hatching (27 body sherds) (Figs 3c). Bands of hatching (57 body sherds) (Fig. 3j) represents Ndondondwane phase while even cross-hatching (15 body sherds) (Fig. 3a) opposed hatching (53 body sherds) (Fig.3k) and oblique hatching (49 body sherds) (Figs 3b & 3h) are typical of Msuluzi.

Position of decoration is also considered to determine associations. Ntshekanj is characterised by decoration that is usually confined to the lower two-thirds of the inward sloping necks but sometimes occurs higher up as well (Figs 3c). Ndondondwane have pots with one or less often, two or three bands of decoration on the lower half of the neck ending at the body neck junction with a broad undecorated band above it (Fig. 3i) while Msuluzi displays whole of neck decoration (Fig. 3b).

Further characteristics used to determine associations are vessel profiles although this method is not reliable due to the fragmentary nature of the potsherds. Vessel profiles common to the Ntshekanj Tradition are inward
sloping necks of which 30 examples (both decorated and plain rims added) were recognised at Canasta Place (Figures 3c). Upright neck vessels (Fig. 3f) of which 6 examples were also counted amongst plain rims, predominate at Ndondondwane Tradition while everted neck profiles, of which 7 examples were recognised, are typical of Msuluzi (Figs 3b & 3d).

The Early Iron Age from Transkei which has been named Nsitsana/Msuluzi suggest cultural continuity between Natal EIA and Canasta Place (Prins pers. comm.). The possibility of the occurrence of Ntshekane at Canasta Place is surprising as no definite identification of this phase has been made in Transkei (Prins pers. comm.). However, the absence of the earliest Natal EIA phase (Matola Tradition) at Canasta Place, as is the case in Transkei, was expected. Other aspects of the Early Iron Age found in Transkei and in Natal but absent from Canasta Place are clay figurines, red ochre and graphite burnishing.

CONCLUSION

Maggs (1984) suggested that pottery found at settlements in the Natal valleys and the bushveld and lowveld of the Transvaal dating from the 5th and 6th century onwards, had altered sufficiently from the older Matola ceramic tradition and this has been named Lydenburg tradition (Feely 1987:43). Msuluzi, Ndondondwane and Ntshekane wares all fall into this temporal sequence. Phillipson (1987) states that the EIA from Lydenburg is akin to that first described from occurrences on the Natal coast near Durban and designated NC3 by Schofield (1948). This material is now known from more than sixty sites spreading from Swaziland southwards through Natal coastal belt as far as Transkei and as the finds in the Kei River Valley (Binneman et al. 1992) and at Canasta Place indicate, even further southwards.

Pottery from Canasta Place shows striking similarities and a few differences with ware from EIA sites in Natal and Transkei. It is also different from finds at Buffalo River Mouth and Chalumna River Mouth because of the presence of square rim forms in the latter two traditions. The size of the site and spread of pottery at Canasta Place is sufficient to suggest that it is not an isolated occurrence and that other sites of the same age could occur in the region. Canasta Place is a contribution to our present state of knowledge on the spread of the EIA in South Africa and needs to be followed up with an extensive survey programme.

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PRELIMINARY RESULTS OF A SURVEY OF BULAWAYO, SHAKA KASENZANGAKHONA’S CAPITAL FROM ABOUT 1820 TO 1827*

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ABSTRACT

Documentary evidence and a plot of surface artefacts at Bulawayo, Shaka kaSenzangakhona’s capital between 1820 and 1827, strongly suggests that it had a similar layout to the later "amakhanda" of Mgungundlovu and Ondini. However, Bulawayo appears to have been considerably smaller than the later sites, while the size estimates of 1820s colonialists were highly exaggerated. Scattered slag and tuyere fragments may indicate the position of a ironworking area. There is documentary evidence for a separate homestead at Bulawayo called Cele, similar to the Bheje at Mgungundlovu.

INTRODUCTION

In the first published account of an archaeological excavation at Mgungundlovu, Parkington & Cronin (1979:148) concluded that the "similarity between Mgungundlovu and other military establishments such as Bulawayo, and the transition from traditional homesteads to military barrack towns remain questions for future research". Efforts to answer these and other questions began in the early 1980s when the KwaZulu Monuments Council (KMC) initiated a project on the military homesteads or "amakhanda" of the Zulu kings of the nineteenth century. The project began with a survey of Cetshwayo's capital Ondini (Rawlinson 1985). Nodwengu, Mpande's capital has also received attention, while sites of "amakhanda" in the region around modern Ulundi have been identified (KMC records). Work at Dingane's capital Mgungundlovu is currently under the direction of F. Roodt of the Natal Provincial Administration Museum Service, but little research has been carried out on Shakan period sites (but see Brooks 1992).

In 1992 the KMC contracted the Natal Museum's Institute for Cultural Resource Management to carry out an assessment of the tourist and educational potential of the complex of royal Zulu sites situated between Eshowe and Empangeni in Natal. These are the grave of Shaka's mother Nandi, Cowards Bush, the place of execution, and Bulawayo (Zulu: "kwaBulawayo"), Shaka's capital between about 1820 and 1827 (Fig. 1). The main aim of the project was to locate Bulawayo precisely on the ground by plotting the position of surface artefacts. Rawlinson (1985) followed the same strategy with considerable success at Ondini. Unlike Ondini and Mgungundlovu however, Bulawayo had not been burnt and we did not expect to find features such as daga floors. Nevertheless we hoped that a shadow outline of the site remained.

Shaka's first capital Gibixhegu, was located in Makhosini on the banks of the Mhodi, a tributary to the Mkhumhane River (Hamilton 1985). Shortly after the defeat of the Ndwandwe in 1819, Shaka moved Gibixhegu to a site between the Mhlatuze and Mlalazi Rivers (between modern Eshowe and Empangeni). This new "ikhanda where white colonists first met Shaka in 1824", later became known as Bulawayo; Isaacs (1970) noted the name change in his diary on the 15 July 1826. Late in 1826 Shaka ordered the construction of a new "ikhanda", Dukuza, south of the Thukela River where modern Stanger is situated. Bulawayo lost its status as Shaka's administrative centre to Dukuza by the end of 1827.

Fig. 1. The sites and their locations.
entered the data onto a computer using the cadastral-based software Compuplot and generated four 1:500 maps showing the distribution of artefacts and bone fragments. Although the survey is not yet complete I mapped a sufficiently large area to gain some indication of the position of Bulawayo on the ground (Fig. 2).

**DISCUSSION**

Four points of interest emerged from the project. First, the survey results suggest Bulawayo was smaller than Mgungundlovu and Ondini, and considerably smaller than indicated by Fynn and Isaacs who estimated its circumference as "nearly two miles" (Fynn 1969:71) and "about three miles" (Isaacs 1970:49) respectively. Such a circumference would enclose a circle with a diameter of between 950 and 1530 m. By contrast, Mgungundlovu and Ondini are only 550 to 650 m from the "isigodlo" to the lower gate, and between 500 m and 550 m in breadth (Parkington & Cronin 1979, Plug & Roodt 1990, Rawlinson 1985, Roodt 1992). It seems highly unlikely that Bulawayo was this large and indeed, the survey results suggest it was around 200 to 250 m across and 300 to 350 m in length (Fig. 2). Thus, Isaacs' (1970:35) estimate of 1400 huts at Bulawayo is almost certainly too high; the much bigger Mgungundlovu appears to have had about 1100 huts (Parkington & Cronin 1979).

Secondly, scattered slag and tuyere fragments at the north-western corner of the site suggest that ironworking took place here. If these remains are contemporaneous with the rest of the site, this area may have been separated and secluded in some physical way from the settlement, and particularly from the nearby "isigodlo" which was a high status female area. Interestingly, slag occurred in a similar location at Ondini, but has unfortunately been lost to road construction (Maggs pers. comm.). Further work is needed to determine the relationship between the slag and other remains on Bulawayo.

Thirdly, there is documentary evidence for the existence of attached homesteads at Bulawayo similar to the Bheje at Mgungundlovu. According to Baleni kaSilwana, one of James Stuart's informants, Cetshwayo had small kraals, like Mapotweni [at Mpande's Nodwengu], outside and above his main kraals...These small kraals were attached to Cetshwayo's kraals. The women bore their children at these kraals. Cattle were also milked there. The cattle for milking stood there. The king used to go there on short visits. In these kraals the king's grain was stored in the ground. There were either one or two of these kraals. I do not know the names of those of Tshaka. I know that Dingana's at Mgungundlovu was called Beje... Attached to Bulawayo kraal was the Cele kraal, i.e. Tshaka's private quarters (Webb & Wright 1976: 24).
It is clear from Baleni's evidence that the Cele homestead was the equivalent of the Bheje. His apparently contradictory statements on the naming of the homestead may be the result of confusion caused by the two relocations of Shaka's capital. Supportive evidence for the existence of separate homesteads attached to "amakhanda" during Shaka's reign comes from Isaacs. On his first journey to Bulawayo, Isaacs stayed at an "ikhanda" north of the Thukela River which he described as consisting of some 400 huts, excluding those of the palace ("isigodlo") and "its appendages" (Isaacs 1970: 33; my italics).

We did not locate the site of the Cele homestead and because no house floors are preserved on Bulawayo, its identification is likely to be more difficult than was the identification of the Bheje. However, a homestead may have been situated on the hill immediately to the north of Bulawayo hill where there are midden concentrations. If these remains are contemporaneous with Bulawayo, it seems possible that this was the position of the Cele homestead.

Finally, as Rawlinson (1985) demonstrated at Ondini the results indicate the usefulness of this sort of survey, even on sites which have no preserved floors and which are disturbed by agriculture. Further survey work and possibly excavation will be carried out at Bulawayo in the near future.

ACKNOWLEDGEMENTS

I am particularly grateful to Fikile Nene and Thanda Maphumulo who assisted with the survey of Bulawayo, and Kevin Suzor and his team at KwaZulu Department of Works, Survey and Mapping, Mpumalanga who spent many hours helping me process the raw survey data and produce the maps. Len van Schalkwyk, James van Vuuren, Tim Maggs and Frans Roodt provided assistance or advice at various stages of the project. The project was funded by the KwaZulu Monuments Council.

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NOTES

DUTCH BRASS BUTTONS FROM THE SHIPWRECK OF THE "OOSTERLAND" (1697): A RESPONSE TO MILLER AND MARKELL.

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In their recent article, Drs D. Miller and A. Markell draw attention to the occurrence of Dutch brass buttons on archaeological sites in the Cape and the Transvaal. Artefacts from three sites; the slave lodge on the Vergelegen estate in Somerset West and two late Iron Age sites in the Marico district, were mentioned specifically. In addition, reference was made to similar finds from several Late Stone Age sites in the western Cape coastal region and the Cederberg. The authors speculated that these buttons were imported by Dutch colonists and that some of these artefacts were subsequently refashioned by indigenous people. This was substantiated by a documentary reference dating to 1785 (Miller & Markell 1993:107-108).

Recent research focussing on the maritime archaeology of Table Bay has revealed some more evidence for the use of Dutch brass buttons, specifically during the 17th century. In this context it is interesting to draw attention to what could well be the earliest historical account relating to the exchange of such items at the Cape. In a resolution, dated Sunday 29 June 1659 at the Fort of Good Hope, reference is made to Oedasoa, the chief of the Cochoquas or Saldanhas (Thom 1958:77, 83) with whom the Dutch occasionally bartered cattle. In here it reads that:

…it is decided once more to send messengers to Oedasoa, and to show greater respect by having the fiscal take along a wagon to-morrow morning as if for the purpose of fetching him. The fiscal shall again take some tobacco, beads, copper, and buttons made of the same metal, as presents, with instructions to try to persuade him, in the most friendly manner possible, to return with him (Thom 1958:84).

Throughout Van Riebeeck's journal, several entries indicate that copper was a metal highly valued by indigenous people and extensively used in the cattle and sheep trade. Mostly, however, use was made of plate copper and wire. It is very likely that the word 'copper' was used in this context to indicate both the specific metal and its alloy brass.

Archaeological evidence for 17th century Dutch brass buttons at the Cape has also been found within a maritime context. The underwater excavation of the Dutch East India Company ship "Oosterland" (1697) in Table Bay has provided a few examples, some of which resemble the ones referred to by Miller and Markell. The buttons recovered from the "Oosterland" however, seem to have been used according to their original function and were probably not intended for bartering. Circumstantial evidence which supports this assumption relates to the fact that at the time of sinking, the "Oosterland" was on its return voyage to The Netherlands (Werz 1992:87). If the ship was loaded with copper and brass products manufactured in Europe and intended for the Cape, it is more likely that these would have already been off-loaded during the outward-bound voyage in 1694-1695. In addition, only six brass buttons representing three different types have been found on the shipwreck thusfar. If a consignment of buttons would have been carried with as part of the ship's stores or for purposes of trading, then it would be expected to find many more identical examples.

Five of the buttons were found in an area which was situated towards the stern part of the vessel (Figs 1 & 2), the place where the officers and most of the non-commissioned officers were accommodated. This section was some distance away from the cargo hold, the most obvious place to store trade goods during the voyage (Werz 1993:37-38). The sixth button (91-4-22/IS No. 2) (Fig. 3), was found outside the main excavation area. In addition, a non-metal button was found (93-1-26/3E) (Fig. 4). The variety of buttons, their limited number and the place of deposition on the wrecksite, together with the fact that the "Oosterland" foundered on its return voyage, seems to indicate that they formed part of the clothing worn by people onboard.

Of the six brass buttons, three are identical in size and appearance and resemble those depicted in figure 1 of the Miller and Markell article. Their diameter measures 18 mm with a mass of between 3.2 and 5.8 grammes (Figs 1 & 2). The last figure is, however, not an accurate
reflection of the objects weight due to residue inside. The buttons have each been assembled from two dome shaped discs which are soldered together. The bottom disc of each artefact has two small holes and in the center a brass wire shaped into an eye for attachment to a garment or for suspension. The top disc of each button shows a basic decoration consisting of a series of concentric circles. The domed discs were shaped by hammering a small copper plate in a mould using a ball-shaped punch.

The other three brass buttons differ in appearance from the ones mentioned above. 93-1-28/6 and 93-1-28/7 (Fig. 2) are identical in shape but their diameter and mass differs. 93-1-28/6 has a diameter of 9.6 mm and a mass of 1.7 grammes, while 93-1-28/7 measures 13 mm with a mass of 2.9 grammes. Both are solid and dome-shaped. They were probably cast, as is indicated by a seam on the underside. Both buttons also have an attachment in the form of a brass eye. Button 91-4-22/IS No.2 (Fig. 3) is probably a uniform button as it bears a decoration in the form of a ship’s anchor. This button is flat and was either cast or stamped out. At the back, the remains of two small eyes can be discerned but these are worn through.

The seventh button recovered thusfar from the "Oosterland", number 93-1-26/3E (Fig. 4), has a diameter of 15.3 mm and a mass of 0.4 grammes. Its shape resembles that of a modern shirt button, a slightly curved disc with two holes near the center. Infra-red spectroscopic analyses undertaken in the Archaeometry Laboratory of the Department of Archaeology at the University of Cape Town proved that this button was made of wood.

ACKNOWLEDGEMENTS

The assistance of the discoverers of the "Oosterland"; G. Raynor, C. Byrnes and M. Barchard, as well as the work undertaken by Assoc. Prof. Andrew Sillen, who analysed the wooden button, and of Mr Gavin Evans who took the photographs is gratefully acknowledged. Financial and
REFERENCES


NOTE ON A DIGGING STICK FROM AUGUSSIE SHELTER, EASTERN CAPE

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The digging stick is the most important wooden artefact which is directly linked with plant food collecting and is generally associated with women. Women with digging sticks are depicted in many rock paintings (for example Vinnicombe 1976). According to Steyn (1984:119) "their digging sticks were like their pipes, the women rarely went without them".

Historic and contemporary observations indicate that digging sticks were not only used for digging up plant and other foods, but also for digging out burrowing animals from their holes and digging traps and pitfalls (Sparrman 1785; Dunn 1931; Steyn 1971; Lee 1979). Among the Nharon San digging sticks are manufactured from hard wood between 1-1,5 m long with a sharpened point flatted on the one side and hardened in the fire (Steyn 1971; pers. observ.). The general conception among archaeologists is that digging sticks were weighted by bored stones. These stones were manufactured by women (Dunn 1931) and secured to the stick with a wooden wedge.

Although the digging stick is generally considered to be a woman's tool, Nharon San men also use them and manufacture them for women (Steyn 1971; pers. observ.). It is unknown whether a similar system was operative in prehistoric times. In a recent polemic between Wadley (1989) and Mazel (1992a), Wadley argued on the basis of similar evidence among contemporary !Kung San (Marshall 1976) that women were dependent on men for their digging sticks. Mazel on the other hand, from observations that Hadza women manufacture their own digging sticks within four minutes with a steel panga (Vincent 1985), is convinced that women in the Thukela Basin also manufactured their own digging sticks in the past.

Relatively few complete or incomplete digging sticks have been reported from the archaeological context in southern Africa and all appear to date younger than 3000 years. Cooke (1980) reported two portions from Pomongwe in Zimbabwe. Wendt (1972) and Wadley (1979) reported portions from Big Elephant Shelter in Namibia, Parkington and Poggenpoel (1971) from De Hagen (1977) and Parkington (1977) from Diepkloof in the south-western Cape. Van Rijksen (pers. comm.) found a complete digging stick (0,45 m in length) at Great Brak River Cave in the southern Cape. Mazel (1992b) reported a complete digging stick (1,10 m in length) from Collingham Shelter in the Thukela Basin. The most remarkable finds come from Strathalan Cave A in the Maclear district in the north-eastern Cape. Opperman (pers. comm.) recovered two complete digging sticks and a broken one from a test pit associated with a bored stone, dating some 2500 years old.

Recently a new site was investigated in the foothills of the Kouga Mountains some 30 km north-west of Kareedouw (Fig. 1). Test excavations have revealed that plant material preserved to an estimated date of 5-6000 years BP. A broken digging stick was recovered from a layer dated to 4490 ± 60 (Pta-6417) BP.

The digging stick is in perfect condition and is 0,355 m long and 21,1 mm in diameter (Fig. 2). The broken end is slightly charred with the opposite end tapered to a point and somewhat flatted on the one side. The type of wood is not known, but the owner of the farm is of the opinion that it is most probably Olive wood (Olea africana). Plant remains associated with the digging stick include Babiana/Freezia/Tritonia spp. and Moraea spp.
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REPORTS

REPORTS ON THE SAF A AND SA3 CONFERENCES

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THE 12TH BIENNIAL CONFERENCE OF THE SOCIETY FOR AFRICANIST ARCAEOLOGISTS (SAFA)

This conference was held at the Indiana University, Bloomington, in the United States of America between April 28 and May 1. The organising committee Kathy Schick, Nicolas Toth, Jeanne Sept, Kevin Hunt and Desmond Clark must be congratulated on an excellently organised conference. Some 150 delegates from North America, Europe and Africa including a strong South African contingent, attended. Due to the many papers, 110 in three days dealing with all aspects of African archaeology, the conference was organised in plenary and parallel sessions.

The usual conference modus operandi was followed, starting with Human Origins as a plenary session followed by parallel sessions on Iron Age studies in east, west and central Africa, Stone Age studies in Ethiopia and Zoarchaeological studies. The second day started with a plenary session on Ethnoarchaeological perspectives of living foragers followed by parallel sessions dealing with Iron Age and Stone Age research in various parts of Africa. The third day followed a similar trend and the proceedings ended with a plenary session on "Integrating African prehistory with Africa's present and future: some problems and prospects". The discussions in this session dealt mainly with Cultural Resource Management and the problems surrounding it.

The conference proceedings ended on a high note with a field excursion to the Cahokia Mounds in Illinois, the largest ceremonial centre and earthworks in North America.

During the conference delegates had the opportunity of visiting the research laboratories and teaching facilities of the CRAFT Research Centre (Centre for Research into the Anthropological Foundation of Technology) in the Department of Anthropology. Of special interest were the displays and talks on research into organic residues on stone tools, video footage of studies of a bonobo (pygmy chimpanzee) making stone tools, experimental studies of stone tool manufacture, video footage of ethno-archaeological research among some of the last stone tool makers in New Guinea and a demonstration of a computer teaching/learning program "Investigating Olduvai".

It was a most stimulating and enjoyable conference, academically as well as socially. Important was the many new acquaintances made and the several old ones which were renewed after a long absence. The next SAF A conference in two years time is scheduled to take place in Poland and I would strongly recommend that as many South African archaeologists as possible attend.

Abstracts of the conference papers are available. Papers presented by the South African delegates:

Binneman, J. The Holocene lithic industries at Klases River Cave 5, South Africa: an example of group identity maintenance.

Henderson, Z. Florisbad: a Middle Stone Age scavenging, hunting and processing location.

Henshilwood, C. Blombos Cave: new insights on the MSA Still Bay Industry in South Africa.

Huffman, T. & Van der Merwe, H. The Thakadu copper trade.

Jerardino, A. Changing social landscapes over the past 4000 years: coastal hunter-gatherer intensification in the south-western Cape.


Smith, A. & Woodbourne, S. The seals of Kasteelberg: seasonal indicators for pastoralist occupation in the south-western Cape, South Africa.

Van der Merwe, H. & Huffman, T. The Thakadu copper project.

THE 13TH BIENNIAL CONFERENCE OF THE SOUTHERN AFRICAN ASSOCIATION OF ARCAEOLOGISTS (SA3)

This conference and post-conference excursion was hosted by the Natal Museum in Pietermaritzburg and KwaZulu Monuments Council in Ulundi between 17 and 24 July. The organisers Tim Maggs, Aron Mazel, Gavin
Whitelaw and Frans Prins, supported by Val Ward, Len Van Schalkwyk, Frans Roodt and Gugu Mthethla must be congratulated on an excellent, well organised conference.

The conference took place in the Imperial Hotel, a perfect venue with a pub close at hand which created a relaxed atmosphere for many informal discussions and debates. Regarded by many as one of the more interesting and successful conferences in recent years, it was attended by more than a hundred delegates. Some 60 papers were delivered and several posters were on display. This year’s conference was marked by a strong delegation from other parts of southern and east Africa and overseas. Most disappointing to the organisers must have been the absence of many senior colleagues and students. However, it was refreshing to have seen so many new faces attending the conference.

The conference was organised in five sessions, Origins of Anatomically Modern Humans, Beyond Stone Tool Typology, Interactions, Past Environment and Research Reports. Three workshops were also held on Regional Recording Centres and the application of minimum standards, Cultural Resource Management and Human Remains.

Apart from a number of local papers which presented fresh ‘new’ and interesting data, it was stimulating to hear presentations from research conducted in other parts of Africa. Abstracts of the papers are available to those who could not attend and will not repeated here.

Unfortunately little was achieved during the workshop session on Regional Recording Centres and the majority of the issues which were discussed are still unresolved. Discussion of these issues would have been more productive if conducted by a small interest group. The other two workshops on Cultural Resource Management and Human remains were more productive.

In both sessions speakers have highlighted the sensitivity of our cultural resources and the need for well-planned conservation of these resources. Len van Schalkwyk of the KwaZulu Monuments Council addressed the very important issue of archaeological site stabilisation and conservation. He reported on the stabilisation programme of Border Cave and provided useful information on materials and techniques employed to stabilise archaeological sites.

A major point of discussion in this workshop session was the issue of contract archaeology and the future of this profession (also see ‘Opinions’ in the April 1994 issue of Southern African Field Archaeology). Some delegates were of the opinion that, in order to protect the profession, an institute of consultant archaeologists should be established separate to the Southern African Association of Archaeologists. After discussion it was decided that such an organisation will operate as a section of SA3, rather than separate.

The workshop on Human Remains was a report-back by a sub-committee established in 1993 by SA3 to look into the treatment of archaeological human remains. A draft document was circulated before and at the SA3 meeting in Pietermaritzburg for discussion. Alan Morris summarised some of the interesting aspects of the Human Tissue Act, which excludes museums as authorised institutions to hold human tissue and skeletons. It was also reported that cemeteries in the northern Transvaal are being deliberately destroyed by white farmers fearful of future land claims. This raised the important question of who owns the right over archaeological human skeletons. Tom Huffman suggested a hierarchical scheme whereby a family or even possibly an ethnic group may claim ownership over ‘recent’ skeletal remains. Little, if any claims could be made on ‘older’ human remains by anyone and are nationally owned.

The forum, Issues of concern to post-graduates, apart from the report on the excellent work done by the Archaeology Workshop (Jeanette Smith and her team need to be congratulated) was disappointing and frustrating as some students seem uninformed and ignorant of the ‘real archaeological world’. Many share their concerns in certain matters such as very few job opportunities, however, on the other hand when jobs are advertised as was recently the case, very few applications were received.

The venue was followed by an excursion to a variety of sites in Natal/KwaZulu which included among others Magogo and Mhlopeni Early Iron Age sites, the battlefields of Rorke’s Drift and Isandlwana, Maqonqo Shelter, Border Cave, Ondini and uMungungluvo. At Border Cave we witnessed the excellent efforts and enormous amount of work Len van Schalkwyk and his team have put in to conserve this important cave. Equally impressive were the reconstructions of the Zulu capitals of Ulundi (KwaZulu Monuments Council) and uMungungluvo (Natal Provincial Museum Services).
CONFERENCE HELD ON THE GROWTH OF FARMING COMMUNITIES IN AFRICA FROM THE EQUATER SOUTHWARDS

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The conference took place at Newham College, Cambridge, from 4-8 July 1994. This conference, organised on a specific topic close to much of the research of us Iron Age specialists in KwaZulu-Natal, was clearly a 'must'. Organised jointly by the British Institute in East Africa and the African Study Centre, Cambridge, it brought together a wide range of academics from many different countries. We were able to meet many well known colleagues for the first time and others after a long interval, because of the new political climate in South Africa. Indeed the conference organisers made a particular point of welcoming the South African delegates as well as the return of this country to the Commonwealth.

An early session examined agricultural and ecological aspect. We learnt much about tropical agriculture and in particular on how early and in what surprising variety the banana/plantain is found in Africa, although its origins as a crop are in the Far East. This is only one aspect of the evidence for more Asian-African interaction than we generally recognise. We were able to report that domestic chickens (also from the Far East) are now being identified in our Early Iron Age sites; a point which provoked considerable interest.

The linguistic contributions, as usual, attracted much controversy and it seems that a number of cherished ideas, for example the subdivision of Bantu into Eastern and Western, are no longer acceptable. It was refreshing to see in general a far less dogmatic and more experimental approach to historical linguistics than the old orthodoxy.

Chief iconoclast of the conference was undoubtedly Jan Vansina who, in a dazzling public lecture, picked holes in many of our fondly held beliefs and brought a new fluidity back into the interpretations of the Early Iron Age dispersal.

The picture that emerged from the regional sessions was new and very interesting. Until recently we have tended to see the Great Lakes region as most important in the development and dispersal of the Iron Age southwards. At this conference it seemed as if this region is of less importance compared with those to the east and west. New work on the East African coast is producing much more interest here and indeed much that may be relevant to our own work now that we have established trade contacts with the Islamic world reached as far south as Durban in the eighth or ninth century. Similarly in western Central Africa, notably Gabon, new evidence is now available for the arrival of ceramics and iron smelting which gives this previously little known region a new importance. Iron is now well established from around 2300 years ago and De Maret posits a Stone-to-Metal Age of transition between 2900 and 2600 years ago.

The KwaZulu-Natal contingent made a substantial contribution and it was noticeable that we were able to give much greater precision and depth of information than that available from most other areas.

Papers presented by the KwaZulu-Natal contingent and other South African delegates:

Magg, T. The Early Iron Age in the extreme South: some patterns and problems.
Prins, F. Climate, vegetation and early agriculturist communities in Natal and Transkei (presented by Tim Maggs in his absence).
Whitelaw, G. Modelling an Early Iron Age world view: some ideas from Natal.
Argyle, J. The linguistic evidence for Khoisan-Southern Bantu livestock exchanges: a dissenting view (University of Natal).
Huffman, T. & Herbert, R. New perspectives on Eastern Bantu (University of the Witwatersrand).

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The aim of Southern African Field Archaeology is to communicate basic data to professional archaeologists and the public.

Manuscripts of original research undertaken in southern Africa will be considered for publication. These may include reports of current research projects, site reports, rock art panels, rescue excavations, contract projects, reviews, notes and comments. Students are encouraged to submit short reports on projects. Southern African Field Archaeology also welcomes general information on archaeological matters such as reports on workshops and conferences.

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# OPINIONS

The good news is that Southern African Field Archaeology is now an accredited journal. The bad news is that this does not change the journal's financial position. It goes without saying that this achievement would not have been possible without the contributions and support of our colleagues. We would like to extend our gratitude to those who submitted papers for publication during the past three years and to those colleagues from Declared Cultural Institutions who recommended that Field be accredited. We would also like to thank the Editorial Board and other referees who devoted their time and energy in assisting us. We are grateful for encouragement and advice which we received during the past few years. You may have noticed that the composition of the Editorial Board shows some changes from the previous editions. We have decided to give some members a 'rest' and others a chance.

Field was established in 1992 and is now in its fourth year of publication. The aim of Field is to publish papers relating to southern African archaeology. Field was created as a forum for original research, site reports, student research projects, contract projects, etc. In other words it is intended to provide an avenue for the publication of basic data not readily available to researchers and which would not generally be published by other journals. To encourage students to publish their research, Field has run a student competition in the past and will continue to do so in the future. However, much to our disappointment only one South African Archaeology Department has subscribed to Field during the past three years and another subscribed this year. Notwithstanding, it has come to light that Field articles are regularly used in teaching.

This brings me to another important point touched on earlier. Accreditation, apart from a certain amount of status, does not provide any benefits to Field. Publication costs (cost of paper increased by 26% in 1994) and postage increase every year, while subscriptions on the other hand do not follow this trend. Much of the cost of publishing Field come from subscribers, but a substantial amount is contributed by
the Albany Museum. The question is how does one cope with ever rising costs and a slow growing subscription rate without increasing the subscription fee substantially?

It would appear that this problem is certainly not experienced only by Field. The previous editor of the South African Bulletin, Janette Deacon, raised similar issues in her Editorial of June 1993. She rightly asked a very pertinent question ... "is publication of your results a right or a privilege?" She continues to note that;

Unfortunately, the decision whether or not to publish a paper cannot always be based solely on merit. In the current depressed economic climate in South Africa and elsewhere, it can be influenced by financial considerations, particularly in the case of longer articles. Some journals are now requiring authors to pay up to R100 a page for publishing their articles; other will publish only if an institutional subsidy is received; and some ask for a non-returnable fee to be submitted with every article.

It will no doubt be a sad day for archaeology if research results cannot be published because the researcher or the institution cannot pay publishing fees. However, it will be an equally sad day if there are no journals to publish research due to a lack of publishing funds. Let's analyse the situation.

We are all aware that most researchers these days work under the sword of "publish or perish" and as a researcher said the other day, "publications bring research money into my department". This is exactly the point I want to make. When Field was launched in 1992 some colleagues from Declared Cultural Institutions indicated that they were not prepared to publish in Field, because they would not benefit financially from it. As a matter of fact some were even discouraged by their institution from submitting papers to Field.

Researchers at Declared Cultural Institutions, or the institution (not at provincial level), get handsome subsidies for publishing articles in accredited journals. Some researchers benefit directly from these subsidies, others don't. Whatever the case, they still have access to institutional publishing funds. Therefore, it would not be unfair of journals to charge page fees to cover layout and printing costs.

In the good old days radiocarbon dates were free, now researchers must budget directly or indirectly for this service. The same applies to academic journals, as they provide a service (pay 14% general sales tax on subscriptions) to the researcher. Thus, as in the case of other research expenses, it will be required from researchers in the future to budget also for publishing costs. As much as we regret this, Field will be obliged from next year to charge a page fee from those researchers at institutions who receive publication subsidies or who can afford to do so. However, we will never reject an article for publication on financial grounds only - communication of basic archaeological data will always be our primary purpose.

If you have any opinion regarding this or any other issue, feel most welcome to air your view by writing to the editors.

Johan Binneman

* * * * *

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THE FISH, THE SHAMAN AND THE PEREGRINATION: SAN ROCK PAINTINGS OF MORMYRID FISH AS RELIGIOUS AND SOCIAL METAPHORS*

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*Accepted for publication January 1995

ABSTRACT

Species-specific rock paintings of freshwater moromyid fish in central and eastern Zimbabwe and the south-eastern mountains of South Africa are interpreted in terms of San shamanism. Elements of moromyid appearance and physiology appear to have been foregrounded in order to more precisely nuance San perceptions of supernatural potency and extra-corporeal travel. Many of the south-eastern mountain ichthyoid paintings have not been widely accepted as representations of mormyrids because they do not correspond with the natural distribution of mormyrid fish. This discrepancy may be indicative of extensive forager social networks in eastern southern Africa during the late Holocene.

INTRODUCTION

Rock art imagery produced in southern Africa by people most often referred to as ‘Bushman’ or ‘San’ is often ambiguous and idiosyncratic (Lewis-Williams 1981a: chapter 1; Dowson 1988). The current synthesis is that much of southern African forager rock art was implicated in the religious (Vinnicombe 1976; Lewis-Williams 1981a; Huffman 1983; Deacon 1988; Kinahan 1991; Yates & Manhire 1991; Loubser 1993; Stevenson 1994) and political (Campbell 1987; Dowson 1994; Loubser & Laurens 1994) endeavours of shamans. Guenther, working among the San of Botswana, notes that "the religion and cosmology of the Bushmen is deeply and pervasively ambiguous and heterogeneous, as fluid and lacking in standardisation" (1994:267).

The lack of standardisation, however, applies to specific beliefs and their corporeal expression. Ethnographic and archaeological data suggest that foragers in southern Africa, including Zimbabwe, belonged to the same language family and had a similar material culture (Inskeep 1978:67-68; Garlake 1987a:4; Walker 1994:96). Moreover, these foragers shared a broadly similar system of religious belief (e.g., Bleek & Lloyd 1911; Poigieter 1955; Cooke 1969; Marshall 1976; Huffman 1983; Guenther 1986; Garlake 1987a & b, 1990; Biesele 1993) though regional boundaries and traditions did exist. In certain areas, such as Zimbabwe and the south-eastern mountains of South Africa, which comprise Lesotho and parts of western and southern KwaZulu-Natal and the eastern parts of the Eastern Cape Province, detailed forager ethnography is scarce (but see Arbouset & Daumas 1846; Orpen 1874; Anderson 1888; Stanford 1910; Ellenberger 1953). However, the remarkable number and range of southern African forager beliefs that correspond, sometimes in minute detail, is indicative of a certain unity of forager conceptual thought in during the Holocene (Lewis-Williams 1984; Deacon 1988). With great caution (cf. Wylie 1985, 1989), rock art imagery may therefore be used as a primary source of evidence for the world-view of certain southern African foragers.

Despite its visual accessibility, rock art imagery is difficult for non-San people to comprehend, particularly when images are not readily identifiable or classifiable according to a Western taxonomic system. However, there are instances where it is possible to identify specific depictions, such as animal species (e.g., Loubser & Brink 1992), which may, in turn, lead to a more precise understanding of the ideas and metaphors that informed the shaman-artists apparent idiosyncrasies and ambiguities (e.g., Lewis-Williams et al. 1986; Loubser et al. 1990).

San people were aware of a great number of animal species, yet they chose to depict only a limited range of animals. Furthermore, painted and excavated faunal evidence seldom correspond, indicating that differential decision-making processes were at work for each activity. Such selectivity indicates that specific animal species were recognised and considered suitable subjects to depict on account of their social and religious importance (Vinnicombe 1976; Lewis-Williams 1981a). For example, rhébuck may have been painted because of their association with the family unit (Vinnicombe 1976:197-198) and hartebeest and eland because of their importance to /Kaggen, the trickster deity of the southern San (Bleek 1924:12).
In addition, San artists often exaggerated certain anatomical and behavioural characteristics of people and animals and suppressed others (see Vinnicombe 1972:129-131; Lewis-Williams 1981a: chapters 4-7). These exaggerations and omissions functioned as visual markers, the meanings of which could only be comprehended if the viewer was familiar with both the religious import of the art in general, and the appearance and behaviour of specific animals and people. One example of such species-specific depiction is rock paintings of mormyrid fish.

**MORMYRID DEPICTIONS**

The *Mormyridae* are a freshwater fish family numbering over 200 species distributed throughout much of Africa (Jubb 1967:71, 73, 75; Skelton 1993:92). Mormyrids are relatively large-bodied fish measuring between 130 and 750 mm long when fully grown (Skelton 1993:92) with a distinctive proboscis or 'snout' (Fig. 1). Mormyrids are active at night and prefer the larger rivers. These fish are often gregarious, occurring in shoals of varying size and are known to migrate considerable distances, most probably for breeding purposes (Skelton 1993:98). Mormyrids appear to be territorial but are not aggressively so.

Rock paintings of mormyrid fish are known from McIlwaine National Park (Summers 1959:13) and Mumurgwe Cave (Garlake 1987a:6, 69) in central and eastern Zimbabwe (Fig. 2). At both sites the depictions have the striking proboscis, large body and homoceralel tail typical of freshwater mormyrid fish. Summers (1959:13) notes that these "large fishes of the bottlenose [Mormyrid] type are of special interest." Moreover, the Lake McIlwaine image has a long dorsal fin that is visually identical to those of real mormyrids. Both painted sites are contiguous with the present natural distribution area of mormyrid fish. Importantly, there are depictions of non-mormyrid fish such as *labeo capensis* at nearby Silozwane Cave (Summers 1959:136; Garlake 1987a:89) which indicates that the artists selected specific fish species.

Similar species-specific recognition and selection appears to have been at work in the south-eastern mountain area of South Africa. There are at least seven sites with ichthyoid depictions that are candidates for representations of mormyrids (Fig. 3). Unlike the Zimbabwean rock paintings these depictions have not been generally accepted as representing mormyrid fish. I discuss the ichthyoid imagery of each site in turn.

At the first site, at Rose Cottage Cave in the Ladybrand District, Free State, there are six ichthyoid depictions, two of which are reproduced here (Fig. 4). Breuil (1945:353-354) recorded four of these images in 1945 (Fig. 5) and basing his identification on certain physical features and the absence of mormyrids in nearby rivers systems, was of the opinion that the Rose Cottage Cave and similar ichthyoid depictions at nearby sites represented whales, sharks and dolphins. This was and is a popular and persistent idea (Battiss 1945; Wells 1946;
I consider it unlikely that these paintings were based on dolphins. Especially the paintings from the Ladybrand district indicate a Mormyrid fish. The dolphin has no anal or pelvic fins as are shown (Figs 4 & 7), the small fins beneath the head on these paintings probably indicate the pelvic fins of a fish. Further these paintings show a tail fin in the vertical plain of the body. ... All in all therefore it is more likely that these paintings were based on some Mormyrid fish rather than on a marine animal (in Willcox 1962:6).

Smith’s identification has recently been supported and extended by Drs Humphrey Greenwood and Paul Skelton.
of the J.L.B. Smith Institute of Ichthyology.

The tracings, [Figs 4 & 7] are of fishes that I would identify as Mormyridae of the genus *Mormyrus* (Greenwood, *in litt.*, 01/03/1994).

The most likely representation [Figs 4, 7-11] is of a mormyrid fish, and then with the distinctive "beak" or snout protuberance, the species commonly known as the "bulldog" (*Marcusenius macrolepidatus*) is a prime candidate. Other candidates are *Mormyrus lacera* and *Mormyrus longirostris* (Skelton, *in litt.*, 18/04/1994).

There are four anatomical features of the Rose Cottage Cave painting (Fig. 4) that may account for Breuil's and subsequent researchers incorrect identification. Firstly, the very distinctive proboscis that juts out at a sharp angle from the head of Figure 4 is formally similar to the snouts of the *Odontoceti*, or toothed cetaceans, specifically dolphins (Smithers 1983:320). The snout is also similar to the protruding lower jaw of a sperm whale or *Physeter macrocephalus* painted on a block of stone from the Knysna District, Western Cape Province (Fig. 6).

Secondly, the large size of the image (490 x 140 mm) as well as its pendulous shape create the impression of a large aquatic animal not unlike a whale or dolphin. Thirdly, the anal fin recalls the tail flukes of a whale or dolphin (Smithers 1983:318; cf. Figs 4 & 6). Fourthly, the small dorsal fin is proportionately similar to the dorsal and ventral fins of whales. These four anatomical

---

**Fig. 4.** Rock painting of two ichthyoids, Rose Cottage Cave, Ladybrand District, Free State. Black represents dark red, large stipple light red and dense stipple ochre.

**Fig. 5.** Breuil's copies of the Rose Cottage Cave ichthyoids.
features may, however, be more adequately explained as characteristic of freshwater mormyrid fish.

Firstly, and most compelling, the remarkable proboscis depicted in the Rose Cottage Cave painting (Fig. 4) which Breuil called "a strange appendage, perhaps the tongue" (1945:353), while to a measure formally similar to the lower jaw or snout of some cetaceans, has a far greater correspondence with the proboscis of Mormyridae (Fig. 1; Jubb 1967:71-75; Skelton 1993:92-101). No other southern African fish species has a comparable proboscis.

Secondly, the large, pendulous body shown in Figure 4 is formally consonant with that of mormyrid fish (Skelton, pers. comm.). Moreover, the Rose Cottage Cave painting shows a rounded body which tapers toward the anal fin whereas whales generally have a much squarer, more angular body that truncates just before the tail flukes (Smithers 1983:318).

Thirdly, the tail flukes of Physeteridae whales have a more angular and notched appearance than the anal fin of the Rose Cottage Cave depiction. Whales require massive tail flukes to propel themselves in strong ocean currents (Smithers 1983:331). The same need for propulsion is less marked in freshwater fish which have less well-developed and more homocercal anal fins.

Fourthly, the small dorsal fin shown in Figure 4 is placed too far forward to be that of a whale (Smithers 1983:318-319). A whale's dorsal fin is typically located on the hindmost third of the body. The Rose Cottage Cave dorsal fin is painted in the foremost half of the body. The dorsal fin of mormyrid fish is, however, usually quite long. Smith pointed out that; "Quite often however, the front part of such a fin may stand erect while the hinder part is depressed and may be almost invisible" (in Willcox 1962:6).

The long dorsal fin of mormyrids is only visible when the fish is at rest or in taxonomic diagrams (e.g.,

Fig. 7. Rock painting of a mormyrid fish, Ladybrand District, Free State. Black represents red. This panel is in the collection of the Rock Art Research Unit, Wits University.

Fig. 1). Breuil's copies of the Rose Cottage Cave ichthyoids were clearly influenced by his belief that they represented marine animals (cf. Figs 4 & 5) and by his unfamiliarity with southern African fish species. His influence on researchers has been considerable and many of his ideas persist. However, we are now in a position to re-classify these paintings as representations of freshwater mormyrids and not marine animals.

The second site at which mormyrids were depicted is 22 km north-east of Rose Cottage Cave. Fifty four fish are depicted in a shoal turning about (Fig. 7). Breuil (1945:35), using the same criteria as for the Rose Cottage Cave ichthyoids identified these fish as "a shoal of fish being attacked by dolphins". These 'dolphins' and 'sea fish' are most probably representations of mormyrids on account of their distinctive snouts and body shape. In addition to these distinctive physical characteristics, the shoaling behaviour depicted is typical of the gregarious Mormyridae.

At the third site, on the banks of the Little Caledon River in the Fouriesburg District of the Free State, there is a depiction of a shoal of six fish (Fig. 8). Wells (1946:237), influenced by Breuil's work, identified three of these fish as dolphins, despite having misgivings. Again, the distinct, even exaggerated proboscis, is visible on at least four of the images which also have large, pendulous bodies and long dorsal fins.

Shoaling behaviour is similarly conspicuous at the fourth and fifth sites in the Underberg District of KwaZulu-Natal (Fig. 9) and on the banks of the Tsolikie River in Lesotho (Fig. 10). These two sites, along with one slightly further south-west, are well-known on account of the 'fishing scenes' depicted there (Battiss 1945; Goodwin 1949; Vinnicombe 1960). Several fish species such as the snouted mormyrus and whiskered barbus are depicted at both sites (Vinnicombe 1960:18; 1965), indicating the artists' ability to differentiate between and select for specific fish species.

The sixth site at which mormyrids were painted is also in the Underberg District and twenty fish are depicted in association with fish-traps. Four of the fish display the
snout, body shape and depressed dorsal fin characteristic of mormyrids (Vinnicombe 1961; see also Smits 1967). The other fish depictions are not identifiable to species.

Finally, in the Wodehouse District of the Eastern Cape Province there is a site at which two fish are depicted in association with three human figures and a bird (Fig. 11). The body shape, snout, dorsal fin and markings of the painted fish correspond almost exactly with those of known mormyrid species (Skelton 1993:92-101).

Many of the fish depicted at the seven sites discussed above can be securely identified as representations of freshwater mormyrid fish. A comparison between the painted imagery and the freshwater fish species that inhabit the river systems of the south-eastern mountain region, notably the Cyprinidae (Fig. 12), reveals none of the distinctive features such as the snout, body shape, markings and dorsal fin found on both real and painted mormyrids. Furthermore, the morphological variation expressed in the mormyrid depictions discussed is well within the range of the over 200 naturally occurring mormyrid species.

I now explore the reasons why certain foragers of the south-eastern mountains selected for the 'exotic' mormyrid. This exploration is articulated in the context of firstly San shamanism and secondly San social networks.

**MORMYRID DEPICTIONS AND SHAMANISM**

Based on preservational and associative factors, the paintings of mormyrids I have discussed are unlikely to be of great antiquity and were probably produced within the last few hundred years. The relatively recent age of the depictions may increase the degree of confidence with which we apply certain ethnographically recorded forager beliefs to the imagery.

It has been convincingly argued that many depictions of fish in southern African rock art are representations of somatic hallucinations, such as the feeling of weightlessness, being underwater, and the affected breathing, hearing and sight sometimes experienced by San shamans in altered states of consciousness (Lewis-Williams 1988:8). Qing, a Maluti San, confidently associated rain-shamans in an altered state of consciousness as being 'underwater' (Orpen 1874:10) and a !Kung shaman from Botswana related how, when in trance, he was taken by God to a river and how he "entered the stream and began to move forward" (Biesele 1980:55).

Once in this otherworldly stream of consciousness, San shamans looked for ways in which they could harness sources of supernatural potency in order to perform their tasks such as healing, controlling game, making rain and extra-corporeal travel (Lewis-Williams 1981a:77, 1982). I discuss three methods by which
shamans could have controlled supernatural potency and relate these to depictions of mormyrid fish.

Repositories of potency

First, supernatural potency could be derived from certain animals that were considered potent such as eland, giraffe, gemsbuck and bees (Biese 1993:94; Lewis-Williams 1981a:77). I suggest that mormyrid fish were considered repositories of supernatural potency on account of their unusual physiology. The Mormyridae are unusual in that the species are electrogenic and electoreceptive; they generate and receive electrical impulses (Jubb 1967:75; Skelton 1993:92). These electrical discharges are often weak but in some species, such as Mormyrus longirostris, a mild electrical shock is experienced when handling a freshly-caught specimen.

Contemporary San shamans report sometimes experiencing a tingling sensation caused by supernatural potency travelling up their spine (Katz 1982:95). This sensation is not unlike a mild electrical shock (Katz 1982:98). Significantly, Lorna Marshall (1969:351) likened supernatural potency or n’um to electricity when she was attempting to explain ‘Kung conceptions of supernatural potency. "Like electricity, n’um is powerful and invisible, capable of beneficent effects, but highly dangerous if too strong".

Because the tingling sensation experienced is a basic function of human physiology governed by the central nervous system, San shamans in times past probably experienced similar sensations. These shamans may have made cultural sense of this tingling sensation in terms of an apt natural analogue such as mormyrid fish. Mormyrids, more than other fish, may have been considered potent animals from which shamans could derive quantities of potency either by touching a real fish or an image thereof (cf. Jolly 1986:22; Yates & Manhire 1991).

Capturing potency

The second way of harnessing potency is an intensification of the first. Instead of just touching a mormyrid image or fish, a shaman could choose to possess not only the potency of mormyrids but also the mormyrid. There is, for example, the shaman-of-the-game who 'kept' a springbuck tethered at her home, most probably to act as a familiar or source of potency (Bleek 1935:45).

One way of visually expressing control over mormyrid potency would be to catch the source of potency. Fishing from the river bank or in boats was part of the subsistence strategy of foraging people in southern Africa (Barrow 1801:300; Stow 1905:72,92-94; Clark 1960:77; Vinnicombe 1965) but, given the centrality of shamanism to rock art imagery, it is likely that rock paintings of 'fishing scenes' (Battiss 1945; van Riet Lowe 1947; Goodwin 1949; Vinnicombe 1960, 1961; Smits 1967, 1973:33) went beyond subsistence and related to San religious beliefs. For example, in the Eastern Cape Province a therianthrope is depicted catching a fish with a fishing rod (Schoonrad 1962), a composition that supports a non-literal explanation and links shamans with the capture of fish.

The well-known fishing 'scene' from Lesotho (Fig. 10; Vinnicombe 1960:16, 1976: fig. 82) comprises a large shoal of mormyrids (Skelton, pers. comm.), and at least twelve black human figures standing on boat-shaped objects apparently harpooning the fish. That this is not a literal fishing scene is indicated by a large red human figure standing amongst the fish whereas the depth of water necessitates that other fisherpeople require the use of boats. The large red human figure was probably an earlier depiction, but the author of the fishing scene appears to have consciously used this earlier figure in h/is composition as indicated by the manner in which the mormyrid shoal breaks around the figure's body. In
addition, the human figure is in or under water, thus ‘wet’, potent and in the spirit world. It is therefore highly likely that the human figure is a shaman surrounded by his source of supernatural potency. ‘Fishing’ is therefore most probably a metaphor for shamanistic acquisition and control of supernatural potency.

Assuming potent form

The third way in which shamans could harness potency would be to possess potency by assuming the form and abilities of a potent animal. The parallel between mormyrid physiology and certain somatic hallucinations is likely to have led to some shamans identifying closely with and even becoming, mormyrids. San shamans’ transformative abilities are well-documented ethnographically (e.g., Bleek & Lloyd 1911:5, 107, 163, 261; Bleek 1935:7, 32; Biesele 1993:111) and in terms of rock art imagery (Lewis-Williams 1981a; Huffman 1983; Loubser & Brink 1992). Ichthyanthropes, or part animal, part human depictions are a manifestation of a shaman assuming the form and potency of a particular or several animals. At least two rock paintings depict shamans assuming mormyrid form.

A closer examination of the painting of two mormyrid fish associated with three human figures and a bird (Fig. 11) reveals that the human figure on the extreme right hand side has zigzag arms. Zigzag limbs are a feature of southern African rock art (e.g., Ouzman 1993:26, 92; Uher 1994) and probably represent a conflation of visual and somatic hallucinations (Katz 1982:237). Furthermore, not only are the arms zigzags, but they terminate in bifurcations that are almost identical to the fins of the two mormyrids immediately to the left (see Lewis-Williams & Dowson 1988:86) indicating it/his is an ichthyanthrope assuming the form and potency of mormyrid fish.

The second depiction of mormyrid transformation is from the Foursiesburg District (Fig. 8). The swimming posture, dorsal fin and tail of the painted mormyrids are strikingly paralleled by the shape and position of the two human figures above and to the right of the fish. Their karosses are of an unusual shape similar to that of the mormyrids. The ‘bump’ in the torso region of the kaross is visually similar to the ventral fin of the mormyrids and the neck of the kaross evokes the mormyrid proboscis.

The two figures are unusual in that they are ichthyanthropes not by virtue of their own bodily transformation but by their karosses transformation. Ethnographically, karosses and bags feature in contexts where they are the agent of transformation (Bleek 1924:1-5, 16-17; Bleek & Lloyd 1911:27, 29; Lewis-Williams 1981a:91). ‘Being in a bag’ involves the same sensory stimuli as being ‘underwater’ and may also be a metaphor for altered states of consciousness in which transformation occurs. Significantly, the human figures painted to the left of the fish are also clad in karosses and have bags between them. Their juxtaposition with the mormyrid images is unlikely to have been fortuitous and may indicate an association between shaman and h/er source of supernatural potency as well as the means of transformation.

The hypothesis that the south-eastern mountain area constituted a single ‘culture area’ (Bleek 1932:77, 82; Wright 1971; Vinnicombe 1976) is supported by the treatment of paintings of mormyrids, ‘fishing scenes’ and mormyrid transformations which appear to have been part of an established regional painting and belief system. That of the people of the south-eastern mountains were familiar with the appearance and behaviour of mormyrids is, however, problematic as mormyrids do not naturally occur there.

**MORMYRID DISTRIBUTION**

The present distribution of the *Mormyridae* extends north of the Tropic of Capricorn with some species such as *longirostris* reaching their southernmost expression in the Umhlalazi river in KwaZulu-Natal (Skelton 1993:98), 200 km north-east of the nearest known mormyrid painting (Fig. 3). That warmer, moister conditions could have prevailed during the Holocene enabling the *Mormyridae* distribution pattern to extend further southward is possible but the data are ambiguous. Butzer, basing his study on sediment analysis finds for a moist, warm Holocene (Butzer 1984; Butzer & Vogel 1979) but charcoal analysis supports a warmer and possibly drier Holocene scenario (Wadley 1991:127; Mitchell 1994:85). Mitchell, working in the Thaba Bosiu region finds for more woody conditions on the basis of faunal remains. More recently, Tyson and Lindesay (1992:275-276) have
argued for a more variable scenario comprising regular temperature changes every 200-300 years during the late Holocene.

The palaeo-climatic and painted data are, however, equivocal. The practise of depicting animals outside their present natural range is an idiosyncratic feature of southern African rock art (Loubser 1993:360). Ironically, the best example of this idiosyncrasy is the Ladybrand ichthyoids which, had their identification as marine animals been accurate, are 320 km from the nearest ocean. Even as mormyrids, these images are 200 km south of the present mormyrid range. A more adequate argument accounting for the discrepancy between painted and natural mormyrid distribution may be articulated in terms of ethnographically and archaeologically observed San social networks.

MORMYRID DEPICTIONS AND SAN SOCIAL NETWORKS

The 200 km distance between paintings of mormyrids and their present natural distribution appears at first to preclude any contact between foragers or foragers and food-producers. However, many San groups were characterised by their travels at various times of year (Bleek & Lloyd 1911:303-307; Parkington 1972; Barnard 1992:55, 68, 204; Biesele 1993; but see Humphreys 1987). /Kabbo, one of Bleek and Lloyd's /Xam informants, tells of people "listening to stories from afar, which float along; they are listening to stories from other places" (Bleek & Lloyd 1911:301).

These stories 'float to the region' by visiting kin, friends and gift exchange partners and were considered an essential part of forager life as /Kabbo repeatedly mentions (Bleek & Lloyd 1911:303). We are also told of strangers entering the region (Bleek & Lloyd 1911:381-385), and the exchange of bags and arrows between forager and farmer groups (Bleek & Lloyd 1911:377; Hewitt 1986:36). Cooke (1965), using Zimbabwean rock art imagery, has argued for human migrations with domestic stock across Zimbabwe. In the last few hundred years San people in the south-eastern mountains acquired horses enabling them to cover considerable distances to hunt, raid, trade and visit (Wright 1971:55, 175). Contemporary San people in Botswana regularly make between 0 and 20 visits per year to groups living up to between 5 and 300 km distant (Weissner 1982; 1983:62; Cashdan 1983), which situated individuals and groups within a geographically extensive social context (Wilmsen 1989:53). Mobility thus appears to be a persistent, essential, although variable facet of forager life.

There is evidence of considerable mobility between foragers and forager and farmer communities between and within the south-eastern mountains and KwaZulu-Natal.

Evidence of forager contiguity between the south-eastern mountains and KwaZulu-Natal

Although the rugged terrain of the south-eastern mountains would appear to hamper movement, the Orange River Valley, which runs through 80% of Lesotho, is a natural corridor for human movement and is connected to the west and east by numerous passes as well as the Caledon River Valley (Illustrated World Atlas 1988:20). The large number of late Holocene Later Stone Age sites in the south-eastern mountains, particularly along river valleys, indicates intensive and probably extensive forager settlement (Mitchell 1994; Bousman 1988).

In western, southern and central Lesotho, the last 1000 years witnessed a change in forager settlement pattern characterised by the short-term occupation of many localities, often painted and sometimes with pressure flaked arrowheads (Bousman 1988; Mitchell et al. 1994:33). Mazel notes a similar change in forager land-use patterns in the last 2000 years in the Thukela Basin in KwaZulu-Natal (1989:22). It appears as if after an early Holocene interregnum the south-eastern mountain region and parts of KwaZulu-Natal were re-occupied by foragers and later by farmers. In contrast to previous findings (Carter 1970), Mitchell et al. (1994:50) consider forager populations to have been restricted to smaller areas without major corporate seasonal movements (see also Mitchell 1994:92), although social or trading visits probably still took place.

Slightly to the north of Mitchells' research area Wadley has identified a possible aggregation-dispersal
complex in the Ladybrand District of the Free State with Rose Cottage Cave an important focus (Wadley & Engela 1990:7-8). To the south-east, Carter and Vinnicombe have described the wide-ranging seasonal movements of the Drakensberg San (Carter 1970; Vinnicombe 1976:163). The discovery of cowrie shell, L. cyprea, at a site in the Underberg District of KwaZulu-Natal, over 200 km from the coast (Vinnicombe 1960:17), provides secure evidence of extensive forager social networks during the late Holocene (Vinnicombe 1976:86). Similar finds of marine shell in the Thukela Basin and eastern Lesotho occur after 2000 BP, a period during which forager visibility and mobility increases significantly (Mazel 1989:143-144). Mazel notes that;

... the distribution of OES beads and marine shells suggests widening contacts among the hunter-gatherer communities. It is not inconceivable that while the hunter-gatherers established close reciprocal bonds with the farmers, they also felt the desire to strengthen and widen alliance networks to ensure social and biological reproduction (1989:144).

There are two further lines of empirical evidence that may be indicative of the strengthening of alliance networks within and between groups in the south-eastern mountains and KwaZulu-Natal.

Tanged arrowheads

This highly distinctive lithic type comprises unifacially or bifacially pressure-flaked, small-sized arrowheads with a hafting tang and fine workmanship (Humphreys 1991). These lithics enjoy a tight chronological bracketing to within the last 2000 years (Humphreys 1991). The geographical distribution of tanged arrowheads is well-documented and covers the central interior, south-eastern mountains and, significantly, the western parts of KwaZulu-Natal (Mazel 1994:53). The distinctiveness of the tanged arrowheads would appear to preclude independent invention and argues powerfully for contiguity between groups within the distribution area of tanged arrowheads. It has been argued that tanged arrowheads, because of their visual and technological difference from other lithic types, acted as a marker of social or group boundaries (Humphreys 1984:3; see also Mitchell 1994:89). Like the occurrence of ostrich eggshell beads and marine shells after 2000 BP, tanged arrowheads may be a product of changed social networks. More defined concepts of territory may have been in operation given the pressure on land and resources in the south-eastern mountains (Slow 1905:185-192; Wright 1971; Vinnicombe 1976; Campbell 1987; Dowson 1994). Items of material culture such as tanged arrowheads may have provided a means by which people could indicate their membership of a system of signification and justify ingress into other forager’s territories and resources. This implies an emic recognition and maintenance of group identity, a finding supported by Mazel’s (1989:104, 142) identification of social regions in the Thukela Basin during the late Holocene.

The thin red line

The second line of evidence that links groups in the south-eastern mountains with those in KwaZulu-Natal is the painted image-class known as the thin red line (Lewis-Williams 1981b). This image-class comprises a sinuous red line, often fringed with white dots, which may connect images within a painted panel and which often enters and leaves cracks, steps and irregularities in the rock face. The thin red line is found in much of Lesotho (e.g., Vinnicombe 1976:335), western KwaZulu-Natal, the northern and eastern parts of the Eastern Cape Province (Lewis-Williams 1981b) as well as in the eastern and southern Free State. So distinctive is the thin red line that two depictions 200 km apart are indistinguishable and may even have been the work of a single hand (Lewis-Williams 1981b:12). Like the tanged arrowheads the uniqueness of the thin red line very strongly implies a commonly understood regional forager belief. Lewis-Williams has suggested that the thin red line may be a graphic representation of a transformed shaman, or the footprints of a shaman as s/he travelled from this world to distant places and the spirit world (see Lewis-Williams 1981b:12; Lewis-Williams & Dowson 1990). This interpretation is significant because it points to the possibility that there is only one thin red line, snaking in and out of the rock, emerging at sites all over the south-eastern mountains, constituting a pathway which shamans could follow into new territories.

Ethnographic and archaeological evidence indicates that forager mobility during the last few hundred years in the south-eastern mountains and KwaZulu-Natal was extensive and complex. The 200 km hiatus between painted and natural mormyrid distribution does not
appear to be as problematic as was first thought. However, the transmission of the appearance, behaviour and significance of mormyrids still requires explanation. I articulate this explanation in terms of the role of shaman as traveller. In addition, certain shamans may have entered their experiences of extra-corporeal and real travel into the realm of forager power relations.

MORMYRID DEPICTIONS AND SHAMANIC PEREGRINATION

The role of the shaman was not restricted to the arcane but extended to the mundane. Shamans reminded people of the wider, invisible nexus of which they were part. "They could imagine the distant people and places of which the medicine man spoke because, through the changing membership of camps, they had themselves been there" (Lewis-Williams 1982:436).

Further, shamans may have held an additional understanding of mobility and travel, in that it was necessary to obtain and master certain spiritual resources and information fields (Moore 1983). Peterson (1978:28-29) notes that in forager thought access to the cultural systems, sacred sites and the ritual knowledge of an area often takes precedence over subsistence resources (see also Humphreys 1987; Smith 1994:383). In times of change and stress, such as characterised the last few hundred years in the south-eastern mountains, San foragers may have looked to their religion for answers. It is therefore significant that Mitchell et al. (1994:49), like Wadley and Engela (1990) and, to a lesser extent, Mazel (1989) discern a focus on painted rock shelters during this period. Possibly certain geographic loci became a focus of ritual permanence, emphasising San occupancy and custodianship of certain geographical areas. Occupancy and visibility could be reinforced and extended by invoking the sanction of the spirit world which could be accessed by shamans and rock art imagery.

In order to enter and experience the spirit world, San shamans went on extra-corporeal travel while in an altered state of consciousness. In the spirit world, which was presented by shamans to non-shamans as difficult to access, strange and even dangerous (Biesele 1980:58-59), shamans experienced the central truths of their religion. These truths were not self-evident but had to be synthesised and assimilated by the symbolically-literate shamans who would then transmit these truths to others by means of oral account and visual imagery. In San thought the spirit world constituted a definable and tangible territory (Katz 1982:115, 187) which could be explored and exploited by those who had access to it. Travel between territories and exploitation of resources operated at a literal and an hallucinatory level, both of which many San people considered real.

In thus representing out-of-body travel the artists were not turning their backs on the real world in favour of an independent world of imagination. On the contrary, they were making statements about economic and social realities. (Lewis-Williams 1982:437-438).

Extra-corporeal travel and depictions thereof related, in certain aspects, specifically to space.

... the symbolic differentiation of space (topologisation) and the appropriation of the topologised space into a structure of meaning by attributing shared and public values to place, directions, and boundaries such that it may be graphically, or ritually represented in a coherent and enduring image (Smith 1994:376 vide Thornton 1980).

I suggest that one such enduring image was the mormyrid fish. Not only were rock paintings of mormyrids religious metaphors, they were also metaphors for the control of space (see Smith 1994:384). Someone, not necessarily a shaman, would have had to have actually seen and felt a mormyrid in a region where mormyrids occur naturally. This information would then have had to come to the attention of a shaman who could make symbolic sense of this unusual fish. The shaman may have decided to experience this fish for himself, necessitating a literal journey to the geographical locus where these fish occurred. Once completed, this literal journey may have been presented in metaphorical terms. For example, one could extend the 'underwater' metaphor to include rivers as routes by which certain shamans, like mormyrids, travelled while in an altered state of consciousness.

Painted representations of this fish would thus constitute a highly visible and enduring image that strongly presented shamanic access to ritual knowledge and new but restricted territories. The sites at which these images were depicted may have constituted focal points of the landscape that signified foragers privileged access to real and supernatural territories and resources which was enabled by extensive social and religious networks. In this way painted imagery becomes more than religious and social metaphor; it becomes a manipulation and redefinition of the landscape which, in turn, alters peoples roles and relations with other people, resources and the spirit world. Control of rock art imagery was therefore critical in San concept-formation.

Control over material culture gives power and control over others in that the values and expectations of others can be changed or negotiated by providing a world of experience that creates new associations and evokes new relationships and values. But, again, individuals are not duped by the material world. Rather, they make sense of it in terms of their own interest. The same item can mean prestige or ridicule, control of freedom when used in different contexts or when viewed by different people in the same context (Hodder 1985:6).
Mormyrid images were critical in this strategy because “exotics can validate an individual’s claim of long-distance ties, esoteric knowledge can validate group membership” (Moore 1983:186). Obtaining material or ideological resources from distant localities was, in San thought, associated with prestige because of the time and effort invested in accessing new territories and resources. Prestige may even have been translated into power which "derives from controlled access to sacred sites and ritual knowledge" (Layton 1986:23).

However, not everyone necessarily accepted the 'mormyrid' shamans' versions of reality. We are faced with at least two problems in this respect.

Firstly, we are not able to identify many of the interest groups that existed in forager societies. Those of which we are fairly certain include: young, old, initiated, uninitiated, shamans, traders, visual literates, orators, feminine, masculine, hunters, gatherers, tool makers, tool users, owners of waterholes, gift-exchange partners and so forth.

Secondly, following from the first problem, it is difficult to isolate the various uses to which specific items of material culture have been put. I, for example, am biased in favour of rock paintings because they are highly visible and enjoy ethnographic support. What people who were opposed to the 'mormyrid shamans' views did in terms of manipulating material culture to their own ends is uncertain.

Rock paintings of mormyrid fish, because of their exotic origin, constitute an obvious dwelling point for shamanistic activity, particularly extra-corporeal travel. This travel may have been presented as parallel to the natural migrations of mormyrids along rivers. These rivers then became pathways which shamans could follow to other territories. Such activity may have enabled prestige and possibly power to accrue to certain shamans because they presented themselves as the sole transmitters and validators of ritual knowledge of distant places, events, people and resources.

**CONCLUSION**

There are at least two sites in Zimbabwe and seven sites in the south-eastern mountains of South Africa at which freshwater mormyrid fish are depicted. The ascription of mormyrid identity was based on a comparison between the appearance and behaviour of actual mormyrids and other fish with of those depicted in the above nine sites. The specific identification of these images as mormyrids enables a more precise and subtle understanding of the reasons certain San shamans selected this unusual fish species.

Firstly, mormyrid depictions constituted a religious metaphor. Some mormyrids generate an electric current which is analogous to San perceptions and experiences of supernatural potency. In addition the depiction of 'fishing scenes' and ichthyanthropes in the south-eastern mountains are interpreted as metaphors for the acquisition and control of supernatural potency.

Secondly, mormyrid depictions constituted a social metaphor. The disjunction in the painted and natural distribution of mormyrids, while at first puzzling, may be regarded as visible evidence of social relations between foraging groups of the south-eastern mountains and western KwaZulu-Natal. Contact between these and the Zimbabwean painted sites is more problematic because there is little comparative rock art in northern KwaZulu-Natal, although the meanings of the Zimbabwean mormyrid paintings appear to be similar (Huffman 1983; Garlake 1987a, 1987b, 1990). More specifically, mormyrid depictions may have been signifiers for the ability of shamans to access new territories and resources by extra-corporeal travel. Some shamans may have used their ability to access restricted ritual knowledge in an attempt to redefine both the landscape and San power relations.

Rock paintings may therefore be regarded as a primary source of evidence of the beliefs, lives and travels of San foragers. Though visually ingenuous, depictions of mormyrid are labyrinthine economic, religious, social and political metaphors. The importance of situating rock art interpretation within the shifting, idiosyncratic nature of San belief may appear to subvert attempts at precise interpretation but, by paying attention to the accurate identification of depictions of animals and possibly people and their physiological and behavioural characteristics, we may approach a simulacrum of the complex cognitive pathways of our shamanistic ancestors who have launched us on a journey no less fantastic then their own.

**ACKNOWLEDGEMENTS**

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**ENDNOTES**

1. 'Rock art' refers to paintings and engravings made by shamanistic groups of foragers more often referred to as 'Bushman' or 'San'. I reject any pejorative connotations these terms may have.

2. I distinguish between 'potency' which denotes the San concept of supernatural potency and 'power' which denotes political power that is negotiated by various interest groups within San civilisation.

3. The concept of 'territory' among San foragers is problematic (Humphreys 1987; Barnard 1992:231; Smith 1994). There is a great deal of variability in the
definition and defense of geographical loci amongst San groups. Territoriality is a function of all mammals and we can predict that it will be present at some level in human communities.

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THE FAUNAL REMAINS FROM FOUR LATE IRON AGE SITES IN THE SOUTPANSBERG REGION: PART II: TSHITHEME AND DZATA*

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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 II describes the faunal remains from two Dzata Pattern settlements with dates that range from the 15th to 18th centuries. Based on the small faunal sample from Tshitheme, cattle predominate in both the Mapungubwe and Letaba ceramic components but sheep/goat remains are also present. The excavations at Dzata, the capital of the Singo state, are not large. However, there is some faunal evidence of status differentiation and activities relating to the assembly area. All the remains are associated with Letaba ceramics. The distribution of ages, skeletal preservation, butchering evidence and pathologies are noted for these sites. Skeletal element representations are then considered on an intra-site level.

INTRODUCTION

Loubser (1988) excavated several Late Iron Age sites in the Soutpansberg region in order to investigate the origins of the Venda people and their relationship with the Shona of Zimbabwe and the Sotho-Tswana of the northern Transvaal. In Part I, the faunal remains from Tavhatshena, a Central Cattle Pattern settlement dating between the 11th and 16th centuries were discussed (De Wet-Bronner 1994). In this paper I discuss the faunal remains of two Dzata Pattern settlements, Tshitheme and Dzata, dating between the 15th and 18th centuries (Fig. 1).

The layout of Dzata Pattern settlements, their features and activity areas, do not vary much from earlier Zimbabwe Pattern settlements, but there are differences in wall styles (Loubser 1991). Dzata Pattern settlements are distinguished by short sections of semi-coursed walling and long sections of roughly stacked walls. Furthermore, Zimbabwean settlements are restricted to hill tops and mountain slopes in and north of the mountain range, whereas Dzata settlement types occur on both sides of the Soutpansberg on a variety of land surfaces.

Zimbabwean Pattern settlements are mainly associated with pre-Singo inhabitants. Dzata Pattern settlements, on the other hand, are associated with the Singo state centred in the Soutpansberg region (Loubser 1991). Tshitheme and Dzata were settled in the time of Singo rule over the northern Transvaal, the latter settlement being the capital of the Singo empire.

METHODS

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

TSHITHEME 2329 BB12

Tshitheme is located in a valley at the base of the southern slope of the Soutpansberg range (23.00.25S; 24.47.33N). On the basis of size (approximately 1,1 hectares), Tshitheme is a Level 2 settlement controlled by a headman. The excavations at this site were placed in and near the walled areas which are linked to royal residents of the settlement (Fig. 2).

According to informants, Lemba allies of the Singo also lived here (Loubser 1988, 1991). These Lemba were semi-specialist merchants and metal workers who were supposed to have moved south from Zimbabwe at about the same time as the Singo (Stayt 1931). They presumably lived in the commoner's area.

Two trenches were excavated. Trench 1 (4 m²) was placed in a prominent midden and daga ridge against rough walling at the back of the prestige area. The debris from Trench 1 contained hut refuse along with faunal material and pottery. Trench 2, a smaller test trench of about 0,5 m², was placed in or near the cattle byre. Only bones were found in this trench. Not only does the site layout conform to the Singo conquest period, but a charcoal sample in Trench 1 Level 3 (T1/3) dates the

upper levels to AD 1740 ± 50 (WITS-1544).

Loubser distinguished two ceramic components, and the fauna was analysed accordingly. An earlier Mapungubwe component occurs in Levels 5-6 in Trench 1. It is unlikely that this earlier component is associated with the visible stone walling and considering the southerly location of the site the Mapungubwe sample probably represents a commoner settlement. At present the spatial location of the faunal sample within the Mapungubwe settlement is unknown. The more recent Venda component is marked by Letaba ceramics in Levels 1-4 in Trench 1.

TOTAL FAUNAL SAMPLE

The excavation yielded a total bone sample of 3183 pieces, weighing 11,102 g. About 84% of the total collection came from the top and about 15% from the bottom component in Trench 1. Trench 2 contributed under 1%. Less than 10% of the total sample was identifiable (Tables 1 & 2). *Bos taurus* and sheep/goats dominated the bovid bone count. Trench 2 contained a negligible amount of bone although it had primate material not present in Trench 1. It also contained zebra and amphibian remains.

No ivory was recovered, but worked bone was identified from both components of Trench 1 (De Wet 1993: Appendix A). Eight ostrich eggshell beads were retrieved from the Mapungubwe component. From the Letaba levels, a *Bos taurus* fifth metacarpus had been sharpened into a point and a sheep/goat femoral shaft had a hole drilled in the middle.

MEAT CONTRIBUTIONS

In terms of meat diet, cattle make the greatest contribution for both Mapungubwe and Letaba components in both QSP (quantifiable skeletal parts) and MNI (minimum number of individuals) counts (Tables 3 & 4). QSP is based on only those elements present in the sample and thus the meat contribution of those elements for that taxon. The MNI percentage for cattle meat drops in the Letaba component because buffalo are present. According to QSP calculations this contribution is low. Sheep/goats contribute a marginally higher percentage of meat in the earlier component in comparison to the later occupation.

Ostrich eggshell beads and fragments are not included in dietary calculations. Even if ostrich eggs were consumed, their contribution would be negligible. I excluded an indeterminate sized bird from dietary figures for the Letaba component as no weight could be assigned.

![Fig. 1. Distribution of Dzata Pattern settlements in the Soutpansberg region.](image-url)
to it. One Bos foetus was also excluded since it is probably inedible. QSP values could not be obtained for several small sized species such as crab (Potamonautilus sp.) and certain gastropods. In any case their weight, number and contribution to diet is negligible.

AGE DISTRIBUTION

In the Mapungubwe component, cattle ages range from I to VIII in Voigt’s classification (Table 5). Immature (Thorpe’s classes I - III) cattle predominate and juvenile cattle (Voigt’s classes I - III) are well represented. In the Letaba component cattle ages range from Voigt’s Class III to IX. Mature animals are in the majority and juveniles are nominally present.

The sheep/goat sample in the Mapungubwe component is too small to warrant much comment. Both components, however, have mostly adults.

SEXUAL IDENTIFICATION

Two pelvic fragments of cattle from T1/1-4 could be separated into male and female. This is insufficient, however, to draw conclusions.

The identifiable remains from the Mapungubwe component show few butchering marks. Cattle bones have mostly cut and shear marks on the smaller limb bones. Other damage was caused by gnawing and weathering. This is similar for the sheep/goat bones. Longitudinal splitting occurs on a cattle first phalanx and a distal metacarpal.

Unidentifiable remains from this component show cut marks mainly on skull, vertebral and rib fragments, in that order. Burning occurs predominantly on miscellaneous pieces and long bone flakes. About 22% of the bones are weathered making this the most prominent taphonomic category in this component. The bones from Level 5 in particular are noticeably weathered on one side: they have been either immediately exposed to the elements for a long time or else covered and exposed later. Many Level 5 bones are stained with black speckles which are not removable. Manganese is the likely cause as this site is situated within a granitic environment.

In the Letaba component of Trench 1, the identifiable bones from cattle have mainly cut and chop marks. Cut marks occur more frequently on limb bones whereas chop marks occur mostly on pelvic and femoral elements and on mandible, teeth and skull fragments. These various
Table 2. Tshitheme total bone sample.

<table>
<thead>
<tr>
<th>Skeletal part</th>
<th>T1/1-4</th>
<th>T1/5-6</th>
<th>T2/1-4</th>
<th>TOTAL T1-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bovid remains</td>
<td>189</td>
<td>70</td>
<td>50</td>
<td>240</td>
</tr>
<tr>
<td>Other remains</td>
<td>32</td>
<td>12</td>
<td>41</td>
<td>56</td>
</tr>
<tr>
<td>Total identifyable</td>
<td>221</td>
<td>82</td>
<td>69</td>
<td>296</td>
</tr>
<tr>
<td>Enamel fragments</td>
<td>12</td>
<td>0.4</td>
<td>7</td>
<td>19</td>
</tr>
<tr>
<td>Skull fragments</td>
<td>303</td>
<td>11.2</td>
<td>29</td>
<td>333</td>
</tr>
<tr>
<td>Vertebrae fragments</td>
<td>160</td>
<td>5.9</td>
<td>25</td>
<td>186</td>
</tr>
<tr>
<td>Rib fragments</td>
<td>382</td>
<td>14.1</td>
<td>73</td>
<td>455</td>
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<td>Misc. fragments</td>
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<td>50.3</td>
<td>213</td>
<td>1576</td>
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<tr>
<td>Bone flakes</td>
<td>267</td>
<td>9.9</td>
<td>49</td>
<td>318</td>
</tr>
<tr>
<td>Total non-ident.</td>
<td>2484</td>
<td>91.9</td>
<td>396</td>
<td>2887</td>
</tr>
<tr>
<td>TOTAL SAMPLE</td>
<td>2705</td>
<td>100.0</td>
<td>465</td>
<td>3183</td>
</tr>
<tr>
<td>Mass (g)</td>
<td>2460</td>
<td>27.3</td>
<td>395</td>
<td>3075</td>
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<tr>
<td>Mass (g) non-ident.</td>
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<td>72.7</td>
<td>1447</td>
<td>8027</td>
</tr>
<tr>
<td>TOTAL MASS (g)</td>
<td>9005</td>
<td>100.0</td>
<td>2042</td>
<td>11102</td>
</tr>
</tbody>
</table>

% of sample burnt
Herding 8.6 11.0 8.8
Hunting 8.2 14.8 46.2 9.3
Median length of bone flake (mm)* 4.3 3.4 4.0 3.9

* Median average calculated for TOTAL.

Table 3. Tshitheme T1/5-6: Mapungubwe: meat contribution.

<table>
<thead>
<tr>
<th>Species</th>
<th>QSP</th>
<th>QSP value</th>
<th>QSP %meat</th>
<th>MNI</th>
<th>MNI %meat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Herding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bos taurus adult</td>
<td>26</td>
<td>.18</td>
<td>83.1</td>
<td>5</td>
<td>66.6</td>
</tr>
<tr>
<td>juv.</td>
<td>3</td>
<td>.02</td>
<td>3.7</td>
<td>2</td>
<td>10.6</td>
</tr>
<tr>
<td>Sheep/goat adult</td>
<td>10</td>
<td>.08</td>
<td>2.4</td>
<td>2</td>
<td>1.7</td>
</tr>
<tr>
<td>juv.</td>
<td>3</td>
<td>.02</td>
<td>5</td>
<td>1</td>
<td>.7</td>
</tr>
<tr>
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<td>42</td>
<td>.30</td>
<td>89.7</td>
<td>10</td>
<td>79.6</td>
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<tr>
<td><strong>Hunting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bow I</td>
<td>3</td>
<td>.02</td>
<td>.4</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Bow III non-dom adult</td>
<td>3</td>
<td>.02</td>
<td>3.7</td>
<td>2</td>
<td>10.7</td>
</tr>
<tr>
<td>juv.</td>
<td>2</td>
<td>.02</td>
<td>2.2</td>
<td>1</td>
<td>3.2</td>
</tr>
<tr>
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<td>.06</td>
<td>6.3</td>
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<td>14.4</td>
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<tr>
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<td>.02</td>
<td>4.1</td>
<td>1</td>
<td>5.9</td>
</tr>
<tr>
<td>TOTAL INDET.</td>
<td>2</td>
<td>.02</td>
<td>4.1</td>
<td>1</td>
<td>5.9</td>
</tr>
<tr>
<td><strong>Snaring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cf. Pronolagus randensis</td>
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<td>.01</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
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<td>.01</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>Gathering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Achatina sp.</td>
<td>-</td>
<td>-</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Unio/Asp時にはaria</td>
<td>-</td>
<td>-</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>TOTAL GATHERED</td>
<td>-</td>
<td>-</td>
<td>&lt;.1</td>
<td>2</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>TOTAL ANIMALS</td>
<td>53</td>
<td>.39</td>
<td>18</td>
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<td></td>
</tr>
</tbody>
</table>

**Non-contributor**
Struthio camelus | 1 | 1 |

Table 4. Tshitheme T1/1-4: Letaba: meat contribution.

<table>
<thead>
<tr>
<th>Species</th>
<th>QSP</th>
<th>QSP value</th>
<th>QSP %meat</th>
<th>MNI</th>
<th>MNI %meat</th>
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</thead>
<tbody>
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<td><strong>Herding</strong></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Bos taurus adult</td>
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<td>.78</td>
<td>88.2</td>
<td>8</td>
<td>63.4</td>
</tr>
<tr>
<td>juv.</td>
<td>7</td>
<td>.05</td>
<td>2.3</td>
<td>2</td>
<td>1.5</td>
</tr>
<tr>
<td>Sheep/goat adult</td>
<td>22</td>
<td>.17</td>
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<td>1.5</td>
</tr>
<tr>
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<td>.02</td>
<td>.1</td>
<td>2</td>
<td>.8</td>
</tr>
<tr>
<td>TOTAL HERDED</td>
<td>138</td>
<td>1.02</td>
<td>91.8</td>
<td>14</td>
<td>68.8</td>
</tr>
<tr>
<td><strong>Hunting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Equus burchelli</td>
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<td>.01</td>
<td>.7</td>
<td>1</td>
<td>5.0</td>
</tr>
<tr>
<td>Bov I</td>
<td>3</td>
<td>.03</td>
<td>.1</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Bov II non-dom</td>
<td>3</td>
<td>.03</td>
<td>.1</td>
<td>1</td>
<td>1.6</td>
</tr>
<tr>
<td>Bov III non-dom</td>
<td>6</td>
<td>.05</td>
<td>2.3</td>
<td>2</td>
<td>6.3</td>
</tr>
<tr>
<td>Bov IV</td>
<td>1</td>
<td>.01</td>
<td>1.8</td>
<td>1</td>
<td>12.2</td>
</tr>
<tr>
<td>TOTAL HUNTED</td>
<td>14</td>
<td>.13</td>
<td>5.2</td>
<td>6</td>
<td>25.7</td>
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<td><strong>Indeterminate bovids</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Bov. II</td>
<td>11</td>
<td>.09</td>
<td>.7</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Bov III adult</td>
<td>5</td>
<td>.04</td>
<td>2.0</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>juv.</td>
<td>1</td>
<td>&lt;.1</td>
<td>.3</td>
<td>1</td>
<td>2.1</td>
</tr>
<tr>
<td>TOTAL INDET.</td>
<td>17</td>
<td>.13</td>
<td>3.0</td>
<td>4</td>
<td>6.5</td>
</tr>
<tr>
<td><strong>Snaring</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lepus/Pronolagus</td>
<td>6</td>
<td>.05</td>
<td>.01</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Francolinus sp.</td>
<td>4</td>
<td>.08</td>
<td>.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Medium bird</td>
<td>4</td>
<td>.08</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Indet. sized bird</td>
<td>1</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>TOTAL SNARED</td>
<td>15</td>
<td>.21</td>
<td>.03</td>
<td>5</td>
<td>.1</td>
</tr>
<tr>
<td><strong>Gathering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potamonautilus gen.</td>
<td>1</td>
<td>.08</td>
<td>-</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Achatina sp.</td>
<td>6</td>
<td>3.00</td>
<td>3.0</td>
<td>3</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>TOTAL GATHERED</td>
<td>7</td>
<td>3.08</td>
<td>3.0</td>
<td>4</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>TOTAL ANIMALS</td>
<td>191</td>
<td>4.57</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-contributor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bos taurus (foetus)</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panthera leo</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Struthio camelus</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ledouixia mozambiqueensis</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euonyx</td>
<td>1</td>
<td></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

marks occur equally on proximal, distal and shaft areas of the limb bones. Longitudinal splitting occurs mainly on first and second phalanges. For sheep/goats, cut and chop marks are in the majority, occurring only on the larger limb bones. Few bones show any other damage. Fewer bovid bones show butchering marks although burning, gnawing and weathering occurs on some of the bones. Considering the small size of most of the punctates, dogs or perhaps jackals are probably responsible for the carnivore gnawing. Among the non-bovids, one medium-sized bird limb bone has an orange-brown discolouration which might be ochre staining.

Cut marks occur mainly on unidentifiable skull and vertebral fragments and chop marks or deep cut marks occur on most damaged ribs. Burning frequently on miscellaneous fragments and longbone flakes. Two vertebral
Table 5. Tshitheme and Dazata: ages of Bos taurus and sheep/goats based on tooth eruption and wear. Numbers listed are MNI.

<table>
<thead>
<tr>
<th>Age classes</th>
<th>Tshitheme</th>
<th>MNI</th>
<th>Dazata</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voigt / Thorp (1983) / (1984)</td>
<td>T1/ T1/ T2/ T2/ T1/ 5-6 1-4 7-8 1-6 1-2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bos taurus</td>
<td>I I I I 1 0 0 0 0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>I I I 1 0 0 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II II 0 1 0 1 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III II III 1 2 0 0 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV IV V 1 1 0 1 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VI IV VI 0 0 0 1 0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VII IV VII 1 1 1 1 3 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIII IV VIII 2 1 1 0 1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>IX V IX 0 2 1 1 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-- -- -- -- -- -- -- -- --</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7 9 2 8 4 2</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sheep/goat
| I II II III III III |
| 0 0 1 0 0 0 0 |
| 0 0 1 0 0 0 0 |
| 0 1 1 1 0 0 |
| 1 1 1 1 0 0 |
| 1 1 1 1 3 1 |
| 0 1 1 1 2 1 |
| 0 1 1 1 2 |
| 3 5 2 6 |

N.B.: T2/7-8 = one adult sheep/goat tooth was recovered along with post-cranial fragments, MNI = 2.

Table 6. Tshitheme T1/5-6: Mapungupwe: number of skeletal parts (Ha: hare, nd: non-domestic, d: domestic).

<table>
<thead>
<tr>
<th>Skeletal part</th>
<th>Bov</th>
<th>Bov</th>
<th>Bov</th>
<th>Bov</th>
<th>Bov</th>
<th>Ha</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>d</td>
<td>nd</td>
<td>d</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cranial</td>
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<td>2</td>
<td>1</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Humerus</td>
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<td></td>
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<td>Ulna</td>
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<td>Carpal</td>
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<td>2</td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Femur</td>
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<td>1</td>
<td>1</td>
<td>3</td>
<td></td>
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<td>2</td>
<td>2</td>
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<td></td>
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<td></td>
</tr>
<tr>
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<tr>
<td>Calcaneus</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tarsal</td>
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<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Metatarsal</td>
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<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Phalanx</td>
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<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>3</td>
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<tr>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>13</td>
<td>2</td>
<td>1</td>
<td>29</td>
</tr>
<tr>
<td>Teeth</td>
<td>9</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>3</td>
<td>14</td>
<td>5</td>
<td>26</td>
<td>2</td>
<td>1</td>
<td>51</td>
</tr>
</tbody>
</table>

fragments from T1/3 have green staining which suggests they were deposited near copper.

Identifiable bones are scarce from the Test Trench, some being damaged. A Bos second phalanx is longitudinally split like those of the Letaba component in Trench 1. The articulation area on the proximal end of a baboon radius shows slight rodent gnawing while a

zebra's hyoid has cut marks on the shaft. Almost all the unidentifiable fragments are unmodified except for a gnawed longbone flake.

SKELETAL PART REPRESENTATION

From the non-identifiable remains, miscellaneous fragments outnumber all other unidentifiable categories in both components (Table 1). The teeth and post-cranial remains for cattle are equal. Sheep/goat cranial fragments outnumber post-cranial material. Most other bovid remains are represented by post-cranial remains (Table 6). Adult cattle bones consist mainly of smaller posterior limb elements with the exception of carpal and metacarpal elements. Sub-adult cattle are represented only by tarsals and two second phalanges. On the whole there is a paucity of the larger limb bones in the cattle sample for this component.

From trench 1/1-4 of the Letaba component both cattle and sheep/goat are represented mostly by post-cranial material, except for Bov III. On the number of teeth alone, cattle outnumber sheep/goats and all other animals (Table 7). Except for the humerus, post-cranial adult cattle bones represent most of the skeletal elements. The ulna, calcaneus and metatarsal elements are better represented once skeletal complexity and reconstitution of fragments into elements is considered (De Wet 1993). Sub-adult cattle bones, although fewer in number, are better represented by ulna and calcaneus remains. The few juvenile animals are represented by humerus, femur and tibia only.

Sheep/goat post-cranial bones are all from adults. There is a noticeable lack of ulna and posterior elements such as calcanei, tarsals and metatarsals are absent.

The Bov II remains, which are all adult, are represented mainly by large limb bone elements from
both fore and hind sections. However, the more dense compact limb bones such as the carpals and tarsals along with the astragali and calcanei are not present. Considering the absence of sheep/goat ulnae and their presence in Bov II, I think several Bov II bones and fragments are most probably sheep/goat.

Skull and mandibular fragments occur in all cattle and sheep/goat age groups. Relatively little cranial material derives from the various bovids such as impala and buffalo or from the non-domesticates Bov II and III (sub-adult).

**DZATA 2230 CC2**

Dzata is located on a slight rise on the northern side of the Nzhelele valley (22.52.10 S; 30.08.30 E) next to the Gadabi Stream. It is the recognized capital of the Singo. The Singo established their capital in the late 17th-early 18th century, and it lasted for 60 to 80 years (3-4 generations) before a civil war erupted within the ruling class (Dzivhani 1940:37). According to Huffman and Hanisch (1987) the residential area covered at least 50 hectares and the “musanda”, or palace area, was over 4500 m². It is likely that Dzata started out as a Level 4 settlement and achieved paramount status soon after the Singo’s establishment of a state. Significantly it is the only Level 5 settlement known south of the Limpopo.

Loubser (1988:169) excavated a small portion of the royal core to determine the relationship between different wall styles and the sterile subsoil. The material recovered therefore represents a small sample from a very large, widespread and complex settlement (Fig. 3).

Loubser excavated three trenches. Trench 1 (9 m²) was placed against a section of semi-coursed walling near the chief’s reputed (Walton 1956) kitchen hut. Excavations by Huffman and Hanisch (pers. comm.), however, show that this structure was the chief’s audience chamber. There are two levels in this trench separated by patches of floor. Charcoal from the floor level dates to AD 1630 ± 40 (WITS-1668). The finds recovered include Letaba style pottery, bones and worked bone, iron and copper objects and spindle whorls.

Trench 2 (8 m²) was placed on the "daaledale" ash heap against the southeastern wall of the main assembly area. The deposit in Trench 2 probably results from activities in the assembly area. It yielded eight layers of deposit. Dates derived from these levels are:

<table>
<thead>
<tr>
<th>Trench</th>
<th>Date (AD) ±</th>
<th>Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>T2/2</td>
<td>1660 ± 50</td>
<td>WITS-1665</td>
</tr>
<tr>
<td></td>
<td>1810 ± 80</td>
<td>WITS-1601</td>
</tr>
<tr>
<td>T2/5</td>
<td>1580 ± 40</td>
<td>WITS-1597</td>
</tr>
<tr>
<td></td>
<td>1590 ± 50</td>
<td>WITS-1660</td>
</tr>
<tr>
<td>T2/7B</td>
<td>1690 ± 70</td>
<td>WITS-1599</td>
</tr>
</tbody>
</table>

These dates calibrate to around AD 1700 (Loubser 1988, 1991).

Trench 3 (4 m²) was placed against the only intact ‘blue’ stone wall section near an original ‘chief’s seat’. This trench contained two relatively sterile levels.

**Fig. 3. Layout of Dzata.**

**TOTAL FAUNAL SAMPLE**

As all three trenches contain one ceramic component, I combined the levels in each trench save for the lowest two in Trench 2. These lower levels, T2/7-8, extend under the assembly wall, and I therefore considered them separately. In all I analysed four units: T2/7-8, T2/1-6, T1/1-2 and T3/1-2 (Table 1).

The excavations yielded a total bone sample of 4956 pieces weighing 16 033 g (Table 8). Trench 2/1-6 represents 59% of the total bone sample with decreasing percentages for T1/1-2 and T2/7-8 respectively. Trench 3 contributes the negligible amount of 0.8%. Approximately 10% of the total sample is identifiable. Cattle and sheep/goats dominate the bovid bone count. There is a wide range of other animals present, particularly in T2/1-6. Domestic fowl are included in the total sample from T1/1-2. In T3/1-2 none of the fragments could be identified to species or animal size.

Seven fragments of worked elephant ivory, most of them from bracelets, were identified from all the levels of Trench 2. Worked tortoise plastrons were identified from both trenches, one square in shape, the other a disk, both with a hole in the centre. These may have been worn as pendants or used in the cotton spinning process (Huffman 1971). A number of other plastron fragments have smoothed edges or holes drilled through them.
Other worked bone is described in de Wet (1993: Appendix A).

**MEAT CONTRIBUTIONS**

Cattle are the largest contributors of meat for all units (Tables 9-11). In the lower unit of Trench 2 the indeterminate bovids contribute 15% according to QSP values. Since few other wild bovids are present in these levels, this amount may be added to the domestic bovid counts. The contribution from domestic animals decreases in the upper unit in Trench 2 where non-domestic bovids account for 26% in QSP calculations.

**AGE DISTRIBUTION**

In the lower unit of T2, only adult (mature) cattle teeth and post-cranial remains are present (Table 5). The upper unit of T2 consists mostly of mature cattle. With post-cranial remains included, one sub-adult (immature) proximal tibia increases the MNI count to nine. All cattle from T1/1-2 are mature. The post-cranial remains, however, include those of sub-adults and juveniles.

Sheep/goat remains from all three units are mainly from adults. Deciduous teeth from Trench 1 and one phalanx from the upper unit of T2 come from juveniles. Non-domestic bovids from these units are mainly adult, although juvenile duiker and hartebeest remains come from T2/7 and T2/6 respectively. Sub-adult nyala and eland are present in T2/1-6.

**SKELETAL PART PRESERVATION, TAPHONOMY AND DAMAGE**

The quality of the material varies constantly within and between levels. The condition of the bones from T2/7-8 is extremely good despite the mixed nature of the soil. One specimen, for example, is the fine webleke bone from the sinu passages of a large bovid.

The periodic cleaning of the assembly area probably created level 1 to 6 in Trench 2. As a result the unit varies from ashy to sandy red-orange soil. Some bones from Levels 1-6, particularly from Level 5, have several kinds of material clinging to them. This suggests that the bones lay for some time in one soil context and were later placed in another. The earlier date for Level 5 can be attributed to the fact that the inhabitants at Dzata dug into the assembly area during a cleaning episode.

Throughout these levels material found closest to the stone wall is more weathered and friable. This may be due to mineral acids from iron or other acidic components of quartzite leaching out of the stone wall (Bender, pers. comm.). Even a low ash content in an acidic soil context can hasten bone attrition. This same effect has been found in Stone Age shelters where much of the friable material occurs closest to shelter walls (Plug, pers. comm.).

Trench 1, Levels 1-2 have mostly weathered material and fragments pitted with termite and root damage. The stony soil was mainly brown and red with small scattered ash lenses. Many pieces have red soil cemented onto them which light brushing could not remove. T3/1-2 remains are mostly weathered and in poor condition.

On average 63% of the total sample is unmodified. In T2/7-8 the incidence of butchering is high at 28%. The cut, chop and chisel marks are mainly restricted to cattle, sheep/goat and Bov II classes. A cattle femur and the atlases from the Bov III class are longitudinally split.
Table 10. Dzata T2/1-6: meat contributions.

<table>
<thead>
<tr>
<th>Species</th>
<th>QSP</th>
<th>QSP value</th>
<th>%meat</th>
<th>MNI</th>
<th>%meat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Herding</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bos taurus adult</td>
<td>82</td>
<td>.626</td>
<td>66.2</td>
<td>8</td>
<td>50.5</td>
</tr>
<tr>
<td>juv.</td>
<td>3</td>
<td>.023</td>
<td>1.0</td>
<td>1</td>
<td>2.5</td>
</tr>
<tr>
<td>Sheep/goat adult</td>
<td>14</td>
<td>.107</td>
<td>.7</td>
<td>1</td>
<td>.4</td>
</tr>
<tr>
<td>juv.</td>
<td>1</td>
<td>.008</td>
<td>&lt;.1</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td><strong>TOTAL HERDED</strong></td>
<td>100</td>
<td>.764</td>
<td>68.0</td>
<td>11</td>
<td>53.7</td>
</tr>
<tr>
<td><strong>Hunting: Bovids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bov. I adult</td>
<td>1</td>
<td>.008</td>
<td>&lt;.1</td>
<td>1</td>
<td>.3</td>
</tr>
<tr>
<td>Bov. II non-dom.</td>
<td>1</td>
<td>.008</td>
<td>.1</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td>Bov. III non-dom. adult</td>
<td>17</td>
<td>.131</td>
<td>5.4</td>
<td>4</td>
<td>10.1</td>
</tr>
<tr>
<td>juv.</td>
<td>1</td>
<td>.008</td>
<td>.2</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Bov. IV</td>
<td>17</td>
<td>.129</td>
<td>20.7</td>
<td>3</td>
<td>29.7</td>
</tr>
<tr>
<td><strong>TOTAL HUNTED</strong></td>
<td>37</td>
<td>.284</td>
<td>26.4</td>
<td>10</td>
<td>41.8</td>
</tr>
<tr>
<td><strong>Indeterminate bovids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bov. II adult</td>
<td>4</td>
<td>.031</td>
<td>.2</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>juv.</td>
<td>1</td>
<td>.008</td>
<td>&lt;.1</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>Bov. III adult</td>
<td>14</td>
<td>.107</td>
<td>5.0</td>
<td>2</td>
<td>2.8</td>
</tr>
<tr>
<td>juv.</td>
<td>2</td>
<td>.015</td>
<td>.4</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td><strong>TOTAL INDET.</strong></td>
<td>21</td>
<td>.161</td>
<td>5.6</td>
<td>4</td>
<td>4.5</td>
</tr>
<tr>
<td><strong>Hunting: Non-ovids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Procapra caniceps</td>
<td>1</td>
<td>.007</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>TOT HUNTED NON-BOV.</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1,007</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Snares</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium sized bird</td>
<td>1</td>
<td>.020</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>TOTAL SNARED</strong></td>
<td>1</td>
<td>.020</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>Gathering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tortoise</td>
<td>3</td>
<td>.032</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Achatina sp.</td>
<td>3</td>
<td>1,500</td>
<td>&lt;.1</td>
<td>2</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Unio/Aspatharia</td>
<td>1</td>
<td>.250</td>
<td>&lt;.1</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>TOTAL GATHERED</strong></td>
<td>7</td>
<td>1,782</td>
<td>&lt;.1</td>
<td>4</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>TOTAL ANIMALS</strong></td>
<td>167</td>
<td>3,018</td>
<td>32</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-contributor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Canis mesocanis</td>
<td>2</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cf. civet</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cf. hyena</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large carnivore</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medium carnivore</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Loxodonta africana</td>
<td>8</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ledauleia mozambicensis</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trichoplora genus</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Chop marks indicate that the atlases were split cranio-caudally.

In T2/1-6, chop marks are common on cattle bones and are visible on most of the bovid material. Longitudinal splitting occurs on cattle scapula, tibia, metacarpi, metatarsi and phalanges as well as on a phalanx of a non-domestic Bov III, as well as on the ulna and metatarsus of a buffalo. Carnivore bones also have chop marks, for example a distal radius from a large carnivore (cf. hyena) and shearing, for example on the proximal radius from a jackal. The proximal end of a jackal ulna has been worn away. Chop marks on a fresh water mussel resulted in percussion flaking on the shell.

In T1/1-2 cut and chop marks are common particularly on cattle bones. Longitudinal splitting of bones occurs notably on cattle humeri, femora, first and second phalanges and on humeri and radii of sheep/goats.

Cut, chop and chisel marks predominate on the unidentifiable fragments and these vary in relative numbers for all units. In T2/1-6, the manner in which the ribs were broken differed from the lower unit. Instead of separating the rib from the vertebra at their junction, a number of specimens were chopped away on the shaft, resulting in ribs without articulation areas present.

Longitudinal splitting/shearing occurs on several vertebral pieces. In many cases the butcher separated the vertebrae medio-laterally and in others cranio-caudally. These patterns are seen on vertebrae from both units of Trench 2.

Cut and chop marks occur most frequently on rib fragments in T1/1-2. Also from this unit, two long bone flakes are stained green which may have been caused by copper nearby.

Little of the entire sample is actually burnt. Most bones have indirect heat damage that may have been caused by hot ash. Several bones from T2/5-7 appear to have been stained by manganese.

**PATHOLOGY**

Pathological remains are not common and those identified are mainly from Trench 2. Several cattle bones show two
Table 12. Dzata T2/7-8: number of skeletal parts. (E: elephant, R: rodent, nd: non-domestic, d: domestic).

<table>
<thead>
<tr>
<th>Skeletal part</th>
<th>E</th>
<th>Bov I</th>
<th>Bov II</th>
<th>Bov III</th>
<th>Bov III</th>
<th>Bov III</th>
<th>Bov III</th>
<th>R</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranial</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>16</td>
<td>14</td>
<td>18</td>
<td></td>
<td></td>
<td>46</td>
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<tr>
<td>Atlas</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Scapula</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7</td>
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<tr>
<td>Humerus</td>
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<td>1</td>
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<td></td>
<td>4</td>
</tr>
<tr>
<td>Radius</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Ulna</td>
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<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Carpal</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Femur</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Tibia</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Aastragalus</td>
<td>6</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Tarsal</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Metatarsal</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>Phalanx 1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Phalanx 2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>18</td>
<td>20</td>
<td>1</td>
<td>46</td>
<td></td>
</tr>
</tbody>
</table>

Teeth 1 2 1 3 1 3 1 11

TOTAL 1 3 3 2 2 21 21 4 57

Despite a wide variety of potential causes, this affliction is most likely due to physical stress, probably through the use of the animal for draught purposes. On the other hand, the exostosis present on the phalanx of a buffalo may be due to a stress fracture on a lower limb.

SKELETAL PART REPRESENTATION

Of the non-identifiable skeletal parts, miscellaneous pieces make up the single largest category in each unit followed by rib fragments (Table 8). In T2/8 there is a noticeable lack of skull, vertebra and rib fragments. A concentration of Bov III sized skull fragments comes from an isolated area of Level 7. The pieces are too fragmented for species identification but since several represent the same element more than one individual is therefore represented. A large concentration of skull fragments also occurs in T2/6. It seems that most of these pieces come from one Bov III sized individual.

Despite these pockets of skull fragments, post-cranial remains dominate the sample of identifiable fragments assigned to species in T2/7-8 as well as in the upper unit of this trench.

Teeth make up most cranial pieces in T1/1-2, most of which are from sheep/goats, followed by cattle and hares. Of the post-cranial cattle parts from T2/7-8 only astragali are over-represented when skeletal complexity and reconstitution is considered. All other remains are under-represented and several elements of the fore and hind quarters are not present. NISP shows that parts of the hind quarters are more prevalent than fore quarters (Table 12).

In T2/1-6 cattle metacarpals, ulnar carpal and the naviculo-cuboid are over-represented. All the larger limb bones are present while some of the small fore and hind limb bones are under-represented. Phalanges are under-represented, are dense elements such as calcanci,
astragali and a variety of carpals and tarsals (Table 13). Although carpals, tarsals and phalanges preserve relatively better than less dense bone, other factors may have been responsible for the distribution pattern.

In T1/1-2 (Table 14) cattle distal femora are over-represented but when all skeletal elements are considered, the hind quarters predominate (Fig. 4). Sub-adult cattle parts are few and hind quarters are again better represented. NISP counts for sheep/goats from both trenches are too low to calculate element representations. The distribution patterns of skeletal parts in other bovids vary. In T2/7-8 most of the bovids are represented mainly by fore limb remains. In T2/1-6 (Table 13), Bov II, Bov II non-domestic and Bov I elements are too few for any meaningful discussion on element representations. Bov III and III non-domestic have a few hind limbs represented, however, most of these are not from adults, save for some metatarsal fragments. Bov IV on the other hand has a relatively good representation of the large fore and hind limb bones.

**DISCUSSION**

At Tshitheme and Dzata, *Bos taurus* is most prevalent in all components and units and outnumbers sheep/goat. Herding predominates as the main meat procurement activity and hunting, snaring and gathering provide dietary supplements, however, in the upper unit of Trench 2 at Dzata, hunted animals are strongly present. In terms of meat yield at Dzata, sheep/goats contribute very little in QSP terms. According to MNI, cattle and sheep/goats are equally represented except in Trench 2/1-6 where the number of cattle is somewhat higher. The misrepresentation of MNI counts can be seen in the meat contributions of hunted bovids in comparison to herded animals in T2/1-6. According to QSP counts which present a more accurate picture of real contributions, meat from hunted bovids is much less, but still forms a significant part of meat yield relative to the other units.

In terms of age structure, cattle present a wide range of ages for both sites. It is difficult to assess slaughter practices in terms of selection for specific age groups based on small areas from only two sites. It can be pointed out however that the excavations at Dzata yielded a very low number of juvenile animals. This age distribution was not anticipated. I had originally assumed that since Dzata was a very high status settlement, a high juvenile presence should be identified, much like the situation at Great Zimbabwe's Hill Midden. It is believed that this high juvenile number was the result of an elite prerogative to receive and consume young animals (Thorp 1984; De Wet-Bronner, in press). The lack of this kind of evidence at Dzata may suggest that royalty and the king did not participate in this kind of consumption pattern or that the evidence has yet to be uncovered.

Despite the low specimen count, the Letaba component at Tshitheme has a relatively high juvenile sheep/goat presence. This high occurrence may be due to disease or to a greater exploitation of the younger stock to preserve cattle herd numbers. It is not possible at this point to interpret the juvenile sheep/goats in the Letaba phase as a prerogative of the elite residents to consume younger and therefore more tender meat. Furthermore, sheep/goat juveniles may not be very edible (although this is a Western opinion). Juvenile sheep/goat may have been of some importance but the small size of the trench and lack of samples from other parts of the site prevents any interpretation now.

In terms of butchering practices at Tshitheme and Dzata, trends can only be fruitfully explored with larger samples. However, some observations can be made. Chopping marks on limb bones and cranial elements are evidence of a relatively common practice of marrow and brain extraction. Chopping near the proximal and distal ends of long bones is another method of extracting marrow (Brain 1981; Voigt 1983). Evidence of chop marks on the skull may be the result of blows to either remove the horns or to render the animal unconscious. Chop marks on atlas elements indicate blows to sever the head from the vertebral column. Cutting along the rib surface was commonly done to remove the skin (Voigt 1983) and one often finds these incisions on ribs. The chop marks found on ribs from Tshitheme and Dzata could indicate a more drastic method of butchering the carcase, that is, chopping the ribs away from the vertebral processes. Rib remains at Dzata without articulated ends strengthens this assumption. What is also unusual is that it is generally more common for first
phalanges to be longitudinally split than second phalanges (Voigt 1983). At both sites however, some second phalanges were also split in this manner, meaning that these bones were likely in an articulated state and therefore split with single blows.

Domestic animal remains at Tshithemle are not numerous enough to warrant interpretation in terms of patterns of disposal based on skeletal element representations. However, the lack of wild bovid cranial remains from both the Mapungubwe and Letaba components may indicate that these bovids were processed or deposited elsewhere. More excavations would need to be done in other parts of the area before any valid remarks on this aspect can be made.

There may, however, be some evidence for status differentiation at this site, particularly in terms of non-domestic animal remains. A lion’s terminal phalanx from the royal area at Tshithemle (Trench 1) suggests high status. Traditionally all cat species are tabooed as food although they have ritual, medicinal and status purposes. The skins, particularly of lion and leopard, were given to the chief (Stayt 1931) and the lion bone may have been the remains of such a tribute. Finds such as wire bracelets and ceramic goods are similar to those from other Iron Age sites of the period. The fauna, along with these, are not unusual for middens near residences and the refuse in Trench 1 may have resulted from the activities of some royal wives.

It is however interesting to note that animals such as zebra, baboon and frog/toad occur together in the small Trench 2 at Tshithemle although it was sterile in other respects. The trench is close to the byre and may have been the dump for the court or the initiation enclosure to the northeast. The sample, however, is too small for firm conclusions. The baboon specimen suggests a medicinal role. Parts of the animal are used to prevent sickness and weakness in newborn babies and certain baboon bones such as astragalii are commonly part of an “nganga’s” divination kit (Stayt 1931; Plug 1987). The Venda also place ritual and medicinal importance on reptiles. I do not know the status of frogs and toads, but the specimens in this trench may have crawled there after the deposit was formed.

On the whole, cattle skeletal element representations are not remarkable at Dzata except for T2/1-2 where femora are over-represented. Based on relative density values for the post-cranial skeleton (Lyman 1992; De Wet-Bronner 1994) these femora do not have a high density. Other elements such as distal humeri and astragalii with high densities are present but not over-represented. This means that natural taphonomic agents may not have been the main factor involved in this representation and that the over-representation of femora may be related to human activities. Stayt (1931) notes that Venda chiefs usually receive the hind leg of cattle as tribute, especially during ritual occasions and when the slaughter requires his permission.

Other remains from Dzata, from Trench 2/1-6, may allude to social differentiation and court activities. The few sheep/goats suggest that lower status food may not have been readily consumed in the court. The larger number of non-domesticates, particularly carnivore, are in keeping with court activities. All the non domestic animals from this ‘court trench’ are adults, save for a juvenile hartebeest and sub-adult nyala, eland and non-domestic Bos III in levels 1-6 and juvenile duiker from the lowest levels. The juvenile and sub-adult non-domesticates in the assembly area midden may indicate a preference for younger and therefore more tender meat by court participants. Would this be an indicator for an elite prerogative to consume non-domestic animals rather than cattle? The large number of ivory fragments found in Trench 2, particularly in the lower levels, along with carnivore remains, suggests activities dealing with status. The negligible amount of unworked ivory, however, suggests that ivory bracelets were either worked elsewhere, traded or presented as tribute. A clay figurine from T2/3 is similar to those which Venda women use and then break during their initiation rituals (Loubser 1991:307).

CONCLUSIONS

For constructive discussions these sites have a starting point as both belong to the same settlement pattern. Unfortunately, in faunal terms these sites are restrictive. They were excavated under a somewhat different research design than that required by a faunal analyst. For the initial purpose they provided valuable information in terms of Venda social and economic history (Loubser 1988, 1991). In descriptive terms, the faunal evidence is informative, but fruitful interpretation of socio-cultural activities would be tenuous at best. I have not conducted inter-site comparisons to any great extent. I have, however, presented some interpretations but these are, at the moment, primarily assumptions. Attempting to interpret the evidence in terms of patterns of disposal and evidence for activity areas is a difficult task when excavations are not aimed specifically towards this level of enquiry. Natural taphonomic factors need to be deciphered on general as well as the site level and cultural models need to be created. The former has been looked at by many, but more work needs to be done. Cultural modelling has yet to be attempted to any great extent (see Mack et al. 1991). In terms of these weaknesses, a few observations have been made here. Ultimately, an investigation concerning spatial patterning of traditional Venda settlements is needed. We know something about the settlement layout at a number of archaeological sites in the Soutpansberg but have yet to test this in relation to the faunal evidence on any intensive, theoretical level.

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ACQUISITION OF EUROPEAN LIVESTOCK BY THE SEACOW RIVER BUSHMEN BETWEEN AD 1770-1890*

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ABSTRACT

Published and archival records are surveyed for eyewitness accounts of European livestock passing into the hands of the Seacow River Bushmen. On the northeast border of the Colony systematic Bushman raids on trekboer herds were common in the late 1700s. Amnesty after 1798 drew Bushmen groups into the vicinity of each farmstead, where they received regular handouts of offal and occasional whole sheep or goats. Client herders and full time shepherds were drawn from this fluid labour pool. Wages included whole sheep or goats and occasionally cattle. Mission Bushmen and some farm Bushmen became herd owners in their own right. These indigenous herders disappeared from the landscape after 1880 when the last of the Crown Lands were sold off and the first fences were erected. Archaeological implications of these events are explored in terms of livestock remains to be found in local rock shelters.

INTRODUCTION

At the end of the 18th century the Seacow River valley had become a small but strategically significant segment of the Cape Colony’s expanding frontier. Here, the northward spread of Dutch trekboer settlement was first effectively halted by spirited resistance from resident Bushmen, especially in the valley headwaters of the Sneeuberg Mountains. (Fig. 1 top). An uneasy peace was achieved after 1800, and scores of trekboer farms were established in the upper and central valley. Bushmen were drawn by gifts and food to live near the new farmsteads and some were recruited as farm labour. Others lived on Crown Land between the farms, their numbers being steadily reduced as trekboer farms proliferated. Mission stations just beyond colonial borders flourished briefly, generating a new class of “oorlams” Bushmen, but the stations were shut down. When the border was moved up to the Orange River, further land seizures submerged these mission communities. By the 1840s when the first towns sprang up around the valley, most unattached Bushmen were partly acculturated and some were drawn into slum communities where they lost their ethnic identities. By the 1870s, when the last of the Crown Land was sold off to stock farmers, unattached Bushmen could only survive as stock thieves.

During the hundred years between 1770-1870, all Seacow River Bushmen became acquainted with classic

Fig. 1. Farms registered (but not all occupied) on the north eastern rim of the Colony at the end of the 18th century.
European livestock and many individuals completed the transition from hunter to herder, a process of general interest to prehistorians. Here, the several pathways by which frontier Bushmen obtained domestic animals are explored, together with their archaeological implications.

PATHWAYS TO STOCK OWNERSHIP

The processes by which livestock came into the hands of Seacow River Bushmen were varied and complex. An early phase of stock raiding between 1770 and 1790 dwindled to episodic raids by robber bands. After about 1825 such stock thieving had become a minor if persistent feature of frontier life. Between about 1800 and 1830 great numbers of livestock were passed to Bushmen in the form of organised subscriptions by local farmers, but this process declined between about 1830-1850. Meanwhile, individual farmers were regularly handing out offal and whole sheep to the Bushmen in the immediate vicinity of their own farmsteads. These same farmers were using certain Bushmen as part-time shepherds and these gradually spent more of each year in service and less in foraging activities beyond the farm. Unattached Bushmen were also entrusted with whole flocks while unclaimed grazing land was still available. Running parallel to these trends, both attached and unattached Bushmen began to build their own herds. Unattached Bushmen started with the surplus handouts from subscriptions or from systematic training at the brief-lived mission stations. Attached farm Bushmen accumulated livestock more slowly from annual wages, but were more successful as they had the protection of a trekboer patron.

Early stock raids

The first Dutch trekboers to establish farmsteads in the upper Seacow valley (Fig. 1) were repeatedly attacked by Bushmen whose tactics were to systematically steal and destroy the livestock (State Archives 1770-1775). This was but a small part of their larger campaign to rid the Sneueberg Mountains of Europeans (Van der Merwe 1937). Loan Place records show that most farmers were driven off in 1777-1778 and some places were repossessed, often by new farmers, in the 1780s. Raids on some of these farms were documented. The earliest recorded cattle raid in the valley was in April 1773, but the report (Moodie 1960 III:65) indicates that it was not the first. In 1775 the same farmer again lost beasts; this time 18 working cattle and a few months later 200 sheep were stolen. In January 1776 he repelled a night attack, but in March he lost saddle horses (ibid.:43, 67, 52-53). In November 1777, he lost four cattle to poison arrows and another four were stolen (Raper and Boucher 1988:82), after which he gave up.

By January 1776 the second farmer was already in regular pursuit of robbers (Moodie 1960 III:52). Having lost more than 1500 sheep in a snow storm in August 1776 (Raper and Boucher 1988:180), he suffered further attacks. By October 1778 he had lost everything and abandoned the farm (Godée-Molsbergen 1932:39).

The third farmer lost his cattle herd in 1775, with one animal left severely wounded by arrows and two of his dogs killed (Moodie 1960 III: 44). In August he lost his whole sheep flock. Then in January 1776 he lost 23 cattle and two of his herdsmen were murdered. In March of that year he lost some saddle horses. There are no further reports until March 1780 when he again lost livestock (ibid.:46, 52-53, 103), although it is not clear from which of his Sneeueberg farms they were taken.

Stolen livestock from these and several neighbouring farms were being driven beyond the limits of European settlement. At this time the upper and middle reaches of the valley served as a base from which to raid southwards and a refuge into which to flee from pursuing commandos. Rock shelters were particularly useful for these purposes. A commando of 1775 overran one such cave on the east flank of the upper valley, yielding "the hides of cattle, and fresh mutton and suet" (Moodie 1960 III:45). Picking through the possessions of Bushmen they had massacred on the banks of the river they found "ox hides and horns", and at a camp farther downstream "the head of an ox, which had been slaughtered by the Bosmans, but the flesh of which [had been] consumed" (ibid.). Another attack on shelters on the east flank of the valley produced "more hides and sheep skins than we had ever been accustomed to find in any field of battle ("verslagen plekken")(ibid.: 46). In the same year another commando in the valley headwaters overran a kraal with "the hides, horns and fat of cattle" (ibid.:67). A further report in 1779 tells of a commando attack on an open camp to the west of the upper valley which yielded "great numbers of hides and skins of cattle and sheep, of which the flesh had been consumed". They travelled down stream, attacked another open camp, finding "as before mentioned, hides and skins" (ibid.:82).

Later patterns of stock theft

The war for possession of the Sneeueberg dragged on into the 1790s, culminating in two decisive commando raids which partly broke the Bushman resistance (Van der Merwe 1937:18, 49-50) after which attacks on stock in the mountains tailed off (De Kock 1965:261). By 1797 there was a nervous group of families farming together in mid-valley (Barrow 1806:253-4), but there were still only five occupied farms in the valley as a whole by the end of the century (Van der Merwe 1937:115).

In the late 1790s stock theft was still a constant concern (Barrow 1806:231) and in 1803 Lichtenstein reported "The smallest loss that can be expected from their maraudings must be estimated at five out of every hundred sheep and oxen annually. The inhabitants of the outer Snow Mountains are more particularly exposed to their incursions; and many a farmer has on single occasions suffered such heavy losses as to throw him several years behind hand in his circumstances" (Plumptre 1815 II:5).

By 1803 there were a few new farms in the upper valley and several in the middle reaches (Sampson et al. 1994). Although 1804 was a drought year, it is notable
in that there were no robberies (Plumptre 1815 II:74). In 1808 a minor land rush on the east side of the valley brought settlement right up to the colonial border. Although a fragile peace prevailed by then, memories and grievances were still fresh and visitors were warned that "some kraals ... continued ill-disposed" (Moodie 1960 V:2). Tensions never fully subsided (Burchell 1824 II:80) and gradually rose again throughout the area. A Circuit Court report of 1813 (a drought year) nicely summarizes the state of affairs: "It is extremely difficult to say whether one lives in peace or war with the Bosjesmen. They are sometimes quiet for a long while, ... but all of a sudden they appear ... plundering and destroying everything" (Van der Merwe 1937:82).

Stock theifing rates inevitably increased during drought years (Reyneveldt 1835:114). The years 1815-1818 were especially harsh and again in 1821-22 (Van der Merwe 1937:179-185). There were major thefts in the upper valley in 1821 (Meyburgh 1835a:95). Armed thieves returned musket fire on their pursuers in 1822 (Van der Walt 1835a:58, 1835b:89). A robber band was operating on the west side of the valley in 1824 (Oberholzer 1835:90), the same year a robber kraal was overrun. It contained 12 horses and 24 sheep and goat's heads (Meyburgh 1835b:100).

By 1843 Bushman stock raids were only the subject of storytelling (Cumming 1850:95) and local farmers writing of their experiences in the 1840s (Nicholson 1848, Orpen 1908) make no complaints of stock theft.

Stock theifing rates in the second half of the 19th century have yet to be studied in detail, but anecdotes and common sense dictate that overall losses would have gradually decreased between 1840 and 1890 to isolated thefts by individuals operating in the most difficult terrain (e.g. Anon 1869). Court records reflect a low level of stock theft by farm Bushmen, usually on those farms nearest to the towns. Thefts on more distant farms probably never made it to court and most thefts by unattached Bushmen went untried (G. Silerbauer pers. comm.). After 1890 nothing more is heard of them in the local court records (Gutsche 1968:190).

Livestock subscriptions

Earl Macartney's proclamation of July 24 1798 from Cape Town (the Colony was by then in British hands) spelled out alternative strategies for dealing with the Bushmen. There were to be no more commands except as a last resort and the taking of children was outlawed. Local authorities were ordered to assign land to Bushmen, to appoint Bushman leaders with whom to negotiate and to levy sheep from farmers to be distributed at intervals among the Bushmen.

The Seacow valley farmers complied promptly, as shown by a sheep distribution list dated 1798 (State Archives 1/GR/14/6). The farmers would have been introduced to this new approach by their landdrost A. Stockenstrom Snr. of the Graaff-Reinet district. A Circuit Court entry of 1811 notes "... it is plainly to be seen that this system (namely the making of collections) and the helping of the Bosjesmen, which was promoted and encouraged by the late landdrost Stockenstrom, who frequently went for that purpose to the boundaries of his district, has had the most desirable effect". (Reyneveldt 1835:114). Evidently farmers quickly grasped the good sense of this strategy and needed little persuasion to carry it out; "... several of the inhabitants who reside at the boundaries, for the sake of their own peace and safety, make a point of assisting the Bosjesmen who live in the neighbourhood: now and then a subscription was made of goats and sheep which were divided among them at different times ... and especially that such like collections of cattle were necessary in dry years, when it was not possible for the Bosjesmen to penetrate in to the ground, and who therefore cannot procure their usual food" (ibid.:113). Farmers also doled out livestock on their own initiative, for example, "Van Heerden residing at Sneuberg had another grazing place at the boundary of the colony ..." gave the surrounding Bushmen various gifts "and now and then a goat or a sheep" (ibid.). Although this same report of 1811 notes that Bushmen and trekboers "at present live at perfect peace", this was short lived.

Others dreaded the long term consequences. Collins, for one, told Parliament "the practice of subscribing sheep and cattle for the Bosjesmen ... should be put an end to. It tends to make them suppose that the colonists fear them; and besides, it would be impossible to supply all their nation with a sufficient number for its consumption, even if they were careful of them, which they are not; and by giving them to those on the borders such as are more distant, are induced to come nearer, and consequently increase the evil" (Moodie 1960 V:37).

One effect of this new strategy was that Bushmen began to spend more time near the farms where there was now a dependable source of meat. When Collins and Stockenstrom Jr. rode through the valley in 1809; "on every farm between the great Sneeuwberg Chain and the Orange River, we found a Bushman family, or kraal" (Hutton 1887:39). On approaching a farmstead, the riders were greeted by "the welcome songs of the numerous Bushmen scattered among the rocks above the Hartebeest [reed] hut, for substantial buildings were few indeed ..."(ibid.). At some farms, whole bands were gathered, for example; "Having understood that some Bosjesmen were in the neighbourhood, they were sent for, and a party of 13, mostly women, arrived". (Moodie 1960 V:2), so that the outlay in livestock could be quite large at times.

In spite of the costs, distributions remained a feature of frontier life long after the colonial frontier was moved up to the Orange River. Surviving lists dated 1827 (State Archives 1/GR/14/6) show that donations of sheep and goats were still being made in all parts of the valley.

Passing travellers were rare enough to be insignificant contributors. Although Governor Janssens in 1803 (the Colony was then briefly under Batavian rule) rewarded Bushmen "with a couple of sheep" (Blommaert & Wild 1937:237), this was for rescuing one of his retinue from drowning. Apart from this exceptional case we have found no other examples of livestock handouts by
travellers, who usually gave tobacco and trinkets.

**Part-time shepherds and client herders**

Farm servants, including shepherds, were recruited out of the new symbiosis brought about by the periodic distributions. Thus in 1811; "At Sneuwerf ... the Bosjemen live mostly with the inhabitants, where they serve as herders, with full as much care and attention as the Hottentots themselves". (Reyneveldt 1835:113). At first, this service may have been erratic; "We found many of those Bosjemen ... at different places, and also in the service of the inhabitants, partly tending their cattle; but who, being as yet completely wild and bordering on barbarism [nonetheless] several of them actually live ... even at and with the inhabitants; (ibid.:114). And again in 1813; "At Sneuwerf ... met with Bosjemen in the families of several of the inhabitants; at some places the whole of the servants consisted of those people, some of whom performed the household work, and others again took care of the cattle." (Berrange & van Ryneveldt 1901:95). In 1823 Thompson still found Bushmen in the lower reaches of the Seacow valley "living on friendly terms with the boors and doing little services occasionally, they also come in for the offals of the cattle killed for food" (Thompson 1827:61). Bonamy and Stockenstrom Jr. were at about this time fixing the new colonial boundary line in the same area and could report that "all the [Bushmen] we saw lived with the inhabitants [trekboers] who fed them and hunted for them to keep them on good terms; in return for which they assisted in herding cattle in as far as they pleased, being bound by no engagements, fully at liberty to stay as long as they liked, and to go away when they thought proper ..." (Stockenstrom 1835:117).

It was quickly observed that certain Bushmen were excellent and skilled shepherds who knew where the best grazing was to be had beyond the limits of the farmer's boundary. Evidently parties of unattached Bushmen were on occasion used by the trekboers as client herders, especially when local grazing was poor. When Collins' party in 1809 passed by a Bushman kraal "Many of them followed us and took charge of our sheep and spare teams; a trust often reposed in that people by the farmers, and which they have never been know to abuse" (Moodly 1960 V:2).

Melvill reported in 1821 a conversation with a lower valley farmer who told him "... for a few years past [this plan was to keep a flock of goats to supply the Bushmen with food in seasons of great want ... but they became very serviceable to him in taking care of his flocks in dry seasons. He said that on such occasions, when there was no pasturage on his own farm, he was accustomed to give his cattle entirely in to the hands of a Chief of a Tribe of Bushmen, who lived near him, and after a certain period they never failed to be brought back in so improved a condition that he sometimes scarcely knew them to be his own" (Melvill 1825:2).

After the great drought (and temporary exodus of trekboers across the Orange River) in the 1830s, these patterns of dependency may have been disrupted because there are no more references to part-time or client-herders. Permanent farm staff still walked off the job periodically (e.g. Steedman 1835 I:135; Orpen 1908:8), so it must still have been possible for them to forage for part of the year on unclaimed land. After about 1850 it seems that farm shepherds were more or less permanently employed (Nicholson 1848:61).

**Full time herders**

Three different pathways led the Seacow River Bushmen to become herders in their own right. These led from the subscription system, from staff wages, and (briefly) from mission education. The first route involved farmers giving unattached Bushmen more livestock than they could ever eat at a sitting, then encouraging them to husband their new-found surplus. Herding by subscription seems to have worked. By 1811 Reyneveldt (1835:113) could report "... that formerly the Bosjemen could never be brought so far as to keep breeding cattle of their own, but that there were now kraals which had small flocks of goats, which had been divided in that manner, and which had already bred". This was not always an unqualified success, and Bushman herders were themselves attacked by other ethnic groups.

Thus in 1826 we have Stockenstrom Jr. complaining; "Often voluntary contributions have been made in cattle to set particular peaceable kraals going as breeders. In 1818, I retook from the Caffres upwards of 2,000 sheep and goats, which had from time to time been given to Bushmen by Boors, and taken by the Caffres from the kraals which they have destroyed ... that flock was again distributed among their kraals, and subsequent collections were made, but of all this little is left. Last year the Coxannas took the whole flock belonging to one kraal; the chief of these applied to the field cornet for a commando against the Coxannas, which of course could not be granted" (Stockenstrom 1835:119). A rock painting on the east rim of the central Seacow valley, showing Bushmen driving off cattle with Bantu men in hot pursuit (Wyley 1859:38), suggests a longer history of mutual stock raiding between Bantu and Bushmen.

From across the Orange River the Korannas also stole livestock from the Bushmen; again in 1818 Stockenstrom (1902:35) reported "Several parties of [Bosjemen] which I met with complained of having been attacked by the Bastards, the few cattle which they had from time to time received from the Colonists taken away".

The second and safer pathway to independent herding was within the confines of domestic service to a trekboer. Early on it became standard practice to pay farm labour partly in livestock, and some servants patiently built up their own herds. Thus Collins to Parliament in 1809: "... they are paid by a determined quantity of clothes, by food for themselves and families, and a certain number of sheep and cattle annually" (Moodly 1960 V:37). By 1839 a few private herds had been built, under the protection of the trekboer employer, into large number, for example, "... some of them have accumulated stock, by receiving in addition to their small wages and food,
three or four sheep, or a cow, once a year. These have increased and in the lapse of time, the property of some of the Bushmen has become considerable. One of them, in the employment of one of the Field-Corntons of this district [Colesberg] whom he had served thirty years, was said to possess sheep and cattle to the value of about £1,000 (Backhouse 1844:341-2). It is quite likely that some of the "bywoner" houses, the ruins of which are common in the Seacow valley, belonged to such Bushmen staff members. Already by 1839 Backhouse, who was less squeamish about calling on such people than were most contemporary travellers, went up to "a few Bushmen's huts, and the remains of two mud houses, at a little spring ... some milk was obtained" (ibid.:477).

In 1844 the complaints of a Sneeuwberg farmer about the expense and trouble of his farm staff sound as if they were uttered yesterday, with one important exception; his remark "... besides giving them pasturage for their little flocks of goats and sheep" (Nicholson 1848:61) would not be heard today. Perhaps the advent of fencing and the steady deterioration of pasture due to drought and grazing put pressure on farmers to put a stop to their own staff owning flocks. In any event, they are not a feature of the modern landscape.

The third process by which Bushmen converted to independent herders was through the short-lived mission stations at Toverberg and Hephzibah in the lower reaches of the Seacow valley. Toverberg [at modern Colesberg] was opened and in 1814. In October of that year there were "... 38 oxen, 61 cows, 459 sheep and goats, and 11 horses" (Sales 1975:60). Bushmen were encouraged to settle there and "... were supplied with some cattle and sheep. These were probably donated by well-wishing members of Kircherer's Dutch congregation at Graaff-Reinet" (ibid.:61). Hephzibah was open in 1816, when two kraals were built for cattle and sheep (Gutsche 1968:34). At their peak in 1817 the two stations concentrated 1600-1700 Bushmen, a density which doomed them both. They were ordered closed by the authorities, under pressure from suspicious Boers who saw them as safe havens from which to launch raids. "Wild" Bushmen also stole regularly from the mission herds.

After closure, the now unprotected mission community was driven out by trekboers (Philip 1828 II:30) and some members of these stations were savaged by Bantu-speakers and Griqua raiders in the drought year of 1818 (Van der Merwe 1937:155). Others survived to 1820 and still tended their own livestock (Campbell 1822:31). A year later another traveller reported "Seeing a Bushman village or kraal about a quarter of an hour's ride from the road, I went to it ... on the brow of the hill were seen grazing a flock of goats, and a number of young kids were tied to stakes around their huts ... they had belonged to the late Hephzibah ... one or two spoke a little Dutch ... van der Walt ... to whom, I believe, they were indebted for the goats I had seen". (Melvill 1825:2). It remains uncertain whether any of these "oorlams" mission-trained herders eventually became "bywoners" on Seacow valley farms, but some of them certainly became the stockless retainers (Philip 1828:28).

Second half of the 19th century

The villages of Richmond, Middelburg and Hanover were established around the rim of the upper valley in mid-century, while Colesberg had been in place since 1830. Farm Bushmen drifted in to form squaild settlements on the edges of the new centers. Here, their original identity was gradually eroded as they mingled with Khoi Griqua, Fingo, Basuto, Tswana (Gutsche 1968:135). Some of these outsiders were recruited as farm labor. In the slums they became easy prey to epidemics (Le Fanu 1860:194-5; Slome 1929). Although the countryside fared better, some communities of farm Bushmen were also decimated (Gutsche 1968:124). The village stores rapidly drew the whole valley into a cash economy, although stock was still used as legal tender (Casalis 1889:133)

In 1856, the Crown Lands were criss-crossed by wagon tracks (Neville et al. 1994) and contained only sparse game; Bushman vagrants were seldom seen (Spies 1952:135-137). Bushmen still using the unclaimed land for grazing, hunting and gathering continued to be forcibly removed by annexures (Backhouse 1844:342). The seemingly endless supply of game animals, after a century of relentless hunting, began to collapse. Communal game drives (Steedman 1835:138) had taken their toll and game was being shot for export (Bryden 1889:293). The last lions were shot out by 1865, making life easier for the herdsman. The last migrating springbok passed through the lower valley in 1872 (Gutsche 1968:191), further easing the herdsman's worries. However, the loss of food plants to overgrazing and erosion (Shaw 1875) and further game extinction (Holub 1881:38) offset these advantages.

The last unattached Bushmen survived the drought-locust-springbok cycles of 1861-1865 by increasing their rate of stock theft. In 1880 the last patch of the Crown Land was taken (Sampson & Sampson 1994). Borehole and windmill technology swept through the Karoo (Noble 1886:233; Bryden 1889:429). Pioneer attempts to divide farms into grazing camps with stone walling was superseded gradually after 1880 by wire fencing (Noble 1886:241-243). Jackal-proof mesh fencing (Bryden 1889:249) spelled the end of the night- kraaling tradition and also the end of the traditional shepherd. No published mention has been found of independent Bushman herders during these rapid and radical changes to the valley's cultural landscape.

SOME ARCHAEOLOGICAL IMPLICATIONS

Given all the above, we may reasonably expect to find sheep, goat and cattle remains in rock shelter deposits in the Seacow valley. Domesticate remains should first appear at the base of the upper (post-European Contact) accumulation in any excavated rock shelter, but the frequency of finds and subsequent fluctuations in numbers can be expected to vary with local circumstances. As a general rule, shelters near pioneer trekboer farm houses can be expected to contain more remains than shelters surrounded by Crown Lands, at
least until the 1870s when the latter were sold off. Shelters in Crown Land, but near to unregistered (or hired) grazing posts or close to main wagon roads could still absorb livestock remains. However, eyewitness accounts of such interactions are not forthcoming.

Post-Contact levels dating to 1770-1800 will contain domestic remains largely resulting from stock raids. Remains of stolen stock in 1800-1825 accumulations will be supplemented by specimens from periodic subscription handouts, by regular local handouts from the nearest farmer and by specimens given as wages to part-time, full time, and/or client herders. The mix of all these sources with stolen livestock will depend on distance to the nearest farm and on local farmer/Bushman relations in the vicinity of the accumulation. Rare specimens of own-herd livestock remains may appear at this level, and could proliferate in some shelters frequented by private herders.

Obviously it will not be possible to identify remains deposited from specific sources or via specific pathways, but the forgoing may help to infer the range of sources in certain dated lenses of domestic remains. It helps if the position of the shelter containing the deposit is firmly mapped into the cultural landscape of the contemporary frontier.

During all this time it was essential to kraal livestock at night to prevent losses to predators, particularly lions. Bushman shepherds who knew the terrain would naturally select shelters that might serve as kraals or, as all rock shelters are very small, they would build stone walled kraals close to rock shelters in which they themselves could sleep. As shepherds became more attached to their employers, so the frequency of shelter use by unattached Bushmen must have declined. Consequently livestock remains from fills post-dating the 1850s are more likely to be residues from shepherds meals.

After about 1840 the frequency of livestock remains should increase as the remains of game start to decline in the shelter fills. More cheap English goods should appear with the livestock remains, reflecting increased local availability. The principal occupants of the shelters would be shepherds, but their ethnic identity becomes less certain with time. By the 1890s shepherds were less likely to be using the shelters, although some shelters may have been briefly used by the first wire fence builders.

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EUROPEAN LIVESTOCK FROM ROCK SHELTERS IN THE UPPER SEACOW RIVER VALLEY*

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ABSTRACT

Livestock remains from nine rock shelters in the upper Karoo are associated with European artifacts. Domesticates are absent from immediately below the first Dutch Contact horizon and remains correlated with the earliest recorded Bushman stock raids (AD 1770-1800) were not found. The earliest post-Contact remains are mainly head and foot elements from sheep, reflecting Bushman/trekboer interactions in the amnesty period (AD 1800-1820). These are overlain by increasing remains of hind and fore quarters, coming in mainly as gifts or wages of part carcasses to farm Bushmen. Cattle remains are scarce except at one shelter near a stock post. Goats, donkeys, turkeys and chickens are rare occurrences.

INTRODUCTION

Domestic livestock remains have been recovered from the uppermost levels in deposits of nine rock shelters in the upper Seacow valley in the upper Karoo (Fig. 1). These invite comparisons with the documentary record of European livestock acquired by historical Bushmen in the same area (Moodie 1960; Raper & Boucher 1988; also see Sampson, this volume).

Although dry stone walling occurs across the mouths of five shelters (Fig. 2), only one was used as a stock enclosure: Abbot’s Cave is capped with dung, indicating that it contained live sheep and/or goats at the end of its occupational history. Most other shelters were probably used by shepherds who corralled their flocks nearby. Leeuhoek shelter overlooked the original farmstead and may have housed field and/or domestic staff.

Items of European manufacture were interspersed with the livestock remains found in all shelters. Glass trade beads (Saitowitz & Sampson 1992), glassware and metalwork (Crass & Sampson 1993a), earthenware (Moir & Sampson 1993), clay pipes (Sampson 1993), gunflints and ammunition (Westbury & Sampson 1993) and clothing attachments (Crass & Sampson 1993b) all point to a European source for the domestic fauna associated with them. A thin copper sheet pendant is the only item of possibly non-European manufacture (Maggs 1994). At these same levels the frequency of stone artifacts, the traditional tools of the Bushmen, drops off sharply (Pease 1993), although indigenous potters thrived for slightly longer (Sampson et al. 1989).

Most European household wares were first introduced into these sequences in about 1840-1850 when a flood of cheap English goods was rapidly distributed to upper valley farms via the new stores at the villages of Richmond and Middelburg. Within a short time these items were reaching the Bushmen communities living around district farms. Before this time, only a few glass trade beads and lead grapeshot fragments had reached the shelter deposits.
The same levels show a very rapid decline in the density of wild game remains, particularly at shelters near farmsteads. Faunal remains below the European marker horizon are usually so dense that they resemble bone middens. The sudden drop in faunal density at about 1840-1850 can be equated with the systematic extermination of game by local trekboers. (Sampson & Plug 1993). Straddling this sharp marker horizon is a dense layer of ostrich eggshell fragments, probably reflecting the increasing dependence of resident Bushmen on the eggs, as their staple meat supply disappeared (Sampson 1994). While domestic flocks came to replace the game, overgrazing caused a general decline in grass cover, as reflected in the pollen record (Scott & Bousman 1990) and the influx of desert-adapted micromammals (Avery 1991).

The trekboers were not the first to introduce livestock into the Seacow valley. At Haaskraal shelter, sheep and cattle remains are directly dated by the AMS-radiocarbon method to ca 500-400 BP (Plug et al. 1994), suggesting a minimal age for the many hundreds of low stone walled stock enclosures concentrated on the west side of the upper valley (Sampson 1985, Hart 1989). Possible pre-Contact domesticates are present in several other shelters, but always in small numbers (Figs 3-5).

**CONTEXTS OF THE DOMESTIC FAUNA**

Domesticates from the post-Contact levels of each shelter form discrete lenses, in some cases separated by very thin, livestock free deposits. In the following sections, the configuration and content of each lens is briefly reviewed.

**Volstruisfontein Shelter**

A detailed contextual analysis (Plug et al. 1994) of domestic fauna from the small trench in Volstruisfontein (Fig. 2) suggests that four pre-European sheep and sheep/goat remains may be present in this fill (Fig. 3). Twenty other fragments are firmly embedded in two separate lenses within the post-Contact levels. The lower lens at the rear of the shelter has 1840-1860 artifact associations; there are 10 domesticate fragments (Table 1) representing at least one sheep/goat. Only three pieces can be firmly ascribed to sheep (*Ovis aries*).

The upper lens is more widely distributed and has 1890s artifact associations; there are two molar fragments of cattle (*Bos taurus*) and only eight fragments representing at least one sheep/goat; one fragment can be firmly ascribed to sheep (*Ovis aries*).

**Haaskraal Shelter**

Stratified above the pre-European livestock at Haaskraal (Fig. 2), are three lenses of post-Contact domesticates. The topmost lens has artifact associations of 1870 or later; the other lenses predate this, but without
precision (Fig. 3). The lowermost lens forms a widespread sheet of remains with localized concentrations (Plug et al. 1994: fig. 7). It is dominated by sheep, although cattle are present. There is also a rare specimen of donkey (Equus asinus), of chicken (Gallus domesticus) and a small patch of turkey (Meleagris gallopavo) bones (Table 2). The middle lens is smaller and patchy, dominated by cattle remains. The proportions of the very scattered upper lens are more like those of the lower sample, but there are more fragmented and less diagnostic (Ovis/Capra) remains. A single chicken bone came from the surface deposits.

Bloubos Overhang

The small sample from Bloubos overhang (Table 3) comes from a 1m square test pit. Dating is imprecise: European artifacts were not recovered in situ, but most domesticate specimens are in the fill above the main bone midden and the ostrich eggshell sheet, thus their post-Contact status is not in doubt. Of the seven sheep/goat fragments recovered, only three can be firmly ascribed to Ovis aries.

Driekoppen Shelter

The rich upper deposits at Driekoppen (Fig. 2) are wind-lagged, possibly because the shelter surface was in heavy use for dance rituals (Pease 1993). Consequently the bone midden and the overlying ostrich egg shell sheet have merged into each other. Also, horizontal recording of some specimen positions is imprecise. Datable artifacts

Table 2. Haaskraal: NSIP (and MNI) per species and lens.

<table>
<thead>
<tr>
<th>Species</th>
<th>Lens</th>
<th>lower</th>
<th>middle</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries</td>
<td>sheep</td>
<td>79 (4)</td>
<td>14 (1)</td>
<td>28 (1)</td>
</tr>
<tr>
<td>Ovis/Capra</td>
<td>sheep/goat</td>
<td>35</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>Bos taurus</td>
<td>cattle</td>
<td>33 (3)</td>
<td>16 (1)</td>
<td>7 (1)</td>
</tr>
<tr>
<td>Equus asinus</td>
<td>donkey</td>
<td>1 (1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gallus domesticus</td>
<td>chicken</td>
<td>1 (1)</td>
<td>-</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Meleagris gallopavo</td>
<td>turkey</td>
<td>5 (1)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>154 (10)</td>
<td>42 (2)</td>
<td>49 (3)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Lens</th>
<th>II, III, IV, V</th>
<th>II, V, VI</th>
<th>II, V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis &amp; Capra</td>
<td>elements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cranial &amp; axial</td>
<td></td>
<td>30</td>
<td>14</td>
<td>16</td>
</tr>
<tr>
<td>Fore &amp; hind quarters</td>
<td></td>
<td>13</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Ankle &amp; foot bones</td>
<td></td>
<td>71</td>
<td>5</td>
<td>13</td>
</tr>
<tr>
<td>All fore limb elements</td>
<td></td>
<td>21</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>All hind limb elements</td>
<td></td>
<td>13</td>
<td>7</td>
<td>7</td>
</tr>
</tbody>
</table>

Tooth eruption stages

<table>
<thead>
<tr>
<th>Species</th>
<th>Lens</th>
<th>II, III, IV, V</th>
<th>II, V, VI</th>
<th>II, V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bos taurus</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Bloubos: NISP and MNI.

<table>
<thead>
<tr>
<th>Species</th>
<th>Lens</th>
<th>II, III, IV, V</th>
<th>II, V, VI</th>
<th>II, V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries</td>
<td>sheep</td>
<td>3 (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ovis/Capra</td>
<td>sheep/goat</td>
<td>3 (1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>6 (2)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Species</th>
<th>Lens</th>
<th>II, III, IV, V</th>
<th>II, V, VI</th>
<th>II, V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis &amp; Capra</td>
<td>elements</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cranial &amp; axial</td>
<td></td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fore &amp; hind quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ankle &amp; foot bones</td>
<td></td>
<td>4 (2 unfused = Juvenile)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Ovis/Capra) remains. A single chicken bone came from the surface deposits.
Fig. 4. Composite sections of two adjacent rock shelter deposits, showing positions of 25 cm x 25 cm excavated blocks yielding livestock remains, in relation to positions of European artifacts. See Fig. 3 for key.

Table 4. Driekoppen: NISP (and MNI) per species and lens.

<table>
<thead>
<tr>
<th>Species</th>
<th>Lens</th>
<th>NISP (Species)</th>
<th>MNI (Species)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>lower/middle</td>
<td>20 (1)</td>
<td>72 (3)</td>
</tr>
<tr>
<td>Ovis aries</td>
<td>sheep</td>
<td>12 (1)</td>
<td>38 (2)</td>
</tr>
<tr>
<td>Capra hircus</td>
<td>goat</td>
<td>-</td>
<td>2 (1)</td>
</tr>
<tr>
<td>Ovis/Capra</td>
<td>sheep/goat</td>
<td>8</td>
<td>32</td>
</tr>
<tr>
<td>TOTALS</td>
<td></td>
<td>20 (1)</td>
<td>72 (3)</td>
</tr>
</tbody>
</table>

Ovis & Capra elements

<table>
<thead>
<tr>
<th>Component</th>
<th>lower/middle</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cranial &amp; axial</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>Fore &amp; hind quarters</td>
<td>2</td>
<td>17</td>
</tr>
<tr>
<td>Ankle &amp; foot bones</td>
<td>11</td>
<td>41</td>
</tr>
<tr>
<td>All fore limb elements</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>All hind limb elements</td>
<td>1</td>
<td>22</td>
</tr>
</tbody>
</table>

Tooth eruption stages

| Ovis aries | III | II, V |

are scarce, being mostly glass trade beads. Nevertheless, three lenses of livestock remains appear in this compressed stratigraphy (Fig. 3). There are no cattle remains present (Table 4), but two oviscaprines from the abundant upper lens can be firmly attributed to goat (Capra hircus).

Abbot’s Cave

Associated charcoal dates at Abbot’s Cave (Fig. 2) indicate pre-European livestock probably at ca 500 BP (Fig. 4). There is a well defined gap above the pre-Contact remains, followed by the lowest lens of post-Contact domesticates. This lens also contains artifacts dating to ca 1830 at the earliest, but there are glass beads which may be older. There is another short gap, then a more extensive middle lens in the front of the shelter. Most artifacts date to the 1840-1860 range. There is poor separation between the middle and top lenses. The latter is in compact sheep dung extending to the back of the cave and containing much fresh bone, with artifacts dating between 1890-1910. It also contains traces of older material kicked up from ground squirrel burrows (Plug 1993).

Most of the Abbot’s Cave material is identified as Ovis aries. Apart from a low frequency of pieces identifiable only to oviscaprine there are also fragments of goat (Capra hircus) in each of the post-Contact lenses (Table 5). Rare traces of Bos taurus occur in the middle lens and in a patch near the surface in the upper lens.
Table 5. Abbot’s Cave: NISP (and MNI) per species and lens.

<table>
<thead>
<tr>
<th>Species</th>
<th>lower</th>
<th>middle</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries</td>
<td>18 (3)</td>
<td>33 (4)</td>
<td>291 (5)</td>
</tr>
<tr>
<td>Capra hircus</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Ovis/Capra</td>
<td>3</td>
<td>5</td>
<td>66</td>
</tr>
<tr>
<td>Bos taurus</td>
<td>-</td>
<td>1 (1)</td>
<td>4 (1)</td>
</tr>
<tr>
<td>TOTALS</td>
<td>29 (4)</td>
<td>42 (6)</td>
<td>358 (7)</td>
</tr>
</tbody>
</table>

Ovis & Capra elements
- Cranial & axial
- Fore & hind quarters
- Ankle & foot bones
- All fore limb elements
- All hind limb elements

Table 6. Lame Sheep: NISP (and MNI) per species and lens.

<table>
<thead>
<tr>
<th>Species</th>
<th>lower</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries</td>
<td>7 (2)</td>
<td>24 (1)</td>
</tr>
<tr>
<td>Ovis/Capra</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>TOTALS</td>
<td>13 (2)</td>
<td>25 (1)</td>
</tr>
</tbody>
</table>

Ovis & Capra elements
- Cranial & axial
- Fore & hind quarters
- Ankle & foot bones
- All fore limb elements
- All hind limb elements

Table 7. Leeuhoek: NISP (and MNI) per species and lens.

<table>
<thead>
<tr>
<th>Species</th>
<th>lower</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ovis aries</td>
<td>5 (1)</td>
<td>17 (3)</td>
</tr>
<tr>
<td>Capra hircus</td>
<td>1 (1)</td>
<td>-</td>
</tr>
<tr>
<td>Ovis/Capra</td>
<td>24</td>
<td>13</td>
</tr>
<tr>
<td>Bos taurus</td>
<td>-</td>
<td>3 (1)</td>
</tr>
<tr>
<td>TOTALS</td>
<td>30 (2)</td>
<td>33 (4)</td>
</tr>
</tbody>
</table>

Ovis & Capra elements
- Cranial & axial
- Fore & hind quarters
- Ankle & foot bones
- All fore limb elements
- All hind limb elements

Tooth eruption stages
- Ovis aries

Lame Sheep Shelter
Lame Sheep (Fig. 2) is a scree-laden extension of the Abbots’s Cave fill, connected to the latter by a side passage. The Lame Sheep fill apparently contains abundant pre-European livestock (Fig. 4), but a wire fragment has been thrust down into this material by ground squirrel burrowing (Plug 1993), casting doubt on the true age of some livestock specimens. The stratigraphic hiatus between pre- and post-Contact livestock is not well defined, due to deeper than usual excavation slits. There may be two lenses of post-Contact livestock, again poorly separated. A wire peg in the upper lens dates it to the 1870-1890 range, coeval with the top of the middle lens in the adjacent Abbot’s Cave sequence. Most of the Lame Sheep material is Ovis aries, with a few less definable ovicaprine fragments (Table 6).

Leeuhoek Shelter
The sloping deposits in Leeuhoek (Fig. 2) require three separate sections to show stratigraphic relationships (Fig. 5 top). There are scarce pre-European livestock remains, again separated from the Contact horizon above by a sterile gap. Abundant European artifacts indicate two depositional episodes, the earliest of which is tightly dated to 1840-1860 and the second to 1880-1910. Lenses of livestock remains are associated with each episode. Although they have similar quantities (Table 7), their composition differs. The lower lens has few sheep remains and many fragments identifiable as ovicaprine; one fragment is attributable to Capra hircus. The younger lens has more pieces identifiable as Ovis aries, but there are also rare fragments of Bos taurus as well as the only recorded examples of chicken (Gallus domesticus).

Van Zyls Rus Shelter
Van Zyls Rus (Fig. 2) contains no definite trace of pre-European livestock, in spite of the low stone kraal ruin with a pre-European outline on the talus slope. The earliest trace of domesticates is a small patch of sheep remains at the same level as a solitary European artifact (Fig. 5). There is a small gap in the accumulation followed by a more extensive sheet of sheep remains and some less diagnostic ovicaprines. Only one piece can be firmly attributed to Capra hircus (Table 8). Rare artifacts from the upper sheet date to the late 19th century.

Boundary Shelter
The yield from Boundary (Fig. 2) is too small to suggest stratigraphic separations (Fig. 5). There are no pre-European livestock remains. The European artifacts are not easily dated but the lowermost in the sequence
Fig. 5. Composite sections of three rock shelter deposits, showing positions of 25 cm x 25 cm excavated blocks yielding livestock remains, in relation to positions of European artifacts. See Fig. 3 for key.

could be early 1800s. This is the only site at which goat and sheep remains are about equal, but the sample total limits further interpretation (Table 9).

CORRELATION AND DATING

The earliest horizon (ca 1810-1830) of post-Contact livestock remains includes the samples from Haaskraal - lower, Driekoppen - lower, Abbot's Cave - lower, all with scarce glass trade beads and rare lead grape shot. Abbot's Cave - middle dates to late in this horizon Boundary may also belong to this group.

A middle horizon (ca 1830-1860) includes those horizons with abundant domestic ware but without wire. They include: Volstruisfontein - lower, Leeuhoek - lower and Van Zyls Rus.

The younger horizon (ca 1860-1890) contains samples with wire and rarely other datable items like ammunition or molded bottle glass. Among these are Volstruisfontein - upper, Haaskraal - upper, Driekoppen - upper and Leeuhoek - upper.

The youngest sample of the set is the livestock-rich dung cap in Abbot's Cave - upper with artifacts which bracket it between ca 1890-1910.

Table 8. Van Zyls Rus: NISP (and MNI) per species and lens.

<table>
<thead>
<tr>
<th></th>
<th>lower</th>
<th>upper</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ovis aries</em> sheep</td>
<td>4 (1)</td>
<td>23 (2)</td>
</tr>
<tr>
<td><em>Capra hircus</em> goat</td>
<td>1 (1)</td>
<td></td>
</tr>
<tr>
<td><em>Ovis/Capra</em> sheep/goat</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>TOTALS</td>
<td>5 (1)</td>
<td>31 (3)</td>
</tr>
</tbody>
</table>

Table 9. Boundary: NISP and MNI.

<table>
<thead>
<tr>
<th></th>
<th>sheep</th>
<th>goat</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ovis aries</em></td>
<td>2(1)</td>
<td></td>
</tr>
<tr>
<td><em>Capra hircus</em></td>
<td>3(2)</td>
<td></td>
</tr>
<tr>
<td><em>Ovis/Capra</em> sheep/goat</td>
<td>2</td>
<td></td>
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</table>

TOTALS 7(3)

<table>
<thead>
<tr>
<th></th>
<th>cranial</th>
<th>axial</th>
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</thead>
<tbody>
<tr>
<td><em>Ovis &amp; Capra</em> elements</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Fore &amp; hind quarters</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Ankle &amp; foot bones</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>eruption stages</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Ovis aries</em></td>
<td>V, II, IV</td>
</tr>
<tr>
<td><em>Capra hircus</em></td>
<td>IV, V</td>
</tr>
</tbody>
</table>

SHEEP/GOAT ELEMENT DISTRIBUTIONS

The proportions of ovicaprine elements from the richer post-Contact lenses are shown in Figures 6-10. Percentages were derived from the totals given in Tables 1-9. Sheep remains dominate all the samples. The smaller
Fig. 6. Percentage distribution of ovicaprine elements from the post-Contact levels of Haaskraal rock shelter.

samples from Volstruisfontein Shelter (Table 1), Bloubos (Table 3) and Boundary (Table 9) are omitted from the next analysis as they are too small for reliable percentage calculations.

The Haaskraal lower unit is dominated by foot and ankle bones (Fig. 6), a feature common to most of the assemblages. There is also a marked emphasis on the fore limb, with hind quarters scarcely represented. The middle and upper units, combined to increase sample size, show a wider distribution of parts about the skeleton, with notably higher frequencies of loose teeth.

The Driekoppen lower and middle units were also combined to enhance sample size; the fore limb is again more evident, but with a high ratio of cranial parts (Fig. 7) in the upper unit, fore and hind quarter elements appear more evenly distributed.

The Abbot's Cave lower unit again shows a bias in favour of the fore limb, with cranial parts also prevalent (Fig. 8). The middle assemblage may contain vertebrae thrust down from the overlying dung layer; foot bones dominate the sample. The very fresh upper (dung) unit shows the widest possible distribution of elements about the skeleton, with many articulating pieces. Much of this material derives from sheep which died in the cave and became only partially disjointed as it filled with dung. Thoracic vertebrae may have been thrust down into the middle lens and it could be that cranial parts were carried as far as the lower lens by ground squirrel activity.

The very small lower unit from Lame Sheep (mostly loose teeth) has been combined with the upper unit to enhance the sample size. Figure 10 shows a very marked preference for the hind limb.

At Leeuhoek the lower unit has a more even balance between fore and hind limbs (Fig. 9) and the upper unit shows a marked preference for hind limbs and cranial parts.

The Van Zyls Rus samples were also combined (Fig.10), showing a more generalized distribution of elements about the skeleton.

Three groups

From this brief review it is apparent that three sets of articulating elements are responsible for most of the differences between the ovicaprine assemblages. The first
set is the head (cranial, mandible, loose teeth) together with the rare axial parts (vertebrae, ribs, sternum). The second set is the fore quarters (scapula, humerus, radius & ulna) with the hind quarters (pelvis, femur, patella, tibia). The third set is all the ankle and foot bones.

When percentages are combined for these sets of elements in each assemblage and the three values are plotted as a single point on a tri-axial graph (Fig. 11), all the assemblages can be compared on a quantified basis.

The points, each representing single assemblages, form three clusters in the scattergram, labelled Group A, B & C on Figure 11. The Lame Sheep (upper unit) forms a solitary outlier.

Group A is dominated by ankle and foot bones (55-65%) and head bones (20-35%) with only a trace of fore and hind quarters. The assemblages falling within this group are Haaskraal - lower, Driekoppen - lower, Abbot's Cave - lower and Abbot's Cave - middle. Thus the earliest post-Contact assemblages show a remarkable homogeneity right across the upper valley.

Group B is also dominated by foot and ankle bones (50-70%), but head parts are relatively scarce (10-25%) with proportionally more of the meat-bearing quarters present. Assemblages in Group B are Van Zyls Rus, Driekoppen - upper, Abbot's upper, Leeuhoek lower and Volstruisfontein - combined. Although an outlier, Lame Sheep-upper is closer to Group B than to the others, but has too few cranial and axial parts.

Group C has relatively fewer foot and ankle bones (20-40%) and more cranial and axial parts (40-55%). Fore and hind quarters fall within the same range as Group B. The three assemblages in Group C are Haaskraal - middle, Haaskraal - upper and Leeuhoek - upper.

Fore versus hind quarters

Figures 6-10 indicate that there are also differences in...
Summary

The earliest horizon (ca 1810-1830) of post-Contact ovicaprine remains in the upper valley rock shelters (Group A) is dominated by foot and head parts, with a marked scarcity of meat-bearing limb bones. Where limb bones are present the fore quarters invariably dominate. The middle horizon (ca 1830-1860) contains assemblages with increased frequencies of meat-bearing limbs, among which the fore or hind limb may be slightly dominant. Middle horizon assemblages may be poor in cranial and axial parts (Group B) or contain quite high frequencies of them (Group C). Hind limbs invariably dominate in the latter group, as in the outlier sample of Lame Sheep. The same variability exists in the younger horizon (ca 1860-1890). The youngest sample from Abbot’s Cave (1890-1920) falls within Group B.

Interpretations

The earliest post-Contact ovicaprine samples share a remarkably consistent pattern of element distribution (Group A) across the upper valley. The most obvious modern analogue for this pattern is the post-slaughter package known colloquially as "kop en pootjes" (head and hooves), still distributed to upper valley farm staff today, along with the offal. The remaining (dressed) carcass is normally retained for household consumption. The rare limb bones present in Group A samples are the less desirable fore limbs. This suggests that the haunches were normally kept for the farmer’s family table.

By the middle horizon, half carcasses, parts of half carcasses and sometimes whole carcasses were more likely to arrive at the shelter. In some cases the portion was with the head but without the feet (Group C); in others the portion came without the head but with the feet still attached. Modern farm analogues in the area would be the division of a monthly slaughter sheep to the family members of an employee who has received a whole sheep as part of his wages.

Note on age-at-death

Such ovicaprine teeth as are sufficiently intact to determine their eruption/wear stages are listed in Tables 1-9. No single faunal sample has sufficient numbers to delineate mortality curves, but when all recovered teeth are combined (Fig. 13), a bimodal distribution emerges. There are no obvious differences between the mortality distributions of Groups A-C, nor were any changes through time detectable.

DISCUSSION

Although travellers in the Seacow valley (Burrow 1806; Plumptre 1815; Campbell 1823; Burchell 1824; also see Sampson, this volume) invariably stated that the resident Bushmen were not traditional herdsmen, there are grounds for suspicion. In the late 18th century, Bushmen encountered here with livestock (or even with a sheepskin, in Barrow’s account) were taken to be thieves. Consequently the ‘recovery’ of stock from Bushmen
could always be justified. So self-serving a view requires careful scrutiny, particularly as Bushmen took readily to European herd management after the amnesty of 1798. If they already had these skills before the trekboer invasion, then they may have had flocks of their own. Pringle (1835) was the only contemporary writer to declare outright that they had been herders, but were stripped of their flocks by the incoming trekboers. However Napier (1851) rightly pointed out that this minority view could not be supported by hard evidence.

The archaeological record casts new light on this old controversy. Perusal of the sections in Figures 3-5 reveals a thin, livestock-free gap between the uppermost pre-Contact livestock specimens and the lowermost lenses of domesticates associated with European artifacts. This is evident in Volstruisfontein, Haaskraal, Abbot’s Cave and Leeuhoek. It may also occur in the small Blubos test pit, not illustrated here. Only in the Abbot’s Cave annex (i.e. Lame Sheep) is the gap missing due to a large disconformity in the sequence. Although the other three sites do not display such a gap, this is only because they yielded no pre-Contact specimens. In balance, the evidence strongly supports the existence of a brief, livestock-free period in the upper valley before the first appearance of European artifacts.

Unfortunately the duration of this gap cannot be precisely fixed by AMS-radiocarbon dating because it is too short (R.A. Housley pers. comm.); probably one or two centuries, given the slow sedimentation rates of all shelter fills in the region. This would support the European pioneers’ view that the Seacow River Bushmen were indeed without livestock in the late 18th century. However, their recorded herding propensities suggest that stock could have been present in low numbers and/or in

Fig. 11. Tri-axial diagram showing relationships between three groups of elements in 13 assemblages of ovicaprine remains.
the vicinity of the upper valley.

The stock-free gap in the record has other implications. There are no clear-cut traces of the large scale livestock raids on pioneer farms in the upper valley during the 1770-1780 period. If stock remains were being deposited from these events, they have merged with the earliest material associated with 19th century artifacts. While it is possible that rare pieces of lead grape shot could belong to the stock-raiding period, this is far from certain. Either the raiders made no use of these shelters, or they brought back too little of what they slaughtered in the field to form a recognizable deposit.

When livestock does appear, the remains strongly suggest a "kop en pootjies" (head and hooves) configuration for ovicaprines. This fits well with Thompson's 1820s observation that "...they also come in for the offals of the cattle [stock] killed for food". By this time, regular (even daily) rations were received by Bushmen retainers living in the vicinity of most homesteads, producing a sufficient volume to register in the archaeological record. On the rare occasions that meat-bearing limbs were included in the hand-outs, these were more likely to be the less desirable fore limbs, the haunches being kept for the farmer's family table. Such details have not emerged anywhere in the documentary record.

Cattle remains were rarely deposited except at Haaskaal (Table 2). As this shelter overlooks an historical cattle post, i.e., a stone shepherd's hut, calcined dung and partial stone kraal walling, this is the most likely source for the faunal remains. The presence of donkey and turkey in the earliest level is unexpected as contemporary documents make no mention of these domesticates. The early appearance of chickens is better documented: 'fowls' are mentioned at a Sneeuberg farm in 1823 by Thompson (1827:83). Turkeys are still kept by farm labourers today.

Leeuhoek overlooks the ruins of the original farmstead and was probably used by field hands and possibly by domestic staff. This might explain the presence of chicken remains in the later levels here. Merriman was given eggs from a farm bordering on Leeuhoek in 1849 (Varley & Matthew 1957:71).

The shift in ovicaprine element distributions during the later 19th century away from the "kop en pootjies" pattern towards more limb bones could reflect two quite different trends. Some of this material may result from rising incidents of stock theft in which the whole sheep was more likely to arrive at the shelter for slaughter and consumption (Group C). The other process by which part
carcasses might arrive at the shelter would be that farm Bushmen were increasingly paid in whole sheep for their services. Still a common pattern at upper valley today, the sheep would have been slaughtered near the homestead, heads and feet would have been passed on to other staff, and the dressed carcass brought back to the shelter (Group B). Leeuhoek, close to the homestead and containing a very rich compliment of European artifacts, was certainly occupied by farm servants. It yielded faunal samples typical of both Group B and C. Either pattern could also arise from the slaughter of the sheep or goats owned by the Bushmen themselves.

CONCLUSIONS

Although sheep and cattle were present in the upper Seacow valley a few generations earlier, resident Bushmen who received the brunt of the Dutch trekboer invasion in 1770 were without livestock of their own. Reasons for the the brief disappearance of domestic animals from this region remain elusive, but the archaeological record shows a stock free horizon immediately below the first European artifacts. This gap in the record also supports the view that large-scale stock raids by Bushmen on pioneer farms were not frequent enough to form recognisable deposits in adjacent rock shelters.

The documented pathways by which Bushmen hunter-gatherers became herders are not immediately recognisable in the archaeological record. However, the latter adds details which are not available in published or archival sources. It was not until the early 19th century that European livestock remains were arriving at rock shelters in sufficient numbers to become incorporated in the shelter fills. They include sheep, goats and cattle. Donkey, chicken and turkey also occur, but rarely. Most of the material is sheep, nearly all of which is head and feet. Very rare limbs are dominated by the less meaty fore quarters. The most parsimonious interpretation is that the bulk of this material came in as "kop en pootjes" (offal) hand-outs to Bushman hangers-on living in the vicinity of farmsteads.

Deposits containing more hind and fore quarter remains have later 19th century associations, and there are two distinct patterns of body part survival among the sheep and goat remains. One, with high foot bone frequencies but few head parts, is probably a mix of isolated stock thefts and part-payments in whole sheep to farm staff as wages. The other pattern, with more heads and fewer foot bones, may reflect prior subdivision of the carcass away from the shelter. Some of this material could come from Bushman-owned flocks, but these cannot be distinguished from wage or theft-derived transfers. Cattle remains are too scarce throughout to allow any interpretation of butchery patterns. Both sheep/goat slaughter patterns persisted into the first decade of the 20th century.

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LATE IRON AGE SITES IN THE MAGALIESBERG VALLEY:
JONES’ (1935) STONE STRUCTURES REVISITED*

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ABSTRACT

A survey of Late Iron Age stone-walled sites in the Magaliesberg Valley shows that the settlement plan of some fit the Central Cattle Pattern but others do not. It is suggested that some of the sites represent settlements with large populations and limited space, while others were smaller communities with more personal space. No final answers are given, but needs further research that could open a discussion on the design and variation in settlement pattern.

INTRODUCTION

During the 1920’s and 1930’s, pioneer descriptions of stone-built sites on the Transvaal and Free State highveld, later ascribed to the Iron Age, were made (Van Riet Lowe 1927; Hoernlé 1930; Wells 1933; Van Hoepen & Hoffman 1935; Laidler 1936; Daubenton 1938). These included a description by T.R. Jones (1935) of a stone-walled site at the farm Doornspruit near Hekpoort. I have recently managed to trace the locality and to interview the author (Fig. 1).

Trevor Rubidge Jones was born in 1912. He grew up at Hekpoort where his interest in archaeology originated from the stone-walled sites on the family’s farm. The enthusiasm of Raymond Dart and the influence of others in the Anatomy Department at Wits (cf. Maggs 1976:7) must have inspired the young Jones to write the article on the stone-built site at the time.

In this paper I describe and discuss the site at Doornspruit and sites at the nearby farm, Doornboschfontein. These are compared and contrasted to others in the Magaliesberg, merely to place several recently surveyed localities on record and to present a new view on the 1935 site.

A SHORT HISTORICAL BACKGROUND

OF THE AREA

Stone-walled sites are widely distributed over the Transvaal (Mason 1968) and the Orange Free State (Maggs 1976) and are linked to Sotho/Tswana occupation during the Iron Age (Evers 1984). The important historical role of the Magaliesberg region in Sotho/Tswana traditions was previously recognised by Wilson (1969:132, 141) and Mason (1986:21).

The great chief Kgaswane (Cashane) of the Kwenaland people is revered in the name for the Magaliesberg (Cashan Mountains) during the 18th century (Breutz 1953:110) and likewise the ancestor Mogale (Magalies) in more recent times (Maggs 1976:308). Other groups such as the Bakgatla and the Bafokeng, are also believed to have come from the Magaliesberg (Ellenberger 1912:31), where they bore the brunt of an attack by the Bapedi in 1823-24 (Ellenberger 1912:68; Breutz 1953:181). Indications are that the Magaliesberg and surroundings did not escape the onslaught of the Amandebele of Mzilikazi (Sanderson 1860:253; Coetzte 1971:43). During the years 1825-26 their reign of terror destroyed the settlements in the entire area to the north. This total state of devastation and desolation was witnessed by Moffat on his journey to Mzilikazi in 1829.

The occupation of these sites in the Magaliesberg probably terminated after the first contact with the Voortrekkers of Andries Hendrik Potgieter in 1832 (Potgieter & Theunissen 1938).

Several papers have examined aspects of the archaeology of the region (cf. Haughton & Wells 1942; Mason 1969, 1973, 1974, 1986; Pistorius 1992), while the descriptions of a stone-walled site at the farm Doornspruit (Jones 1935; Walton 1956) are relevant here.

ENVIRONMENT AND LOCALITY

The topography of the region is determined by the geology (Fig. 2) and is dominated by the parallel running Witwatersberg and Magaliesberg ranges. The area is characterised by a wavy appearance of ridges and valleys flowing down from the hills (Fig. 3).

The vegetation of the area lies within the central variant of the Bankenveld (Acoks Veld Type 61b) and
Fig. 1. Locality of the Late Iron Age sites in the Magaliesberg Valley.

Fig. 2. Topography.

is part of the False Grassveld vegetation. Along the hills and ridges sour mixed bushveld shrubs and trees consist mainly of Protea, Acacia and Celtis species (Acocks 1988). It is notable that the hillslope environment was able to support the large settlements of the western Transvaal around the 17th century (Mason 1986:56, 319, 740). Acocks (1988:114) states that the particularly sour grass cover of the low lying parts of open savannah could probably be the result of the cultivation of crops by the Amandebele of Mzilikazi during prehistoric times.

The farms Doornspruit and Doornboschfontein lie about 8 km apart, to the east of the town of Magaliesburg in the Krugersdorp district (2527DC 1985). Doornboschfontein lies to the south of the Witwatersberg at an altitude varying between 1591 m and 1674 m above sea level. The land borders on the main road from Hekpoort to Krugersdorp, not far from the Sterkfontein Caves. Doornspruit is located on the north-facing slope of the
of the Witwatersberg at about 1380 m above sea level (Fig. 1). The original farm stretched far down the valley between the mountains but today the land is subdivided into several smaller stands.

SURVEY

Stone-walled archaeological sites were recently examined at the farm Doornboschfontein 513 QJ, near Magaliesburg as ordered by the owners as part of a project to attract tourism. Twenty-five living sites were identified, numbered and plotted (Fig. 1). No excavations were done but several units were selected arbitrarily and mapped in detail. This included another stone-walled ruin (No. 26) situated above the Skeurkloof. At Doornspruit 507 QJ the assessment was primarily based on surface finds and the reports by Jones (1935) and Walton (1956).

SITES AND FEATURES

The archaeological sites are characterised by stone structures forming a complexity of round and oval enclosures with prominent scalloped and circular walls on the periphery. Walls were built in the traditional manner of two faces of stacked stones with a rubble filling.

2527DC Doornspruit

During the present survey, remnants of stone walls were located at the farm Doornspruit (25.56S; 27.33E) about a 100 m above the main road and the railway line from Magaliesburg to Hekpoort and Pretoria (Fig. 1).

Time has taken its toll of the stone buildings. The height of the walls is nowhere in excess of 0.50 m. Middens could not be found but concentrations of potsherds, mostly undecorated, were located on the surface. A few decorated fragments display comb-stamping and incised lines (Fig. 4). Pottery concentrations are in association with paved surfaces and pieces of baked hut plaster with imprints of saplings and grass (Fig. 5). These occurred just inside and against the outer wall of the complex. Upper and lower grinding stones were present in this area. No slag could be found on the surface.

For a detailed description of the structures and layout

I refer to the observations by Jones (1935) and Walton (1956:45-47). The site is described as being near the farmhouse, some distance above the main road and the railway line. Walls were built of the local natural round and uneven stones gathered in the vicinity. The walls consisted of a double row of foundation stones laid in a shallow ditch. The sides of the walls were built up in two faces with a core of rubble fill "...cemented with a mixture of clay and cowdung" (Jones 1935). Some of the structures were described as nearly 2 m high. It is alleged that walls of both byres and dwellings showed traces of plaster on the outside (Jones 1935).

The previous researchers made a distinction between structures for "human habitation" and "others for housing stock" (Jones 1935; Walton 1956). The first cluster of structures (Fig. 6) about 60 m in diameter had circular outer walls with a series of linked enclosures in the central part. Several entrance passages ("gateways") are formed by outer walls bending inwards towards the central open area. These openings divide the exterior walls into individual "segmented courts". According to Jones (1935:530) the circular and oval-shaped enclosures in the centre, were dwelling huts. This assumption is based on plastered floors found inside the enclosures. These structures probably had thatched roofs. Houses
faced inwards towards the central open areas or the segmented courts. Smaller structures with paved floors, inside the segmented courts, could have been granaries or storage huts. The floor level in the central court and the segmented courts seemed to have been levelled. Threshing floors of plastered clay, with a margin of small stones, often occurred in the central areas.

Walton (1956:45, 47) agreed with Jones that the smaller circular structures could have been houses with conical thatch cover. He, however, doubts that the larger oval enclosures were dwellings. These structures could have been byres or open living areas (malapa) attached to dwellings of wood and grass.

The second group of structures were described as cattle enclosures. These structures have circular external walls, approximately 50 m diameter, with one or more smaller (15-20 m in diameter) circular enclosures in the centre (Fig. 6). A single dwelling occurred near the entrance of the large enclosure near the cattle kraal and was probably used by herdboys (Walton 1956). Middens containing pottery, bone and clay-covered human burials were found near the entrance against the walls of these cattle enclosures (Jones 1935:531). Skeletons of a child aged 7-8 years and an infant of about 8 months were retrieved from below a 0.30 m ash deposit. The first skeleton presented San characteristics.

A clay pipe was recovered on the site. Potsherds with patterns in red and black polychrome, ochre burnish and incised and impressed decorations were present in abundance. Large quantities of slag are said to have been present on the site and two pieces of iron were found (Jones 1935:533).

Features consisting of low stone walls occurred as part of the enclosures (Fig. 6). These were described as terraces "to increase the area of arable land". Other finds include upper and lower grindstones (Jones 1935:531). The terraces described by Jones could not be identified. It was noticed, however, how soil has accumulated against the walls. This was eroded down the hill by flood water and filled the area above the walls to a higher level than below, thus resembling terraces.

2527DC 8 Doornboschfontein

This site is located (25.57.34.S; 27.39.58.E.) near the eastern border of the farm (Fig. 1). It comprises of a single cluster of stone-walled enclosures about 60 m in diameter. The settlement consists of a spacious central open area surrounded by a series of linked stone enclosures with an oval or scalloped stone wall on the perimeter. Several entrances gave access to the inner area (Fig. 7).

No middens or hut remains were visible on the surface but a few undecorated potsherds were recovered.

2527DC 26 Skeurkloof

The site complex lies to the north of Doornboschfontein (25.56.14.S; 27.37.07.E.) above the Skeurkloof (Fig. 1). It consists of four separate clusters of stone-walled enclosures ranging between 43 m and 58 m diameter (Fig. 8). The ground surface slopes down towards the north and the different clusters are spread out over a total distance of about 220 m along the incline. The stone walls were built in the traditional manner of
two faces of stacked stones on the outside with rubble infill (Fig. 9) and seem to be well preserved (Fig. 10).

The most prominent group of stone walls (A) lies at the highest point on the ridge giving a view to the north and south. The layout of this unit consists of a central open area which includes a single oval stone enclosure. On the outside enclosures are linked together by uneven connecting walls to form a rough circle. Some of the smaller enclosures seem to be large enough to have housed a hut with front lelapa but no hut remains were found on the surface to confirm this. At least two gaps in the outer walls give access to the central area. Another group (D), resembling A, is located down below, almost hidden from sight behind a low ridge above the Skeurkloof. Enclosures B and C in the complex have a very simple layout. They consist only of one or more circular or oval enclosures in the centre, surrounded by a single stone wall (Fig. 8).

No hut remains, middens or other surface finds could be located at the site. Only two potsherds, with ochre burnish and combstamped decoration respectively, were collected during the survey (Fig. 11).

DISCUSSION

According to Jones the Doornspruit site was occupied by a settled pastoral community who built mainly in stone, cultivated crops and practiced smelting and forging of iron. He concludes that the pottery at the site resembles Sotho/Tswana assemblages.

The prehistoric settlement patterns reflect not only perceptions of people about their specific ways of living, but also represent social clustering, economic systems and political organisation at the time. There is diversity
in the layout of the sites. In this case it is notable how site 26 above the Skeurkloof, reflects in its visible extension the potential dynamics expressed in the development of the site (cf. Pistorius 1992:73). Spatial utilization during the Iron Age on the highveld is characterised by the placing of the main dwelling area on the perimeter of the settlement unit and the prominent position of the byres displays the important role of domestic stock in the daily life of the people (Maggs 1976:319).

Based on settlement pattern, the occupation at Doornspruit and Doornboschfontein fits in with other sites accepted to date from the Iron Age (cf. Mason 1986; Pistorius 1992). An assessment of the sites in the area indicates at least two different categories of settlement patterns. The sites at Doornspruit (Jones 1935; Walton 1956:45-47) and Olifantspoort 18/83 and 20/83 (Mason 1986:499, 500) are characterised by an open central court (Fig. 6A & B) which is often associated with a separate complex of cattle byres. Another settlement type is found at Molokwane (Selongskaal) near Rustenburg (Pistorius 1992), Boschoek at Suikerbosrand (Taylor 1984; Huffman 1988) and Olifantspoort 20/71 (Mason 1986:338, 351). This layout consists of a central byre complex separated by an open space from the surrounding scalloped outer walls which contained the dwellings (cf. Pistorius 1992:66, fig. 20).

The basic settlement layout at Doornboschfontein (2527DC 8) and Skeurkloof (2527DC 26) resembles Doornspruit (Jones 1935) and Olifantspoort 18/83 and 20/83 (Mason 1986:357, 499, 500). This contrasts with Molokwane (Pistorius 1992) and Boschoek (Taylor 1984, Huffman 1988). Molokwane, Kadishwene and Olifantspoort 20/71, represent sites with large populations where the limited space was defined by stone walls (Mason 1986:49, 376). Doornspruit, Olifantspoort 18/83 and 20/83 and Doornboschfontein, however, portray smaller communities allowing more personal space.

Doornspruit is compared by Mason (1986:338, 357, 500) to Class 4 at Olifantspoort 18/83 and 20/83. At these sites houses with the typical Tswana cone-on-cylinder "single and double cell" with sliding doors and verandahs occurred (Ibid.:397). Mason (1986:337, 499) also connects this type (Class 4) to Type V in the Free State (Maggs 1976). This comparison is not clear in view of the absence of corbelled huts at Olifantspoort. There is also a difference in settlement layout, as the corbelled huts and stock byres at OO1 (Maggs 1976) for instance, form part of the central cluster of structures with houses of perishable materials on the periphery (cf. Dreyer 1992:380). This is not the case at Doornspruit nor Olifantspoort.

Little information regarding the pottery from Doornboschfontein is available. Doornspruit pottery included bagshaped vessels with round bases, tapered walls and open bowls (Jones 1935:532). These wares were previously classified as ST1, part of the Buisport Tradition (Schofield 1948:144) which is of little value today (Maggs 1976:297; Mason 1986:739) and are presently described as Moloko (Evers 1984). The pottery assemblage at Molokwane includes barrel shaped vessels and open bowls with combstamped and ochre burnished decoration (Pistorius 1984:128, 1992:36). Olifantspoort 20/71 (Group 2) pottery (Mason 1986:746) consists of a wide range of pots and bowls and, as at Molokwane, pot covers were present. In the relatively small sample of decorated sherds the decoration consists mainly of incisions and depressions in lines on or below the rims (Mason 1986:466-476).

The use of clay pottery, the position of livestock within the settlement layout and the presence of upper the and lower grinding stones, indicate that the life style of people was based on a stock and cereal economy. The settlement pattern at Boschoek (Huffman 1988), Olifantspoort 20/71 and Molokwane fits the ethnographic model of a Central Cattle Pattern. This system of spatial organization dates back to the Early Iron Age (Huffman 1993) and is ascribed to Sotho/Tswana and Nguni peoples (Evers 1984:241). Moloko is considered to be ancestral to Sotho/Tswana. There is therefore a close relation between Moloko settlements and the Central Cattle Pattern (Evers 1984:241, 243). However, it is not clear if Olifantspoort 18/83 and 20/83, Doornspruit and Doornboschfontein (2527DC 8 & 26) fit into this ethnographic model.

Stone walled sites in general date back to the seven teenth and eighteenth centuries according to radiocarbon dating and oral traditions (Pistorius 1992, Mason 1986; Maggs 1976; Dreyer 1992). Although we are dealing with settlements during the Late Iron Age, Huffman (1993) has shown that cattle farming was already present in this area during the Early Iron Age, thus contradicting Mason’s (1986:54, 56, 319) statement of a climax of population expansion and economic oversupply after c.1700.

CONCLUSION

Various settlement patterns on the Highveld collate with different pottery assemblages (Maggs 1976:290; Mason 1986:737). Pottery from Molokwane resembles contemporary Kwenape ware from Botswana, while the occupation of Olifantspoort 20/71 and Molokwane is
likewise linked to the Bakwena (Mason 1986; Pistorius 1992). Earlier references maintain that the area was initially occupied by members of the Kgaqadi and Fokeng lineages (Ellenberger 1912:31). No support for this claim could at present be found. Mason (1986) did not identify the builders or occupants of the Olifantspoort 18/83 and 20/83 sites. At this stage it is therefore not possible to offer different cultural origins for the dissimilarity in settlement layout between the sites at Doornspruit and Doornboschiofontein as opposed to those at Olifantspoort, Molokwane and Boschoek. The only clarification possibly lies in a difference in function.

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The Phoenix 5:11-19.


NOTES

DISMANTLING A POWERFUL PLACE: THE SALVAGE OF ROCK ENGRAVINGS NEAR WARRENTON, NORTHERN CAPE

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INTRODUCTION

More than a century of recording of Southern Africa's vast rock art heritage has resulted in an impressive array of surveys, inventories and detailed regional studies embracing almost every corner of the sub-continent. Despite this, previously unknown rock art sites are continually being found and brought to researchers' attention. Unfortunately, the circumstances leading to the finding of these sites - often involving development or mining - are not always the most propitious.

The engraving site reported here (Dowson n.d.; Morris 1992; National Monuments Council 1992) is a case in point. Found by chance during upgrading of the Vaal-Harts irrigation scheme, the options were limited: salvage or destroy. The Department of Water Affairs was engaged in the construction of a new, larger, canal some 50 m up the bank from the existing one, which runs tens of kilometres westwards from the Vaal-Harts Weir. In February 1991 Water Affairs personnel found a few rock engravings at Fourteen Streams that lay directly in the path of the canal a mere 40 to 50 m ahead of blasting operations at the working face (Figs 1 & 2).

Water Affairs personnel had noticed the engravings following a feature on rock art conservation on the SATV programme "50/50" and reported them to the Rock Art Research Unit, University of the Witwatersrand. The Unit in turn contacted the McGregor Museum in Kimberley. Following preliminary on-site investigations by both institutions and the issue of a permit for their salvage to the McGregor Museum, the authors met at the site on 11 March 1991. Both institutions plotted and recorded the engravings in situ; their total number was determined to be ten images on eight andesite blocks. The dismantling of the site followed under supervision of McGregor Museum staff and with generous help from Water Affairs personnel who also supplied equipment and transport.

Small as the site was, it was not without interest. The engravings occurred in two clusters, the one comprising...
Fig. 2. Location of engravings, 50 m north of the old canal and directly in the path of canal construction.

ENGRAVINGS

In both engravings of eland, the dewlap is emphasized, one of them having a particularly exaggerated convolution below its neck (Fig. 3). Significantly, this part of the eland anatomy - often pronounced in both paintings and engravings - is composed chiefly of fatty tissue. Given that animal fat is associated with potency in San beliefs, this is clearly one of the features that lent to eland pre-eminence in San cosmology (Vinnicombe 1976; Lewis-Williams 1981). It is therefore of great interest at this site to find an ostrich (Fig. 4) that has a convolution under its breast that almost identically mimics the dewlap of the one eland (there may be numerous small 'peckings' below the convolution, but it is difficult to be sure whether these are human-made or a natural feature of the rock surface). A line emerging from the base of the neck of the giraffe (Fig. 5) towards its mouth may be an elaboration of this same motif which, one can but speculate, might have had some especial local significance and that may have imputed to these other animal images something of the aura of eland. Similarly 'dewlapped' ostriches occur at Eilandshoek and Rapids, downstream along the Vaal River from Warrenton (Fock and Fock 1989) and have, moreover, been noted as far afield as the Magaliesburg (Fig. 6).

The Human figure (Fig. 7) and therianthrope (Fig. 8)
at this site are shown in front elevation, with none in the more common side or twisted elevation. Engravings similar to these are to be found at Nazareth and Rapids, not far from Fourteen streams.

All of the other images also feature at other sites in the vicinity, namely Nazareth (which has a total of 319 engravings), Schoolplaats (544 engravings), Dundas (28), Middelplaas (23) and Warrenton Escom Station (28) (Pöch 1909; Wilman 1933; Fock & Fock 1989; Morris 1990). The Fourteen Streams site, with its total of only ten engravings, was a small one in comparison with these others; but such small sites are not uncommon in the region (McGregor Museum records). There was no clear evidence that any engravings had been removed, despite earlier construction close to the site. Other sites in the area have been robbed, however, and engravings are built into the walls of at least one house in Warrenton

**Fig. 4. Ostrich with convolution under breast.**

**Fig. 5. Giraffe with line joining the base of the neck to the mouth.**

(Fock 1973).

The absence of geometric images from Fourteen Streams is a point of similarity between this site and three smaller nearby sites - Dundas, Middelplaas and Warrenton Escom Station. In contrast, quite substantial percentages of geometric motifs occur at the larger sites of Schoolplaats (20%) and Nazareth (26%). Differences such as this between sites are as yet poorly understood, but it might be significant that the two larger sites are immediately next to the river whereas the others, including the salvaged Fourteen Streams site, are all at least several hundred metres up the bank. Temporal (i.e. historical) factors might also pertain (Butzer et al 1979; Morris 1988).

A diffuse surface scatter of Later Stone Age lithic artefacts extended over a wide area and even beyond the engraving site and the path of the canal. Sampling of it was considered unwarranted, there being no compelling indication of any direct association between the artefacts and the engravings.

**PRESERVATION**

Lichen and exfoliation had damaged almost all the engravings. In some cases it was probably the actual act of engraving that weakened the rock surface and thus led to the subsequent breaking up of the adjacent crust (cf. Wilman 1933:50). None of the engravings had been damaged by major rock fractures, but a crack had formed through one of the eland engravings. Following salvage, each of these features is being monitored.

**SALVAGE**

Removal of rock art from a site is never embarked upon lightly. Engravings appear to hold meaning not only individually but also collectively, as well as in their situation as potent or powerful places in the landscape (Deacon 1988). Extracting them - however carefully and
however full the documentation might be - decontextualises both art and site. In this instance, owing to late discovery (there had been no Environmental Impact Assessment) re-routing of the canal was not an option. The site was directly threatened with complete destruction. Immediate salvage was the only course left.

The site was mapped, and the engravings were recorded in detail by means of photography and polythene tracings before removal. Thereafter cautious dislodgement of the eight large andesite blocks took several hours (Figs 10 & 11). Each was then hoisted by mobile crane onto a bed of sand in an awaiting Water Affairs truck, which took them to Kimberley (Figs 12 & 13).

EXHIBITION AND INTERPRETATION

Efforts are being made to heighten public awareness of rock art and to emphasize the need to conserve it throughout the Northern Cape, *inter alia* through local museum exhibits and the provision of interpretative material on selected, adequately controlled sites. In terms of the permit, the Fourteen Streams engravings were to be officially lodged and catalogued at the McGregor Museum, Kimberley - which houses the archaeological archive for the Northern Cape - but provision was also made for their being lent to other institutions for display and educational purposes.

The Vaalharts Museum at Jan Kempdorp - which exhibits historical material relating to the area from which the engravings came - expressed an interest in some of the engravings for a display. It was agreed that six of the eight engravings should be sent there on loan, renewable annually, and that suitable interpretative material be supplied for captions and a brochure. The remaining two engravings, which were too indistinct for display purposes, have been retained in Kimberley. Visits are occasionally scheduled to inspect the engravings at Jan Kempdorp.

CONCLUSION

Regrettable as removal of rock art from its context is, the Fourteen Streams engravings would have been destroyed had they not been recognized and salvaged. The dismantling of this powerful place was conducted only after the site was thoroughly documented. By being placed on display at Jan Kempdorp, the engravings should help to enlighten people about rock art. The salvage was covered by the local press and received a follow-up mention on the SATV programme "50/50". That the original finding and reporting of the site followed a television feature on rock art conservation shows that such efforts to educate are efficacious.

ACKNOWLEDGEMENTS

We thank personnel of the Department of Water Affairs and Kimberley Municipality without whose co-operation, equipment and hard work this salvage would not have been possible. We are also grateful for assistance given by colleagues at the National Monuments Council and the
Fig. 8. Therianthrope.

Fig. 9. Dislodgement of engravings under the guidance of David Morris and Sephai Mngqolo (left) of the McGregor Museum.

Fig. 10. Hoisting of engravings onto a bed of sand on the back of the truck for removal to Kimberley. Crane driver Piet Molekwe with Water Affairs personnel and Kimberley Municipal staff contributed greatly to the success of the salvage.

Fig. 11. The approximate position of the site at Fourteen Streams some months after the salvage of the engravings.

Vaalharts Museum, Jan Kempdorp. Professor David Lewis-Williams, Mrs Elizabeth Voigt and Mr Leon Jacobson provided useful comments on the paper.

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Southern African Field Archaeology 3:63-64. 1995

REPORTS

AMERICAN ROCK ART RESEARCH ASSOCIATION:
INTERNATIONAL ART CONGRESS 1994

FRANS PRINS

Natal Museum, Private Bag 9070,
Pietermaritzburg, 3200

During the period 27 May - 3 June 1994 an international rock art congress was held at the Northern Arizona University in Flagstaff under the auspices of the American Rock Art Research Association (ARARA). ARARA is a member of the International Federation of Rock Art Organisations (IFRAO) which represents 20 organisations world-wide including the South African Rock Art Research Association (SARARA). Every year one of the organisations affiliated with IFRAO hosts an international rock art congress - the venue for the 1995 congress, for instance, will be at Turin in Italy under the auspices of the Centro Studi E Museo D’Arte Preistorica, Pinerolo.

Although delegates to this congress were mostly Americans, speakers from other nationalities were also represented and included countries as diverse as Australia, Macedonia, Britain, Norway, Holland, Germany, France, Mexico, Bolivia, Argentina, Brazil, Venezuela, Namibia, Portugal, Canada and South Africa. In addition the organisers of the conference extended invitations to representatives of American Indian groups who are presently living in areas containing Indian rock art. South African delegates to this congress included Thomas Dowson, David Lewis-Williams, Tony Manhire and Frans Prins. The ARARA Congress was attended by well over a thousand people making this one of the largest international rock art congresses ever held.

The variety of papers presented were dealt with in twenty separate sessions. These included general sessions as well as those dealing with more specific topics such as The Shamanistic Interpretation of Rock art, Serpent Motif, Arizona Rock art, Ecology of Rock Art, Rock Art and Religion, Oceania, Preservation and Conservation, Archaeometry, Recording and Early Rock Art in the Americas. The session dealing with the shamanistic interpretation of rock art was well attended - not surprising as many American researchers favour the shamanistic approach.

Thomas Dowson presented a paper on Shamanism and rock art - an historical overview. In this paper he showed that shamanistic interpretations have been applied since the 1890's and that some of these early interpretations were applied in American rock art. David Lewis-Williams presented a paper entitled Dying to the world: shamanistic metaphor and animal behaviour in southern African rock art. This paper investigated some of the animal related concepts of the "death" metaphor as it was used by San shamans and artists. Tony Manhire presented a paper on the motifs and metaphors in the rock art of the south-western Cape. He argued that the rock art imagery of the south-western Cape carries symbolic and metaphoric meaning as well as literal
information. His paper in particular examined a number of motifs and linked images illustrating the relationship between artists belief systems and their environment. I presented a paper entitled Social change and its implications for altered states of consciousness in San rock art. In this paper I argued that altered states of consciousness are socially structured and that a change in the social structure of any particular group will be accompanied by transformations in the trance-like experiences of magico-religious functionaries belonging to such groups. Altered states of consciousness could change into a new form, transform into overt ritual or disappear completely. Such transformations are also depicted in some examples of rock art thereby showing that the San producers of rock art were highly dynamic and that their world views did not remain static.

Although the shamanistic interpretation of rock art may be well advanced in southern Africa there are other lines of rock art research where this is not the case. American and Australian researchers, for instance, have established a more refined and accurately dated sequence of rock art styles than has been the case in South Africa. British, American and especially Australian researchers have done outstanding work on pigment analysis. It also appears from the conference papers that American and Australian researchers have managed to integrate the so-called dirt archaeology more successfully with rock art interpretations than has been the case in southern Africa. Particularly interesting was a production or utilisation of rock art sites by contemporary societies - these studies are more anthropologically orientated in contrast to most rock art research which is guided by archaeological principles. Although southern African rock art has potential to be studied along lines similar to those utilised abroad relevant research programmes still need to be implemented. However, the various papers presented at the congress have been valuable in that they highlighted both the strengths and weaknesses of South African rock art studies.

The ARARA congress was concluded with fieldtrips to famous rock art sites such as Barrier Canyon, Homolovi, Red Cliffs, and Newspaper Rock. These included rock art examples which clearly belonged to different periods and styles.
Southern African Field Archaeology

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3. INTERVENING UNENCLOSED SPACE

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common iron forge niches

family groups (masika)

extension to the kgoro

remains of huts

high-status lapa complex

midden

entrance/exit

high-status iron forge work place

1. OUTHER SCALLOPED WALLS (malapa)

cook house/shelters for herdboys

2. KRAAL COMPLEX

3. INTERVENING UNENCLOSED SPACE

4 APPENDIX

large marula tree

reception area for visitors/traders

main entrance

Informal gathering place (kgorong)

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**OPINIONS**

Provincialisation of measures for control of heritage resources

Since the publication of the final drafts of the now not so new constitution, there has been much debate and the beginnings of re-organisation around a stipulation in Schedule Six, to the effect that responsibility for cultural matters shall rest with the nine provinces. This provision is as applicable to the management of heritage resources and, in the context of this journal, specifically archaeology, as it is to other areas of cultural activity and is hence in the process of transforming the field in which we operate.

Whilst ‘Schedule Six’ poses many obvious threats, not least of which is the dissolution of the familiar forms of control constituted via the National Monuments Act, it also has advantages, a number of which may not be self evident to those practising in the field. It is apparent that to many the immediate benefit is that control of the permit system and maintenance of standards for archaeological practice will as it were ‘be brought home’. This is an attitude to be wary of. The advantages of provincialisation go far beyond mere parochialism and any system which seeks to give local archaeologists control of their own destiny, or which vests the overseeing implementation of the system in a provincial institution which also undertakes fieldwork, should for obvious ethical reasons be guarded against.

Since the introduction of the Environment Conservation Act in July 1989, we have heard much of IEM, EIA’s and related jargon, but in seven years we have somehow not quite reached the situation which expectation led us to believe was just around the corner. A possibly simplistic analysis of the situation is that two factors lie at the bottom of the problem.
The first of these is the failings of the National Monuments Act, an antiquated and somewhat authoritarian body of legislation, and the fact that no attempt has been made to mesh its provisions with environmental legislation. The second and related factor is that in order for Integrated Environmental Management (IEM) to work, the resources for which it caters must be integrated into the country’s town and regional planning system.

This latter factor determines why there are, for provinces aware of the issues at stake, definite advantages in the creation of a provincial system for management of heritage resources. Even in the darkest days of Tricameralism, when provinces were stripped of their powers, town and regional planning legislation remained largely in the hands of the rump provincial administrations, a situation that persists under the Interim Constitution. What this in effect means is that whilst at national level it will still be impossible to ensure by legislative means that heritage resources are catered for in the planning process, this need not be the case where a province elects to establish it own monuments council/heritage resources commission and pass its own heritage legislation.

Simply put, the advantage of a province having powers over both the planning process and heritage resources is that it is able to create a system where management of heritage resources, including archaeological matters, is catered for in structure plans, town planning schemes and other planning policies. It also means that a uniform set of principles and procedures for IEM and other areas of heritage conservation can be built into both planning and heritage legislation. This is not possible in a situation where the national government controls heritage resources and provincial governments the planning system.

Experience the World over has shown that integration of heritage management into planning processes is the most effective and conflict-free method of managing heritage resources. In the United Kingdom, Germany and many states of the USA much of the responsibility for heritage resource management rests with the planning authority rather than a monuments council type organisation. In many such places archaeological sites, historic buildings, historic shipwrecks and the like have come to be viewed as simply another restraint, no different from other provisions of town planning schemes, such as zoning requirements, building lines, height restrictions and the like. There has similarly grown up amongst town and regional planners the view that heritage resources are no different from the other resources for which a planning system must cater. That is to say they are no longer only part of a special case scenario catered for only in rare and unusual circumstances.

Whilst this demystification of the basic material of our trade might alarm some, it is a desirable, sane and relatively uncontroversial method of handling a complex issue. It is, however, necessary first to understand how such a system would work and the only, and as yet untried, South African precedent is in the form of the KwaZulu-Natal Draft Heritage Bill, a body of legislation yet to pass through the Provincial Legislature, but which has drawn on experience in, and the legislative principles and polices used by, around fifty different authorities worldwide.

The Bill proposes a system which it calls "Heritage Resource Management" (HRM) by which any planning authority (broadly speaking any form of local government) will at the time of determining or revising its planning policy be obliged to identify and make provision for the more important heritage resources of the area under its control. This will be done in terms of formal categories of protection provided for in the Bill e.g., landmark status, listing (i.e., the equivalents of national monument status and the National Register), and to the satisfaction of the proposed provincial heritage body, Amafa aKwaZulu-Natal.

The local authority is then also obliged to provide minimum, non-fiscal, planning incentives for conservation of those resources, this being in the form of relaxations of aspects of the planning scheme (e.g., bulk and height restrictions, building lines, zoning and parking requirements and the like) in order to ensure conservation and maintenance of profit margins. In short, via prior identification of sensitive resources it is expected that those contemplating inappropriate development will be warned off (thus minimising the risk to both developers and the resources in question) whilst those wishing to build a conservation element into a project will be offered incentives to do so.

Where resources are not easily identified, as is often the case with archaeology, or where they do not qualify for formal protection, they will in the case of large developments be protected via an impact assessment and adjudication process, which also allows for a system of compensation in instances where developmental needs outweigh the value of heritage resources. The onus for identifying resources and for initiating discussions with Amafa aKwaZulu-Natal is placed squarely on the shoulders of the initiator of the threat and the law will require that such discussions take place at the earliest possible time.

It is hoped via this system to eliminate much of the tension created by late identification of resources, the lack of incentives to conserve them and the often unassessed relative merits of conservation as opposed
to a proposed development. It is similarly expected that the system will gradually begin to move heritage conservation away from circumstances where the identification and investigation of heritage resources, in particular those with which archaeologists are concerned, is considered to be in the realm of the rare or peculiar, towards a situation where their investigation is commonplace and something which the planning and development fraternity expects to undertake as a standard practice.

The entire process is one which can under the present constitution and for the reasons mentioned, only be properly implemented at provincial level. For this reason alone it is important that archaeologists and others working in the field come to grips with the concepts surrounding planning and make a positive contribution to the debate taking place in various forums concerning the issue of provincial management of heritage resources. Without the institution of a system akin to that envisaged in KwaZulu-Natal an opportunity will be lost and the risk of creating a body which bears only the hallmarks of the dangers of provincialisation, that is parochialism and lack of expertise and funding, may well result.

In KwaZulu-Natal a concerted effort has been made to avoid the pitfalls of provincialisation, in particular with regard to questions of ethics and conflicts of interest arising from the fact that Amafa KwaZulu-Natal will employ archaeologists of its own and that they will be actively engaged in contract work and other projects related to the research programme of the institution and its fund raising efforts. To this end, and to avoid a situation where an individual is in any way involved with the issuing of his or her own permit, it has been proposed that administration of the permit system rest solely with a relatively independent branch of the organisation, probably to be known as the ‘Compliance Division’. The staff of the Division will not be engaged in research or contract work and will be charged only with the implementation of the ‘compliance’ provisions of the Heritage Act. The feeling is that the Division should not need the services of an archaeologist since it will implement a predetermined archaeological policy and be required to submit permit applications for archaeological work to a panel of archaeologists who do not live in KwaZulu-Natal.

Whilst there are definite downsides to the provincialisation debate, these can be neutralised and the advantages played up. As with all things it will be necessary for those concerned to think things through in a thorough fashion in order to realise maximum potential via the creation of a system which is geared to the specific needs of the province in which they operate. As for most other aspects of life in our country, the ‘New South Africa’ presents opportunities for positive change in heritage resource management. Do we as heritage managers and researchers in the field have any choice but to seize the opportunity?

ANDREW HALL
Regional Manager
National Monuments Council
KwaZulu-Natal
IRON WORKING AND BURIAL PRACTISES AMONGST THE KGATLA-KWENA OF THE MABYANAMATSHWAANA COMPLEX*

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ABSTRACT

An archaeological survey between Brits and Pretoria revealed the remains of an extensive stone-walled complex which was named the Mabyanamatshwaana origin centre of the Tswana. A survey and excavations of one of these settlements (site ZK001) indicate that it had spatial features characteristic of both the Kswana "kgôrô" and the "letlatswa" of the Pedi (Kgatla) "kgôrô" of Sekhukhuneland. It was subsequently pointed out (in an earlier report, Pistorius 1995) that the "letlatswa" of site ZK001 may have developed as a result of the large scale introduction of iron forging in the centre (kraal complex) of this settlement.

This report suggests that iron working took on formidable proportions in site ZK001 and that high-status and commoner iron forge work places can be distinguished. Iron working was ritualised, since a young man was buried with a hammer and an anvil stone in a "sesigo" in the centre (former kraal) of this "kgôrô". Iron working in the Mabyanamatshwaana complex also coincided with conflict at the turn of the eighteenth century. Both the surplus production (trade) of iron and local consumption seem to be important factors which contributed to metal working in this complex.

INTRODUCTION

A previous article reported that an archaeological survey to the north-east of Brits has revealed part of the remains of an extensive stone-walled complex which dates from the seventeenth century (Pistorius 1995). This complex was first recognised by Mason (1968, 1986) from aerial photographs and it was afterwards investigated by means of a small excavation on the farm Zambok Zyn Oude Kraal (258JR). The extent of these remains, which were named the Mabyanamatshwaana complex, was substantiated by one of the authors (J. Pistorius) and his co-worker, Francois Coetzee, during a helicopter survey in September 1993. This aerial reconnaissance was followed by the ground surveillance of parts of the farms Elandsrand (570JQ), Elandsfontein (440JQ) and Roodekopjes or Zwartkopjes (427JQ) (Pistorius & Coetzee 1993a, 1993b).

The Mabyanamatshwaana complex extends along the norite series of hills between Rustenburg and Pretoria, with Brits in the middle between these two centres. Together with the site of Rathateng, which is located on the South Africa-Botswana border, these nuclear areas represent the cradles of the origins of the Kswana (Tswana) and Kgatla (Pedi). These centres are associated with a Hurutshe-Kwena-Kgatla lineage cluster which, after a diaspora which spanned decades or even centuries, moved from these nuclei to establish some of the historical Tswana, Pedi and Sotho chieftoms of the Transvaal, the Orange Free State and Botswana (Pistorius 1995).

Two settlements on the farm Zwartkopjes, which is situated in the heart of the Mabyanamatshwaana complex, were surveyed (ZKOO1 & ZKOO2) and one of them (ZK001) was excavated (Pistorius 1994a). This report discusses the results of the excavation of a young male's skeleton from site ZK001 (UP 28, housed in the Dept. Anatomy, University of Pretoria); the physical features of this individual; the funerary goods which consisted of a hammer and an anvil stone which were found with these remains and the fact that the body was buried in a grass container similar to the "sesigo" in which the Kswana and the Kgatla used to store their grain.
THE ARCHAEOLOGICAL INVESTIGATION

A cluster of four stone-walled settlements, namely ZK001, ZK002, ZK003 and ZK004, which occur on the southern border of Roodekopjes or Zwartkopjes (247JQ), directly adjacent to the northernmost houses of Brits in the suburb of Elandsrand, was investigated (Fig. 1). The first two settlements (ZK001 and ZK002) were surveyed and site ZK001 was also excavated.

The features of site ZK001

Site ZK001 (27.49E; 25.35S) is situated at an average altitude of 3900 m above sea level. This settlement is marked by an outer boundary wall which consists of at least 29 scallops which contain patches of baked clay with pole impressions which are the remains of houses. The settlement's kraal complex consists of seven linked enclosures which encircle a central inner space. The intervening unenclosed space of the site is the area between the scallops (or "malapa") and the kraal complex. This part of the settlement is marked by a free-standing wall which, together with at least two-thirds of the outer circumference of the kraal complex, formed an entrance and a corridor into the settlement.

Two types of small circular enclosures were associated with the corridor wall, namely enclosures which form part of this wall and free-standing enclosures in close proximity to this wall. Most of these enclosures, which had clearly visible entrances, are dilapidated. Several common forge niches, which can be recognised from their semi-circular ground plans, were built against the free-standing wall and in the central inner space.

Two additional features can be added to these three spatial components which form the body of site ZK001, namely an appendix which is attached to the body of ZK001 and a further extension which consists of, inter alia, the settlement's main entrance, low-rising stone walls and an oval enclosure. Consequently, site ZK001 can actually be divided into three parts (Fig. 2), namely:

ZK001.1, or the main body of the settlement which consists of the three spatial units outlined above;

ZK001.2, or an appendix attached to the main body of the settlement; and

ZK001.3, or a frontal part which consists of the main entrance which leads to the inner part of the site,
Fig. 2. A plan drawing of site ZK001 reveals three main spatial features: a central body (ZK001.1), an appendix (ZK001.2) and a front part (ZK001.3). The latter two features are referred to as the addendum which corresponds in its spatial composition and features to the "letlatswa" of the Pedi (Kgatla) "kgörē".

low-built free-standing and circular walls and a conspicuous oval enclosure which has the highest wall in this spatial unit.

Using Tswana and Pedi ethnography, the previous report (Pistorius 1995) pointed out that the body of site ZK001 (ZK001.1) reflects the features of a Tswana "kgörē" and that the front part of the site (ZK001.2) resembles the Pedi (Kgatla) "letlatswa" (Fig. 2). It was furthermore argued that the spatial nexus which characterises Kwenan settlements and which exists between a main dwelling, a main cattle kraal and a formal court ("kgotla"), cannot be distinguished in the body of site ZK001. This, however, does not imply that such a spatial relation did not in fact once exist in the body of site ZK001. The large scale introduction of secondary iron working in the Mabyanamatshauna complex may have pushed the main (or ceremonial) cattle kraal, the formal court and the fireplace of the men from the centre of these settlements to their outer circumferences where these features became known as the "letlatswa". It is also possible that the "letlatswa" developed after a process of social stratification set in between clusters of settlements of the Mabyanamatshauna complex.

THE EXCAVATION

Excavations were conducted in all the spatial features of site ZK001. The most important features discussed in this article include the excavations of the grave in the central inner space of the kraal complex and the high-status and common iron forge work places. Excavations in some of the other spatial units are briefly referred to.

The high-status living area

The high-status living area of site ZK001, which is also referred to as the main "lapa" complex, was identified by its high or elevated position against the foot of a low-rising norite knoll. The fact that this cluster of dwellings was located opposite or in close proximity to a main (cattle) kraal and from the number of house remains which could be observed in these "malapa". There is little doubt that this part of the site was occupied by the ruler of this settlement. From the remains of at least seven huts which were excavated within the confines of the main "lapa" complex, two types of huts were distinguished. The first type was generally larger in diameter than the second type and was interpreted as dwellings. The second type were demarcated by upright
standing foundation stones and were interpreted as storage huts and as huts in which food was prepared.

The Kraal complex

The kraal complex of site ZK001 consists of seven linked circular enclosures which are referred to as Kraals 1 to 7. These enclosures circumscribe a secondary enclosure (see Maggs 1976:25; Pistorius 1992:15) which is also referred to as a central inner space. Excavations in all these structures (except the smallest kraal, No.7, which was not excavated) proved that these enclosures, as well as the central inner space, were used to enclose stock. In all these enclosures the deposits, which reach a depth of 1.2 m in Kraal 1, consist of levels of dung which vary in depth in the different structures.

The excavated kraals were not used exclusively to shelter stock. Kraal 2 possibly also had another, as yet undetermined, function. This kraal has a large entrance and one third of its surface is covered with what seems like a stone platform. Similarly, Kraal 3 served as a workplace for high-status iron forgers. The central inner space was not only used as a shelter for domestic stock (such as cattle, judging by its size), but also as a workplace for common iron forgers and as the place where the burial of the young man took place.

The high-status iron forge

High and low status iron forges were distinguished in site ZK001. The high-status forge shelters in Kraal 3 were clearly of a different stature than the smaller and more temporary iron forge niches which occurred at random in some of the enclosures of the kraal complex (Kraals 4 and 6), in the central inner space and against the cook houses and/or herdboy shelters in the intervening unenclosed space (Figs 3-5).

The high-status iron forges in Kraal 3 were more impressive and elaborate than the common iron forge niches. These forges had larger numbers of anvils and hammerstones and had possibly been in use longer, or were more intensely utilised, than the common iron forge niches. Only these iron forge shelters were excavated in association with a prominent hearth (furnace) which was shared by two forgers who occupied their own enclosure (Kraal 3) which was spatially located in close proximity to the high-status lapa complex (Fig. 3).

At least two iron forge shelters occurred in Kraal 3. Each shelter consisted of a low and partly semi-circular stone wall which consisted mainly of anvil and hammerstones. These "walls" respectively demarcated several small-sized anvil stones which were grouped together in one of these shelters and two solitary, but larger anvil stones in the second iron forge shelter. (One of these anvil stones was the largest observed in the settlement). Both these forge shelters, which were respectively used for heavy and light forging, were placed more or less at an equal distance from an open hearth. This feature was not found in the common iron forge niches. The hearth was built with a circular stone floor which probably had a low raised clay wall which kept the charcoal on the heat-retaining stones. Iron tools, three of which were excavated around the hearth, were heated in this furnace and then hammered on the anvil stones (Fig. 4).

The deposit in Kraal 3 reached a depth of 0.45 m and consisted mainly of ash which was produced by hearths such as the one which was excavated and also perhaps by the preparation of charcoal in this structure for use in this hearth. Several pieces of carbonized logs were retrieved from the excavated deposit.

The central inner space

This feature can be described as a secondary enclosure due to the fact that it is formed by an outer chain of enclosures. Its deposit contained a substantial layer of dung which indicates that this structure was used to enclose stock, most probably cattle given its size. The grave of a young man who was buried near the centre of this spatial feature also supported its use as a cattle kraal, since the burial of important men in the central kraals of villages is, of course, a common phenomenon amongst the Sotho-Tswana (Walton 1958:138; Bruwer 1963:126; Casalis 1965:203). The outer circumference of this spatial unit also contains several common iron forge niches which were haphazardly built against the inner walls of the kraal complex.

The intervening, unenclosed space

This spatial component is located between the outer scalloped wall of site ZK001 and its centrally located kraal complex. It is marked by a free-standing wall, which, by now, has largely collapsed and which is interspersed at short intervals by small circular enclosures. These enclosures can also be observed against the corridor wall and as loose standing enclosures which occur in close proximity to the corridor wall. Three of each of these structures were excavated. The circular enclosures are believed to represent cook houses (huts) and/or shelters for herdboys while the semi-circular enclosures clearly represent common iron forge niches.

The common iron forge niches

Common iron forge niches consist of a few anvil and
Fig. 4. A plan drawing of the high-status iron forge work place in Kraal 3 shows a more complex spatial arrangement and composition than common iron forge niches. It consists of two groups of anvil stones for heavy and light iron forging and a prominent hearth (furnace) which is shared between these two niches.

Fig. 5. A common iron forge niche in Site ZK001 shows a simple, temporary (make-shift) "construction" which consists of a few random scattered anvil and hammer stones with no indication of a definite hearth (furnace).

hammerstones which have been arranged in roughly circular, square or other random and indeterminate ground plans. These features are unimpressive in appearance and construction and it seems that the majority of them were used during the latter part of the occupation of site ZK001. This can be surmised from the fact that they occur on the upper surface of the settlement and have limited, or shallow, deposits. Some exceptions do occur, e.g. IF1 proved to have a deposit which was 150 mm deep.

The common iron forge niches were clearly not of the same stature and standing as the high-status forge work place. They were mostly temporary or make-shift shelters with shallow deposits, did not occupy any one enclosure of the kraal complex in full and were spatially distributed over a large part of the centre of the settlement. (Similar forge niches also occur in the veld directly outside the borders of the settlement). These features were subsequently referred to as common iron forge niches. Two of these niches, which are located in the northern sector of ZK001, were excavated (Fig. 5).

THE BURIAL SITE IN THE CENTRAL INNER SPACE

A test trench which was dug through the largest diameter of the central inner space of the kraal complex exposed the well-preserved skeleton of a young male. This individual was buried in a spherical dug-out grave, with
a diameter of approximately 0,80 m, in which a grass container such as a "sesigo" could fit. Amongst the Kgatla and the Kwena, this container, which was plaited and woven with grass, was used to store grain (McDonald 1940:66, 69; Bothma 1962: opposite p. 55; Mönig 1967: opposite p. 130) (Fig. 6).

The body was placed in the "sesigo" in a vertically flexed position, facing the north-west. It is not clear whether the individual was buried in an empty or disused "sesigo", or if the hole was specifically dug with the purpose of placing the sesigo in it. The individual's right upper limb was flexed around the front of the lower legs while the left upper limb was wedged in between the upper legs and the trunk. The legs were crossed at the ankles. Funerary goods consisting of an anvil and hammerstone were placed with the body inside the "sesigo". The anvil stone was placed in front of the individual’s flexed legs and the hammerstone was placed against his left lower torso which helped, together with the anvil stone, to support the body in its upright, sitting position in the "sesigo" (Fig. 7).

The individual’s head was approximately 1,0 m below the surface of the enclosure and the grave was dug into the yellow sterile soil. Pieces of the woven grass basket were still visible against the sides of the grave (Fig. 8).

A radiocarbon date from one of the ribs of the skeleton provided a date of 130 ± 30 (Pta-6667) BP for the individual.

The skeleton
The skeleton was well preserved although some damage had been caused to the vertebrae and ribs by termites and roots. The top of the cranial vault was damaged, and the skull needed some reconstruction. No distortion occurred and a reasonable reconstruction of the skull could be made. The skeleton was nearly complete and all the long bones, except the right clavicle, were present.

Sex and age
The cranial features are indistinctive as far as the sex of the individual is concerned, and the person was of very delicate build. Nevertheless a tentative diagnosis of a male individual could be made due to the narrow sciatic notch and the shape of the pubic bone. The gonial areas of the mandible are also slightly everted - a male feature. Although a fully erupted permanent dentition is present, most of the epiphyses on the long bones are still open, giving an estimated age of death of 17-18 years (Ferembach et al. 1980). Youths may partly explain the delicate build of the individual.

Morphology and population affinity
The morphological features are those commonly found
in South African Negro populations (De Villiers 1968) (Fig. 9). The skull is dolichocephalic, the nose platyrhine and subnasal prognathism is present. Metrical and non-metrical features can be seen in Tables 1 and 2. Most of the long bones are measurable (Table 3). For the reconstruction of the body height, the combined lengths of the left tibia and femur were used. Calculated with the help of the Lundy and Feldesman (1987) formulae for South African Negro peoples, this yielded an antemortem stature of 164.98 ± 2.371 cm. This stature falls well within the range quoted for South African Negro males (Tobias 1972).

<table>
<thead>
<tr>
<th>Table 1. Cranial and mandibular measurements (in mm).</th>
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<tbody>
<tr>
<td>Maximum cranial length (L)</td>
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<tr>
<td>Maximum cranial breadth (B)</td>
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<tr>
<td>Foramen magnum breadth</td>
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<tr>
<td>Binaxillary breadth (GB)</td>
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<tr>
<td>Upper facial height (G'H)</td>
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<td>Orbital breadth (O₁)</td>
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<td>Orbital height (O₂)</td>
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<tr>
<td>Nasal height (NH)</td>
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<tr>
<td>Nasal breadth (NB)</td>
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<tr>
<td>Projective length of the corpus mandibulare (epl)</td>
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<tr>
<td>Symphyseal height of the mandible (h₁)</td>
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<tr>
<td>Molar-premolar chord</td>
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<td>Min. chord between ant. margins of mental foramina</td>
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<td>Coronal breadth (crr)</td>
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<th>Table 2. Non-metrical observations.</th>
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<tr>
<td>Metopism</td>
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<tr>
<td>Glabellar prominence</td>
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<tr>
<td>Superciliary eminences</td>
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<tr>
<td>Ophryonic groove</td>
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<tr>
<td>Sutures at pterion</td>
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<tr>
<td>Horizontal parietal suture</td>
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<tr>
<td>Mones temporosphenoidalis</td>
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<tr>
<td>Inf. frontal eminence</td>
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<tr>
<td>Parietotemporal suture</td>
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<tr>
<td>Ossicle at asterion</td>
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<tr>
<td>Lambdoid ossicle</td>
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<tr>
<td>Post. root of zygoma</td>
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<tr>
<td>Typanic plate</td>
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<tr>
<td>Mastoid process</td>
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<tr>
<td>Digastric fossa</td>
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<tr>
<td>Supra-asterionic region</td>
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<tr>
<td>Cranial form</td>
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<tr>
<td>Postcoronal region</td>
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<tr>
<td>Parietal foramina</td>
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<tr>
<td>Foramen of Huschke</td>
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<tr>
<td>Auditory torus</td>
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<tr>
<td>Shape of orbits</td>
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<td>Position of nasion</td>
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<tr>
<td>Os japonicum</td>
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<tr>
<td>Torus palatinus</td>
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<tr>
<td>Torus maxillaris</td>
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<td>Torus mandibularis</td>
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<table>
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<tr>
<th>Table 3. Long bone measurements (mm).</th>
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<tr>
<td>Humerus</td>
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<tr>
<td>Maximum length</td>
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<td>Maximum head diameter</td>
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<tr>
<td>Epicondylar breadth</td>
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<td>Midpoint circumference</td>
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<td>Radius</td>
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<tr>
<td>Maximum length</td>
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<td>Ulna</td>
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<td>Maximum length</td>
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<tr>
<td>Femur</td>
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<tr>
<td>Maximum length</td>
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<tr>
<td>Bicondylar length</td>
</tr>
<tr>
<td>Maximum head diameter</td>
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<tr>
<td>Trans. diam. (midpoint)</td>
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<tr>
<td>Sagit. diam. (midpoint)</td>
</tr>
<tr>
<td>Tibia</td>
</tr>
<tr>
<td>Maximum length</td>
</tr>
<tr>
<td>Trans. diam. (nutr. for.)</td>
</tr>
<tr>
<td>Sagit. diam. (nutr. for.)</td>
</tr>
</tbody>
</table>

Dental and general health

A full set of dentition, with the exception of the left upper lateral incisor which was lost post-mortem, is present. In general the tooth wear is mild. No carious lesions are present, although tartar is present on most of the teeth. Enamel hypoplastic lesions, in the form of a single horizontal groove, are present on four of the upper and three of the lower teeth. These kinds of lesions are caused by episodes of acute infections or malnutrition (Goodman & Rose 1990). With the help of the Goodman and Rose formulae, it could be established that these lines
DISCUSSION

The forging of iron in site ZK001 took on formidable proportions at the time when this settlement was abandoned. Sixteen iron tools were excavated in the settlement. Judging the deposit in Kraal 3, the forging of iron may have commenced earlier in this high-status forge than in the low-status iron forge niches.

The smelting of iron ores and the subsequent forging of the iron bloom are treated differently by African metallurgists. Many metal working groups consider the smelting of iron a private matter as this practice was strongly ritualised. Consequently, these activities usually occurred at some distance from the habitational settlements of these communities. The forging of iron, however, is practiced by many African metallurgists as a public event (Childs & Killick 1993:325).

This dichotomy between the private, ritualised smelting of iron and the overt, public forging of iron resulted in different spatial locations for these activities. This spatial division between smelting and forging was also found amongst the Sotho metal workers of Phalaborwa (Van der Merwe & Scully 1971; Pistorius 1989) and also seems to have existed in the Mabanyamatshaana complex. While the forging of iron occurred in the central parts of these settlements where it could have been witnessed by all the inhabitants of these sites, it is at present still unclear where the smelting of magnetite ores took place.

Two types of iron forges were distinguished in site ZK001. While Kraal 3 housed forges which were associated with high-status the common iron forge niches were associated with iron forgers of a lower standing. However, it is not yet clear whether iron forging and political status were interwoven in the Mabanyamatshaana complex. Such an ideology used to exist amongst Iron Age groups in Central Africa. Here, rulers were buried with their anvil/hammerstones which served as symbols and as insignia to these important political figures (De Maret 1985:73). Ruling lineages among the metal workers of Phalaborwa also had their iron forge shelters, which were equipped with elaborate furnaces and massive anvils and hammerstones, built on the slopes of hills. These forges are associated with habitational remains which may have some association with the rulers of these settlements (Pistorius 1989).

Three ranges of dates were possible (on the + 1 sigma level of the calibration curve) for the time of death of the individual, namely: AD 1698, AD 1721; AD 1820, AD 1852 and AD 1867, AD 1929. The first range of dates was ruled out on the basis of stratigraphical evidence from the grave and the relatively well preserved remains of the "sesigo". The second range of dates would place the death of the young man during a period of conflict in the Central Transvaal (c. AD 1818-1832) while the first part of the third range fall well within the colonial period of the Transvaal. The latter part of the third range, which corresponds with the turn of the twentieth century and with both calibrated dates, is too recent to be considered seriously. The time period between c. AD 1820-1867 seems, on the basis of stratigraphical and historical evidence as well as the good state of preservation of the "sesigo", to be the most acceptable for the time of death and burial of the young man.

Different burial practices have been described for the Iron Age peoples of South Africa. It is generally assumed that people who were buried in the middle, or on the perimeter of cattle kraals had high social status. Most of the 32 skeletons found in Iron Age sites which were occupied by the Sotho-Tswana were buried in a vertically flexed position (Morris 1992).

When one considers the fact that this individual was buried in the central inner space which used to serve as a cattle kraal, it would appear that this person, despite his youth, had a high status. One can therefore speculate that this young man might have been a member of the family of the ruler of the settlement or that he may have
achieved his status through his craft as an iron smith or, perhaps, through an act of bravery such as being killed in battle. (Not one of the possible diseases which were identified from his skeleton would necessarily have led to his death). There are, however, no signs of trauma to be found on the skeleton.

Iron working in the Mabyanamatshwaana complex have coincided with conflict in this part of the Central Transvaal. This assumption is based on evidence such as the burial of the young man in a "sesigo". These containers were normally stored on stone platforms within the confines of the dwellings ("malapa") and were only buried in cattle kraals during periods of war (Redelingshuyys 1968:61). The turn of the nineteenth century in particular coincided with at least one well-known period of conflict in the central Transvaal, namely the "difaqane". It is therefore possible that the young man was buried in a (disused) "sesigo" which was already buried in a kraal of site ZK001.

The large scale forging of iron in the central parts (kraal complexes) of settlements of the Mabyanamatshwaana complex suggests that these communities did not keep stock in these enclosures at the time when these sites were abandoned. These animals, which have been identified as cattle, sheep and goats (I. Plug, pers. comm.), were perhaps kept safely at cattle stations which were located far from these habitation sites. Such a practice, given abundant grazing in the area under normal circumstances, could imply that stock was at the root of the conflict. Consequently, all the stock may have been hidden from the enemy.

Another possibility is that all of the stock may have been lost in conflicts. It seems that the Kgatla and the Kwena of Mabyanamatshwaana participated in many battles at the turn of the nineteenth century. A forty year old Kwena Môgôpa spokesman told Andrew Smith in c. AD 1834 that the Kwena never had any cattle during his lifetime as their cattle had been taken from them during these wars (Breutz 1953:89).

The large range of iron tools which were excavated from different areas in the site indicate that iron manufacture was aimed at local consumption. The large scale of production also suggests that surplus iron tools were manufactured which would have meant that tools were traded, possibly with neighbouring groups such as the Bafokeng, Ndebele and even with chiefdoms such as the Kwena Modimosana and the Pedi further afield in the Transvaal. Two pieces of ivory found on a settlement adjacent to site ZK001 also support a trade hypothesis for the Mabyanamatshwaana complex. The use of iron working tools as funerary goods, however, also suggests that iron working played a significant role in the ideology of the Kgatla-Kwena of the Mabyanamatshwaana complex and that a possible relation between iron forging and political status should be investigated further.

ACKNOWLEDGEMENTS

The authors would like to thank students and assistants from the Departments of Anthropology and Archaeology and Anatomy at the University of Pretoria who assisted in the excavation of the skeleton. Dr J. Vogel of the CSIR did the radiocarbon dating of the skeleton while Professors M. Henneberg and B.M. Rothschild made valuable comments on the skeleton pathology.

We would particularly like to thank Braam Marais of Liebenberg, Jenkins and Associates (Civil Engineers) of Pretoria who arranged financial assistance for this excavation.

Research during the last three years in the Rustenburg-Pilanesberg-Brits area would also have been impossible without financial assistance from Hein Enslin of Vameto Mine and Pierre Lourens of the Gencor Development Trust.

The photographs of the skeleton, grave and "sesigo" were taken by Marius Loots of the Department of Anatomy of the University of Pretoria. Marius, as so often in the past, also made major contributions to the painstaking recovery and documentation of the skeleton.

REFERENCES


ARCHAEOLOGICAL INVESTIGATION OF A NINETEENTH CENTURY WATER FURROW IN CHURCH STREET, CENTRAL PRETORIA*

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ABSTRACT

Originally Pretoria was supplied with water by a system of furrows. An archaeological investigation was conducted of a section of one of these furrows, found in the course of construction work in Church Street, Pretoria. The investigation aimed to provide the Pretoria City Council with recommendations for the conservation and possible use of the furrow. Two sections of the furrow were examined in order to obtain more information on the building material and techniques used in its construction. From the investigation it was deduced that the furrow was primarily in use prior to 1910, to supply water to the eastern parts of the city. It is suggested that more detailed research should be carried out in order to understand the furrow system as a whole in an effort to anticipate similar problems and solutions in future development projects.

INTRODUCTION

During the pedestrianisation of Church Street in central Pretoria, the remains of what seemed to be a water furrow built of stone was found under the sidewalk paving. The furrow posed a major problem to the contractor as it was situated in line with the positioning of street lamps and trees, as proposed by the new design. After discovering the furrow the contractor contacted the landscape architects, who then contacted the City Council’s department of urban planning. A group of advisors consisting of the landscape architects who did the design, an archaeologist from the Museum, an historical consultant, two town planners and an urban designer of the City Council, the contractor and representatives from the National Monuments Council were called in to assess the situation. At this stage, the possibility of turning a section of the furrow into a tourist attraction was also agreed upon, with adaptations to the original design.

The contractor was asked to stop construction work around the feature in order to provide the archaeologist with the opportunity to examine the furrow (Fig. 1). There was a need for speedy completion of the excavation, due to the fact that the contractor was contractually bound to hand over the project at a predetermined date, failing which a financial penalty for each day would be imposed. The Museum was given five days to complete the investigation and to submit a written report. In the meantime, the contractor undertook to work on a different section of the project.

DESCRIPTION OF THE SITE

The furrow was found on the southern side of Church Street, between Prinsloo and Van der Walt Streets in the central business district of Pretoria (Fig. 2). This area forms part of the core of Pretoria which originates in 1855 and is subject to continual development. The part of Church Street between Prinsloo and Van der Walt Streets today houses the State Theatre and Strijdom Square on the southern side. The Sammy Marks building and square and the Kynoch building are located on the northern side. The old Market building on the southern side was demolished in the early 1960’s in order to make way for Strijdom Square.

The area in which the furrow was investigated was previously used as a market. Originally Church Square, situated to the west, was used for this purpose. In September 1882, however, it was decided to relocate the market to the area then used as the "uitspanningsplein" or camping site, i.e. the city block situated between Van der Walt, Kerk, Prinsloo and Pretorius Streets, as market activities conflicted too much with the activities of the people going to "nagmaal" (Communion). The "uitspanningsplein" then became known as Markplein (Market Square). Auctions were, however, still held on the church square until these were finally forbidden in 1889 (Pieterse 1942:23).

According to the contractor the remains of a similar furrow were also found on the northern side of Church Street. With the extension of the project by the contractor, some weeks after the conclusion of the
Museum’s investigation, similar remains were also found in the block further to the west.

The contractor found another furrow at the intersection with Van der Walt Street, at right angles to the one in Church Street. This furrow had the same construction as the other, but was only about 0,20 to 0,25 m deep. It is possible that it was connected to the one in Church Street but was destroyed during the installation of traffic lights and other services in this location. No connection could be seen.

A brick stormwater drain was later found at a level lower than the furrows, in the middle of the street. According to the contractor it was below the cement bed put down in 1910 for the rails of the electric trams. This drain therefore appears to predate 1910.

**HISTORICAL BACKGROUND**

Since its early days Pretoria has been supplied with water by a system of furrows from the fountain area south of Pretoria. According to specifications these were 3 ft (0,92 m) wide and 18 inches (0,45 m) deep. The furrow continued through town to the southern or top side of Church Square where it split in two, going round the sides of the square. At this point the furrows were big, 18 inches (0,45 m) wide and 12 inches (0,30 m) deep. The two furrows met again at the bottom of the Square, continued through town and ran back to the Apies River. The government undertook to lead the water from the square to the rest of the town (Pieterse 1942:28). This project was started prior to 1860, but its completion date is uncertain. It is significant that the specifications indicated here are completely different to those found for the furrow under investigation.

A map of Pretoria dating to 1879 indicates the existence of these furrows (Map 3/209). The furrow under discussion here is, however, not indicated on the map. Furthermore, it seems as if not much development of the eastern side of Pretoria had occurred at the time the map was drawn. This raises the question as to why such a large furrow would be built in an area which appears, at this time, to have had no need for it. It therefore seems that either the furrow did not form part of the rest of the system of furrows or that it dates to the period after the map was drawn, i.e. after 1879. However, this is contradictory to the evidence presented below.

It is possible that the furrow was ‘private’ in origin, possibly supplying water to the mill belonging to Stephanus Meintjies. The mill was located on the corner of Church and Edward Street (Malherbe 1971:9) and was already in operation before 1880. This was Meintjies’ original mill, not the one erected later and illustrated in FitzSimons (1951:10). An examination of the photograph by Gros (photograph HKF 195/16) east of Church Street shows the feasibility of this explanation. This photograph indicates a furrow in Church Street on the southern side. The original mill is also shown in a painting by W.H. Thorne in the collection of the National Cultural History Museum (HG 32670). This painting shows three buildings which are also indicated on the map of 1879. However, it still does not explain why the furrow was not indicated on the map. The possibility also exists that the mill could have obtained its water from a different source.

A search of contemporary photographs, especially those of H.F. Gros, was done. Gros lived and worked as a photographer in Pretoria from 1877 to 1895 (Cartwright & Cowan 1978:4-5) and took numerous photographs of street scenes. His photograph No. 383, showing a water furrow built of stone in a different part of Pretoria serves to confirm the existence and character of the furrows. One of the best indications of the existence of the furrow at this particular point in Church Street is found in his photograph No. 367 of Market Square. On this, a very well defined sidewalk can be

![Fig. 1. The water furrow during excavation.](image)

![Fig. 2. Map showing the location of the section of the furrow that was investigated.](image)
Fig. 3. Photograph of Church Street by H F Gros, showing the sidewalk over the furrow to the left.

seen as well as a curb (see the description in excavation 2 below) and a hole which might be the entrance to a drain. The same features can be seen on his photograph No. 384. It is thus possible that the furrow under discussion was located below the sidewalk (Fig. 3). The same can be said of photograph 20772 in the Transvaal Archives. On this photograph one can see what may be interpreted as inspection holes through the sidewalk. However, the overall quality of the photograph is not good enough to draw definite conclusions. Other photographs show that if the furrow were under the sidewalk it would, in time, have been covered by the stoep of the old Market building erected by 1879. The deduction made from this is that the furrow was built prior to 1879, i.e. before the map was drawn.

That the furrow was replaced by a system of pipes is deduced from the fact that a pamphlet, dating to 1891, gives an explanation of the rules and regulations concerning the supply and use of water in Pretoria. Water was supplied by means of pipelines that were to be installed (Pretoria Waterleiding Maatschappij Beperkt 1891). Exactly when these pipes were installed is still uncertain but photographs dating to the period 1900-1910 clearly show the existence of fire hydrants on the sidewalks, a definite indication of the existence of the water pipes.

ARCHAEOLOGICAL FINDINGS

The archaeological investigation of the furrow was influenced by a number of factors;

Damage already caused due to the excavation of trenches for the installation of services such as electricity and telephone cables over the years contributed to the fact that large sections of the furrow were automatically excluded from the investigation.

The City Council of Pretoria decided to preserve a section of the furrow and incorporate it into the pedestrianisation of Church Street. A section of the furrow in front of the State Theatre was identified by the landscape architect for this purpose. Although this section is incomplete, no longer having a roof, it was decided to do an archaeological investigation of this particular area.

It was decided to investigate any other features that might come to light during further operations by the contractor.

With the above factors in mind a complete section further along the street was excavated to serve as a control for the first excavation.

The contractor had already exposed the furrow. It was, therefore, easy to decide where and how to excavate so as not to damage the structure. It was soon evident that the deposit, mostly very fine silt on the inside of the furrow, was to a large extent disturbed and that normal excavation procedures would not be possible. This, coupled with the fact that we were given only five days in which to complete the job, led to a decision to use pick and shovel to excavate but to leave sections in place in case any stratigraphy could be found. This proved not to be the case.

Excavation 1 (Fig. 4) consisted of a trench 25 x 2.3 m from east to west next to the entrance of the State Theatre. The purpose of this excavation was to establish the exact dimensions of the furrow as well as to gain

Fig. 4. Plan and section through the furrow, excavation No. 1.
information about the method of construction and materials used. Artefacts found during the excavation process could help to shed light on the use and dating of the furrow.

After removal of the topsoil, i.e. approximately 0.5 m, the walls of the furrow became clearly visible. The deposit on the inside consisted mainly of soft silt that could be removed very easily. In places it included stones fallen from the roof and sides and pieces of concrete. All the material was removed down to the bottom of the furrow. Bottles, nails and other pieces of metal were recovered from the silt.

The occurrence of artefacts of recent origin, e.g. 2 litre plastic soft drink bottles, were possibly the most significant finds, indicating that the furrow has been exposed during recent times. This was later confirmed by people from the Water Department and Electricity Section of the Pretoria City Council who claimed to have found sections of furrows when installing services. A number of metal and plastic water and sewerage pipes found in the furrow provided further proof of this.

Excavation 2 (Fig. 5) consisted of a block 9 x 2.25 m, close to the corner of Church and Van der Walt Streets which also runs in an east - west direction. In this area the furrow still had its original roof which also included two inspection holes. This section was investigated because it contained an undamaged section of the furrow. It was later decided not to remove the roofing from this section as it was one of the only sections where it was still intact and could be helpful in reconstruction of the furrow for exhibition purposes. Accordingly, this section of the furrow was excavated through the inspection holes.

Directly to the north of the furrow, in excavation 2, a line of rectangular stones was found. This seemed to form part of the original curb stone structure. The stones were slightly higher than the roof of the water furrow. The excavation was extended over a further 2 m section to establish the significance of these stones. It was also explored downwards to establish the connection of these stones with the original roadbed (if the latter still existed).

Halfway down the depth of this stones layer the soil was compacted and covered with a layer of small stones. This was then followed by a yellowish layer before the bottom of the curb stones were found. This same profile was found in all places in the street where the contractor installed various services. By using a dumpy level the depth of these layers was correlated with those found in the excavation. As the depths were the same throughout, it was deduced that this was part of the old roadbed.

THE WATER FURROW

In this section of the road where the investigation took place the furrow runs from west to east at an incline of 1:600. This slight angle might be one of the reasons why it silted up very easily, necessitating the many inspection holes added for cleaning purposes. The inspection holes were built into the roof of the furrow at a later stage, approximately 6 m (± 20 ft) apart. As the level of the road and sidewalk was built up over the years and the furrow was covered. The opening of the holes also had to be built higher, as can be seen from the bricks which were added on. The inspection holes are an average 0.65 x 0.45 m in size.

The floor of the furrow consists of pieces of slate, placed horizontally without any binding material. The slate varies in thickness between 30 mm and 80 mm. It
extends beyond the sides of the furrow and therefore also serves as foundation for the walls. The inside dimension of the furrow is 0,6 m but, because it also serves as foundation, the slate varies between 0,9 m and 1,2 m. It therefore seems that the trench for the furrow was first excavated 1,2 m in width in order to lay the floor, after which the walls were added.

The walls of the furrow were constructed of sandstone and slate. The height of the walls vary from 0,74 m to 0,8 m and 0,6 m in width. In places the wall is made up of only one stone but in other places two or more were used, depending on the size of the individual stones utilised. Only the inner walls of the furrow were smooth. The stones were layed in the one-over-two and two-over-one technique. No particular preference in the choice of stone is visible and sandstone and slate are used irregularly. The top layer was finished with a flat surface on which the roofing could be added. A 2,0 m section of the wall, which had probably collapsed at some stage in the past, was found to be rebuilt in cement.

The roof was built in slate. The roofing slabs were generally larger than the ones used for the floor, although they are of the same thickness. Where the road crosses over the furrow, the roof is nearly twice as thick, possibly to accommodate the heavy traffic. The slabs were placed close to each other. A thin layer (10-20 mm) of mortar, consisting of a mixture of sand and lime, was used to cement the roofing slabs onto the walls. This was found to be the case in both excavations.

**ARTEFACTS**

Fourteen complete glass bottles and a number of pieces of glass were recovered from excavation 1. Five of these are of recent origin (1 litre Stoney gingerbeer bottle, 300 ml Coca Cola-bottle and a whisky-, gin- and a beer bottle). These were found approximately half way down in the furrow which possibly indicates that this section of the furrow had been opened sometime during the past 20 years.

Nine other bottles, dating to the period late 19th to early 20th century, were found on the floor of the furrow. They were all used for either wine or champagne. One glass bottle stopper dating to the same period was found.

A number of rusted nails, a horse shoe and metal bolts were found in excavation 1. Only one small piece of unidentifiable bone was found in excavation 2.

**DISCUSSION**

Even though the archaeological excavation did not shed much light on the exact function and dating of the furrow, much information regarding its construction was gained. This is deemed relevant as most of these furrows, which played such an important role in early Pretoria, have already been destroyed.

The investigation raised a number of questions relating to the origin and use of the furrow. The main water supply flowed from south to north and then in an easterly and westerly direction. It does not seem to make sense that the furrow in Church Street is so much deeper than the one in Van der Walt Street (flowing from south to north) unless this was to compensate for the original topography, which, with all the changes that took place over the years, is difficult to establish. Also puzzling is that if this was an irrigation furrow it should be located on the southern side of the road, as the slope increases to the south. In theory, an irrigation furrow for this block should be located in Pretorius Street which is on the up-slope or southern side of the block. The indications are that the furrow under investigation was used to supply water to the eastern side of the block, e.g. the Melntjies mill. For discussion of a comparative situation see Abrahams (1989).

It is highly unlikely that the furrow dates much before 1860 as it is known that the furrows were still under construction as late as 1863 (Pieterson 1944-28). However, it must have been completed before 1880 as the Market building was finished by then and this covered part of the sidewalk under which the furrow is located. Water pipes and other channels were in use by the turn of the century.

The finding of Coca Cola and Stoney bottles in the furrow indicates that its existence in recent times was not unknown. However, it seems as if people preferred not to mention it, possibly fearing either that it would interfere too much with their work or not realising its significance. The implementation of standard Integrated Environmental Management procedures, especially during the planning phase in urban design, will go a long way towards

![Fig. 6. Reconstruction of the furrow for public viewing.](image-url)
preventing situations such as the one described in this paper arising. It is therefore believed that the decision made by the City Council to reconstruct a section of the furrow for public viewing (Fig. 6) will make people aware as to the importance of cultural resources and thereby increase the likelihood of receiving their cooperation in the future.

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RADICarbon chronology of later stone age potterY decorations in the upper seacow valley*

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ABSTRACT

Fibre temper is a prominent trait of ceramics traditionally ascribed to the Bushmen of central South Africa. Fibres from thirty decorated vessels found on surface sites in the upper Seacow River valley (Richmond and Middelburg districts) were extracted and radiocarbon dated. Rocker stamp designs, although present here by ~950 BP, were more frequently used between ~600-400 BP. Thereafter, other stamp-impressed motifs were preferred. One of these appears to be restricted to a very brief period (~300-200 BP) just before the European arrival, after which rocker stamping reappeared and became the only motif used in the historical period. Calibration of these dates reveal ambiguous gaps in the record. The previously proposed four phase sequence of decorations, based on stratified sherds from shallow rock shelter fills, is extensively revised and reduced to three phases.

INTRODUCTION

Several rock shelters used frequently by Bushman hunter-gatherers, and possibly by intrusive Khoi herders, are under investigation in the upper Seacow River valley, Richmond and Middelburg districts, Northern and Eastern Cape (Figs 1 & 3). One goal of these excavations was to establish a stratified sequence of ceramic decorations. This was to be used as a basis for seriating several hundred sherd samples collected from surface sites in the same area (Sampson 1988; Hart 1989). However, each shelter yielded very few diagnostic sherds and some sequences appeared to be locally churned. Analysis designed to isolate the supposed disturbed areas further reduced the numbers of stratified sherds. Only six radiocarbon dates from associated charcoal were used to propose a ceramic sequence for the upper valley, based on this limited sherd sample (Sampson et al. 1989).

The stratified evidence suggested that Khoi vessels and undecorated fibre tempered ware appeared together at ~1100 BP. Khoi ware was less common, increased in

Fig. 1. The Seacow River drains the north slope of the Sneuberg Mountains, a major range of the Great Escarpment.

frequency, then disappeared at ~500-400 BP. Fibre tempered wares continued, now bearing stamp impressed decorations on the outer surface. Four phases of
Fig. 2. Provisional four-phase sequence of stamp-impressed motifs on fibre tempered pottery, based on excavated sequences (Sampson et al. 1989).

Decoration were proposed (Fig. 2). Non-rocker motifs appeared first, the earliest being comb stamp, cord impressed and quill (Sampson 1988). In the next phase, variants of large spatulate (oblique, vertical, and notched stab & lift; also stab & drag) replaced all preceding motifs except quill. In the third phase, double punctate motifs took over. Finally, highly variable rocker-stamped motifs replaced the rest.

The associated charcoal dates indicated that the four phases of decoration fell between ~500 BP and ~150 BP. The three non-rocker phases fell between ~500 BP and ~300 BP and two other non-rocker motifs (ovoid stab & small spatulate stab & drag) fitted somewhere within this range. Charcoal samples from near rocker stamp sherds suggested that the last phase fell between ~300 BP and at least ~170 BP. Repeated co-occurrence of rocker stamp sherds with European artifacts suggested a later (~100 BP) termination for the last phase (Sampson et al. 1989).

Given the small sample size and the doubts surrounding the stratigraphic integrity of the shelter fills, a fully independent test of the sequence was sought. The best available option was direct dating of large decorated sherds from surface sites (Beaumont & Vogel 1984; Bollong et al. 1993). Here, we test the later (decorated) part of the ceramic sequence by direct dating of fibre temper in selected sherds.

**SAMPLING AND METHODS**

The collection of decorated fibre-tempered sherds from several hundred upper valley sites (Sampson 1988) was searched for sets of large or matching sherds decorated with the various marker motifs shown in Figure 2. The goal was to acquire five vessels of each motif type for dating. As fibre makes up only 0.5-2.0% of the sherd by weight, whole sherds weighing >200 g were sought first. If too little fibre was obtained from a single sherd, then sets of sherds from the same vessel (with matching decorations) were selected. The fibre is thought to be mainly carbonized grass which has absorbed variable amounts of fat and blood (Bollong et al. 1993).

Five or more dated vessels were obtained for only three of the main motifs: rocker stamp, double punctate,
Fig. 3. Locations of nine excavated rock shelters and of the dated sherds from surface sites (Table 1) in the upper Seacow valley.

and large spatulate oblique stab & lift. None of the latter's other variants (vertical, notched, stab & drag) were dated. Of the three readily available motifs, vessels from widely separated surface sites in the upper valley were chosen, and vessels from contiguous sites were avoided wherever possible. Except for the southeast headwaters valley of the Little Seacow tributary, which yielded very few ceramics of any kind, the dated sample was evenly distributed across the whole study area (Fig. 3).

Comb stamp sherds contained so little fibre that none qualified, but some have been thermoluminescence (T/L) dated (Sampson et al. in prep.). None of the rare, small cord impressed sherds could be dated. Of the rare quill and ovoid stab & lift motifs, only one set of sherds each could be found with sufficient material for dating. Three vessels with pointed spatulate motifs were also selected because of their occurrence on rare lugged vessels, a feature more commonly associated with Khoi vessels (Hart 1989).

Except for three pilot vessels processed in the early 1980s, plasticene imprints of the impressions were made from each specimen before it was broken up. Imprints were mounted on card with epoxy, labelled and photographed.

Fibres were extracted by hand after crushing the sherd, and the powdered residue was separated by flotation and filtering. Combustion and measurements were made using conventional gas-counting methods. None of the difficulties experienced elsewhere with dates from organics in sherds (De Atley 1980) were encountered in this programme (Bollong et al. 1993).

RESULTS

The uncalibrated dates are listed in chronological sequence in the last column of Table 1, and the mean values are plotted with one-sigma error bars in Figure 4. Besides a solitary outlier at 940 ± 100 BP, the dates range between 600 BP and 140 BP. Sigmas range between 100 and 30 years, with the larger values where carbon yield was particularly poor. The lugged sherd, being exceptionally voluminous, yielded more carbon and consequently has a narrower error bar.

The only prominent gap between the ends of one-sigma error bars in Figure 4 occurs between the earliest two dates. Between 600-140 BP there is no comparable hiatus.

Dates were converted using the calibration programme Radioc. 35, p.37 which gives the calender date(s) at which the mean radiocarbon value intercepts the calibration curve. Also given is the one-sigma range.
around these intercepts. Ranges for near-intercepts are also shown (Table 2). These values are plotted in Figure 5 for all but the oldest outlier. The sequence begins soon after AD 1400 and runs to AD 1500 before a wiggle in the calibration curve generates three probable dates for a group of three vessels from either the early AD 1500s or the early AD 1600s. The period AD 1550-1600 yielded very few probable dates. The overall shortage of dates from this century appears to be real and not a by-product of calibration ambiguities. This contrasts sharply with the following century which produced nine firm intercepts with the calibration curve.

The next main wiggle in the calibration curve creates three age options for a string of four vessels dating either to the late AD 1600s or to the late 1700s, i.e. soon after the arrival of the first European settlers in the valley. There follows a string of four more vessels dated to either the late AD 1600s, the AD mid-1700s or the very early AD 1800s. The record for the 18th century AD thus becomes entirely broken up by the calibration process.

The two youngest dates are free of ambiguities, and date to the mid- and late-19th century AD, with earlier near-intercepts.

Rocker stamp vessels are clearly the earliest in the sequence. Although they make a rare appearance in the mid-12th century AD (Table 2), they really dominate in the AD 1400s (Fig. 6). In the first half of the AD 1500s two rocker patterns are caught in the first calibration wiggle and have double dating options. Given the preceding dominance of rocker, the earlier dates seem more likely. At this point the record is truncated. After the hiatus, rocker stamping is replaced by other designs. A solitary rocker sample gives an AD mid-1600s intercept, but there is also a near-intercept at the end of the AD 1700s, which fits better with the later rocker stamp group (Fig. 6), to which this vessel might belong.

Thereafter, two more rocker patterns are caught up in the calibration wiggle, yielding three optional calendric dates. Given that rocker dominated the end of the sequence, as the excavations more amply demonstrate, common sense dictates that the younger dates should be preferred. The final two rocker samples unambiguously confirm that the excavation results: pottery continued to be made for several decades after European contact.

Large spatulate oblique stab & lift has an extremely narrow range with the first three vessels all dated to the AD 1660s (Fig. 7). The next two dates are caught in the following calibration wiggle and have treble dating options. Given the preceding pattern, it is more likely that the older values are the actual dates.

Double punctate is one of the earliest non-rocker motifs, making a brief appearance at AD 1500, but it does not appear again until the AD mid-1600s at which time it is common (Fig. 8). Unfortunately the next two double punctate dates get split by the calibration curve. The same reasoning as before favours the earlier choice of dates.

Quill at about AD 1500 is the other earliest recorded
Fig. 4. Uncalibrated radiocarbon ages, with one sigma error bars, of fibre temper in 30 vessels from the upper Seacow valley.

Fig. 5. Calibrated calendric ages, with one sigma error bars, of fibre temper in 29 vessels from the upper Seacow valley.
churned shelters, recovered Khoi are with Early (T/L) to 1400-1550 dictates work pointed split the sherds 1640, al. Although In charcoal 6. Undecorated rocker was the main phase (AD prep.), there are charcoal dates from near buried Khoi sherds that are earlier. Also, most of the dated Khoi sherds are older than the main sample of early rocker dates (AD 1400-1550 cal.), although there is some overlap. Although very rare rocker stamp sherds were recovered at depth alongside Khoi sherds in a few shelters, these lone rocker sherds were assumed to be churned downward from the uppermost levels (Sampson et al. 1989). In fact, the context of the deeper rocker sherds was sound. The error was compounded in Lame Sheep shelter (Fig. 10) where it was assumed that very young rocker sherds were churned into the top of the Khoi horizon. In fact, they represent the early rocker phase and are in perfect stratigraphic order. The top part of the general sequence is missing altogether from this deposit. With the stratigraphic integrity of the Lame Sheep shelter now restored, the positions of the earliest Khoi sherds, lower than the charcoal date of 1350 ± 50 BP (uncal.) (Pta-6302), need not be called into doubt. The calibrated intercept for this date is at AD 696 with the one-sigma range between AD 670-779. These may be the earliest recorded Khoi in the upper valley. Likewise rare sheep remains in these levels (Fig. 10) may also be the oldest currently known livestock in the upper valley (Voigt et al. in press). Direct dating of the sheep remains is planned.

Early Rocker Stamp and Comb Stamp

The early rocker phase (AD 1400-1550 cal.) overlaps with most T/L dates on comb stamp ware (Sampson et al. in prep.). This suggests that the same stylus (probably a notched shell edge) could have been used to make both motifs. If the shell is moved in a stab & lift motion, rather than a rocking motion, a comb stamp pattern is the result. In practice, the two motions were hardly ever combined. Of the several hundred rocker vessels, represented by many thousands of sherds in the surface collections, only eight sherds have a combined rock and lift pattern. Extreme care is needed to distinguish between rocker and comb if the imprints are closely spaced. For example, a sherd from MID 100, destroyed in an early pilot study, was misidentified (from a colour slide) as comb stamped (Bollong et al. 1993: table 1). Later another MID 100 sherd, identified as rocker from

**DISCUSSION**

Early Rocker Stamp and the Khoi Tradition

In the provisional sequence based on excavations, Khoi ware is the first to appear in the upper valley, along with undecorated fibre tempered vessels. Khoi ware is generally associated with Later Stone Age herders. An early rocker phase was not recognised in the excavated sequence (Fig. 2). Although the earliest dated rocker stamp sherd (AD 1168 cal.) is older than any directly (T/L) dated Khoi ware (Sampson et al. in prep.), there are charcoal dates from near buried Khoi sherds that are earlier. Also, most of the dated Khoi sherds are older than the main sample of early rocker dates (AD 1400-1550 cal.), although there is some overlap.

Non-rocker motif, with the first double punctate (Fig. 9).

Ovoid stab & lift has a split date and could belong to the end of the first rocker phase or the earlier end of the non-rocker sequence (Fig. 9). With only one date, it is impossible to determine which is to be preferred.

Pointed spatula stab & drag (on a lugged vessel) and pointed stab & lift are both firmly dated to about AD 1640, hinting that these look-alike patterns could be the work of one potter or of related potters. Common sense dictates that the younger stab & lift pattern, with its dates split by the following calibration wiggle, is more likely to group with the previous two (Fig. 9).

In Fig. 6. Slope of the calibrated ages given in Fig. 5, with some close intercepts averaged. Most probable ages of rocker stamp sherds are shown as black circles.

**Fig. 6** Slope of the calibrated ages given in Fig. 5, with some close intercepts averaged. Most probable ages of rocker stamp sherds are shown as black circles.
its plasticine imprint, yielded a near-identical date (Table 1). When the slide was compared with the imprint, it became clear that the pilot sherd came from the same rocker stamped vessel.

Although comb stamp sherds were restricted to the west side of the upper valley (Sampson 1988; Ridings & Sampson 1990), dated early rocker sherds have a wider distribution (Fig. 11). It may be that early rocker patterns occur in areas where comb stamping was conspicuously absent. Until early rocker motifs can be consistently distinguished from later ones, this proposition cannot be tested.

The 16th Century AD

The dearth of dates between AD 1550-1600 (cal.) is exacerbated by the scattering effects of the calibration...
Fig. 9. Slope of the calibrated ages given in Figure 5, showing the most probable positions (black circles) of quill, ovoid stab & lift, and pointed spatula sherds in the sequence.

Fig. 10. Composite section of Lame Sheep shelter, with projected positions of the early rocker stamp sherds in relation to Khoi sherds, livestock remains and a charcoal date.

wiggle covering this century. If the gap is real and not sampling noise, does it reflect an occupational hiatus in the upper valley? Given that it occurs during the Little Ice Age, a global event which must have intensified the harshness of upper Karoo winters, this possibility requires further investigation. Although no such break is visible in the compressed rock shelter fills, further radiocarbon dating of charcoals from those fills should replicate this gap if it is real.

The 17th Century AD
The concentration of dates between AD 1600-1700 BP (Fig. 5) has been exaggerated by the calibration wiggles which overlap both the early and later parts of the century. However, there are nine dates spanning the central portion of the century which are not split by multiple intersections with the calibration curve. This contrasts sharply with the sparse record of the preceding century and raises the question whether pottery output was on the increase because population was also increasing.

Similar increases in radiocarbon dates from the northern Cape region in general may be noted (Beaumont & Vogel 1984). This period may also be marked by
increased grass pollen in hyrax dung (Scott & Bousman 1990) and by increased bone densities in the shelter fills (Sampson & Plug 1993). The increases in rainfall and carrying capacity which these data suggest could be related to increased pottery output. Split dates notwithstanding, the results show clearly that the 17th century AD was dominated by non-rocker motifs.

Double Punctate Chronology

The provisional sequence (Fig. 2) designated the double punctate motif as the exclusive marker of the third phase immediately predating European contact. This is clearly not so. Four of the six dated sherds predate the trekboer arrival by at least 150 years, one by 270 years (Fig. 8). These results do not fit expectations. The two youngest sherds date to either a century before the Europeans or a few years after their arrival. The latter dates would fit expectations. Also, there may have been changes in double punctate stylus tip and in execution through time. The oldest was executed with a rounded tip with a small notch, whereas the AD 17th Century specimens appear to be done with pairs of hyrax incisors at a very oblique entry angle. The youngest two are distinguished by a steep entry angle into the clay surface.

Large Spatulate Chronology

In the provisional sequence (Fig. 2) the large spatulate designs were restricted to the second phase, predating the double punctate motif. Direct dating refutes this position. Three large spatulate oblique stab & lift motifs are younger than double punctate and two even overlap with the youngest double punctates (Figs 7 & 8).

A composite section through Haaskraal shelter (Fig. 12) shows all large spatulate stab & lift sherds in a narrow band just below the European livestock and artifacts (Plug et al. 1994; Voigt et al. in press). They also occur below numerous refitted rocker sherds from a single bowl (Hart 1989; Bollong 1994) associated with abundant European livestock. The large spatulate stab & lift motif may be peculiar to this brief livestock-free horizon. Although this same horizon can be detected at other shelters, they have too few large spatulate sherds for the relationship to be tested elsewhere.

The Early 18th Century AD

The paucity of dates between AD 1700-1750 (cal.) is again exaggerated by the scattering effects of another calibration wiggle. Again, calibration effects alone may not be responsible for the gap, and again the question arises whether it reflects sampling noise or a decline in pottery output during this half century. Attempts to date the widespread drop in bone midden density seen in many rock shelter fills at this time (∼ 200 BP uncal.) become entangled in the same ambiguities and it remains impossible to ascertain whether this was a time of lowered carrying capacity.

The Later Rocker Stamp Phase

Direct dating supports the last phase of the provisional sequence (Fig. 2) in that the youngest two sherds are both rocker stamped. Whether rocker reappeared in the upper valley shortly before the trekboer...
arrival (AD 1770), or shortly before European goods appear in rock shelter fills (AD 1830) is not resolved because of the calibration effects. The youngest two dates verify that Bushman ceramic production continued inside the Colonial frontier well into the nineteenth century. Rocker sherds were recovered with late AD 19th century artefacts in most shelters. This final date verifies this association and demonstrates that the superficial deposits are not substantially churned, as was originally suspected.

Some non-rocker sherds may date to after the European arrival, but none post-dates AD 1830 when the Europe presence is first registered in the rock shelter fills.

Dated, later rocker motifs came mainly from the north end of the study area (Fig. 11), where most excavated rock shelters are also located. This may explain why late rocker sherds were so much more abundant in the shelters. However, later rocker motifs also abounded in the upper levels of Haaskraal and Volstruisfontein shelters on the east side of the upper valley. By this time, Dutch trekboers had established farms in the southern headwaters valleys, so it is unlikely that Bushman pottery was common to the south. Until criteria are established for distinguishing earlier from later rocker stamp patterns, this proposition cannot be tested.

**CONCLUSIONS**

The provisional four-phase sequence of impressed decorations on fibre tempered ceramics, derived from small samples of stratified sherds in shallow rock shelter fills, must be extensively revised. Only the fourth phase is fully supported by direct radiocarbon dating of decorated sherds.

Rocker stamping must be added to the repertoire of patterns in the first phase. Besides an early outlier at AD 1168 (cal.), rocker patterns were used throughout the AD 15th century, and more doubtfully to the first half of the AD 16th century. They may have lingered on until early the AD 17th century, but calibration ambiguities rob us of certainty. T/L dates on comb stamp vessels yield an identical dating range. As the same stylus edge can be used to make both comb and rocker impressions, they should probably be regarded as decorative variants of the same ware.

In the excavations, rare early rocker sherds were misidentified as intrusive from the fourth phase, and were taken to signify churning of the deposits. With the integrity of those deposits now restored, charcoal dates with Khoi ware from well below the early rocker stamp horizon are no longer suspect. This suggests that Khoi and undecorated fibre tempered wares were introduced into Lame Sheep Shelter well before AD 700. Khoi ware also overlaps in time with the earliest rocker and comb stamp, and the possibility that the latter two decorations were made by herders rather than by acculturated hunter-gatherers cannot be dismissed.

Also in the first phase, the rare non-rocker quill decoration is verified as a belated addition to the phase. Not enough of the even scarcer cord impressed decoration could be obtained for dating. However, double punctate must be added as another (late) first phase motif. Calibration difficulties prevent us from determining whether ovoid stab & lift belongs to the end of the first phase or to the beginning of the next. This motif was too rare to be fixed in the excavated sequence.

Although a gap at the end of the first phase, coincidentally (?) at the height of the Little Ice Age between 1550-1600, is suspected, our record lacks precision due to calibration difficulties.

The second and third phases of the provisional sequence were not supported by the dating programme and they must be collapsed into one (middle) phase, dated mainly to the AD 17th century. This is because the dates of double punctate and large spatulate motifs overlap in time and they are not discrete time markers. Not all large spatulate variants could be dated, so the range of vertical stab & lift and stab & drag patterns could not be established. Small spatulate decorations also remain untested. The newly constituted middle phase is characterised by a cluster of non-rocker motifs which now includes the pointed spatulate patterns on lugged vessels. At least one rocker vessel may date to midway through the phase.

There may be another hiatus in the record between AD 1700-1750 coinciding with local evidence for lowered carrying capacity, and the absence of livestock.
However, ambiguities brought about by multiple calibration intercepts again deny us any precision. The same calibration wiggle prevents us from determining whether non-rocker decorations persisted into the early post-European times. We are also left uncertain whether rocker stamping reappeared in force just before the European arrival, or coincided with it.

Only the fourth (now final) phase of the provisional sequence is fully supported by the dating programme since the three youngest sherds in the sample are all rocker stamped. If rocker stamping was formerly associated with herders, this calls into question the ethnicity of the stockless "Bosjesman-Hottentoten" whom the Dutch first encountered here. The final date verifies that Bushman potters were still active in the upper valley in the late AD 19th century, a point suggested by the excavated data, but not yet verified from any known written source.

ACKNOWLEDGEMENTS

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BURIAL FROM THE SEVENTEENTH CENTURY DUTCH FORT DE GOEDE HOOP AT THE CAPE*

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ABSTRACT

Excavations in 1991 on the Grand Parade in Cape Town yielded a complete articulated skeleton buried in an extended position on its back. There was no evidence of a coffin. The burial was found in the vicinity of the sick-comforter’s room inside Fort de Goede Hoop which was located on the Parade site. From anatomical analysis the individual was identified as male, of European extraction, in his late forties or early fifties. A large pathological disorder of the distal femur is present on the left leg. A date of burial between 1652-1677 is considered.

INTRODUCTION

During excavations in January 1991, following on from previous work on the Grand Parade in 1983 (Abrahams 1993), the remains of a human skeleton were uncovered (Figs 1 & 2) (Argus 1991; Burger 1991; Cape Times 1991). Excavation by first author G. Abrahams-Willis and a dedicated crew including local and Earthwatch volunteers revealed a complete skeleton in an extended position on its back, with arms folded across the front of the body (Fig. 1). Orientation of the burial was with the head in a south-westerly direction. No associated artefacts were found nor was there evidence of a coffin, nails or handles. The outline of the burial pit could not be detected since the soil composition and compactness was the same all around the skeleton. A fossilised tooth was located on the chest of the skeleton, just above the folded arms (Fig. 1b).

Because the bones appeared to be very fragile and the allotted time on the site was running out, it was decided to remove the skeleton within its soil matrix (Fig. 1c) so that it could be excavated under more controlled conditions in the laboratory by co-author K. Fourshé. The skeleton is presently housed in the Anatomy Department, Medical School, University of Cape Town (UCT 457).

THE BURIAL CONTEXT

During the 1991 field season a thirty-two metre trench was excavated across the rear section of Fort de Goede Hoop (Fig. 3). This long section cut across the outer embankment of the moat, the moat itself, the inner embankment, the foundation of the Oliphant Bastion, the first wall of buildings against the back of the Fort and one of the rooms inside these buildings (Fig. 3). The burial was found inside this room.

The burial was excavated from a very distinctive deposit consisting of grey sand mixed with an almost equal proportion of quartz grit (Fig 4). This mixture formed a durable matrix which was not found in any of the other sections explored outside the Fort. It is therefore conceivable that this ground was laid down inside the Fort to form the surface of the courtyard terrain. In a test pit next to the burial, excavated down to about three metres (Fig. 5), this matrix was found to overlay beach sand deposits. Other test pits on the Fort foundations and just outside it (Fig. 6) revealed a black clay layer separating the indigenous artefact-bearing deposits in the beach sand from those above it in which European artefacts are present. In other words the black clay layer, replaced by the matrix of quartz grit in grey sand inside the Fort, introduces the first evidence of European activities on the site. Below this indigenous stone tools were found in the beach sand on bedrock.

Apart from a shallow deposit of sterile grey sand, the burial is located directly on the lowermost European-related deposit which, on this site, is associated with the first permanent European settlement of 1652. The over-
laying levels in the area immediately surrounding the burial contained a few datable artefacts from which it was possible to arrive at a terminus post quem date of 1790. The levels above this included various 19th and 20th century gravels, rubble, hardcore and tarmac.

The fossilised tooth found on the chest of the skeleton, was cleaned with dental picks and vibrator tools. It has subsequently been identified as that of a buffalo of the last Glacial Period dating to 60-70 000 years ago (Dr Graham Avery, pers. comm.). The tooth was found in the soil above the burial, possibly mixed in with shells from the surrounding soil when the burial was taking place. It may therefore not necessarily be related to the burial.

ANATOMICAL DESCRIPTION

Preservation

After having removed the burial from the Grand Parade the adhering matrix was cleaned from the bones with dental picks and brushes, measured and photographed (Table 1). The skeleton was found to be complete, but the bones were very friable. All the long bones survived relatively intact, with the exception in certain cases of the epiphysial ends. The axial skeleton, in particular, is poorly preserved. Most of the vertebrae crumbled during laboratory cleaning and all of the ribs are fragmented. The pelvis is broken and extremely friable, but complete.

The cranium suffered post-mortem crushing on its right side resulting in the shattering of the right face and temporal region. Despite this, there is no distortion of the intact portion of the cranium (Figs 7, 8 & 9). Biometric points of the midline survive, permitting length measurements of the face (Table 1). Delicate features such as the nasal bones, nasal spine, palate and styloid processes are present. The mandible is in fairly good condition, having sustained only one major break at the mandibular symphysis.

Age

Less diagnostic age-determinants suggest an older adult. Cranial sutures are partly obliterated and all the epiphyses are closed. There are no signs of advanced osteophytic lipping and there is only moderate wear indicated on the teeth.

To obtain a more precise age estimate two further methods were used. The morphology of the pubic symphysis of this individual falls into the Suchey-Brooks Stage IV with a 95% range of 23-59 and a mean age of 36.8 (Suchey et al. 1986). In addition, radiographs of the proximal end of the left femur, using Bergot and Bocquet’s method (1986), fall into stage IV with a range of 50-59 years old. These methods, along with the less diagnostic indicators, form a pattern consistent with an individual in his late forties or early fifties at the time of death.
Fig. 3. Ground plan of the 1983 excavation area and the 1990-1991 follow-up diggings. Parts of the outer embankment of the Oliphant Bastion, the moat, rear wall of rooms at the back of the Fort and the position of the burials are illustrated.

Fig. 4. West section of P5 containing burial.

Sex and stature
The cranial and postcranial features are indicative of a male. Present on the cranium is a large mastoid, moderate development of superciliary eminences and glabella, a deep palate and moderate rounding of the orbital margins. The mandible is also masculine in that it is robust and shows a clearly prominent mental eminence.

Overall the skeleton is quite robust but muscle markings are not highly defined. The clavicles are rather small for such a robust individual and are only moderately angled. The pelvis, however, strongly suggests a male identity with an acute angle of the greater sciatic notch, a narrow sub-pubic angle, ‘heart-shaped’ inlet, no pre-auricular sulcus, intermediate overall robusticity and a long sacrum.

The reconstructed height of the individual, using Trotter and Gleser (Brothwell 1981), is 174.92 ± 11.13 cm based on independent measurements of the tibia, ulnae and radii. The femora were too fragmented to warrant a precise estimate.

Dental condition
The dental health of this man was remarkably good. Due to the previously mentioned crushing of the skull, there has been some post-mortem tooth loss. The lower right second premolar is the only case of ante-mortem loss. The upper right and lower left third molars are congenitally missing while the two remaining third molars
Table 1. Cranial and post-cranial measurements* of UCT 457 in centimeters.

<table>
<thead>
<tr>
<th>ELEMENT &amp; MEASUREMENT</th>
<th>RIGHT</th>
<th>LEFT</th>
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</thead>
<tbody>
<tr>
<td>Cranial</td>
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<tr>
<td>total facial height</td>
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</tr>
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<td>orbital height</td>
<td>---</td>
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<tr>
<td>orbital breadth</td>
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<td>est 3.43</td>
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<tr>
<td><strong>Mandibular</strong></td>
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<tr>
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<tr>
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<tr>
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<td>8.53</td>
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</table>

*Measurements calculated from the average of three independent measurements of the same bone (as in White 1991).

are reduced in size. There is no caries present and a slight deposit of calculus is found on the anterior teeth along the gum margin. No hypoplasias are apparent. The anterior teeth are slightly more crowded and more heavily worn than the posterior.

The most unusual feature of the UCT 457 dentition is the anterior dental wear pattern. The right anterior teeth show more substantial wear than the left. There is no visible evidence of disease abscising which might explain this pattern. In addition to this, when viewed under a magnifying glass the maxillary and mandibular incisors, as well as the lower right canine, reveal an occlusal flaking and bucco-lingual striations.

Pathological conditions
A pathology of the left leg is evident at the knee. Affected bones are the femur, patella and tibia. The fibula does not display any anomalous morphologies and the right leg appears normal.
The most visually noticeable deformity occurs on the posterior side of the distal femur, just superior to the condyles (Fig. 10). This includes the popliteal surface and neither the linear aspera nor the supracondylar lines are clearly visible. All of the bone surface has been remodelled, presenting a pattern of resorption and deposition resulting in a very irregular surface. Porosities are frequent and the area affected extends nearly to the mid-shaft.

Linked to this posterior deformity is a marked bulging eminence directly anterior to the popliteal changes. In a radiograph of the affected area (Fig. 11), the bulge shows up as an open canal with few trabeculae, occupying much of the anterior aspect of the femur shaft. The most posterior aspect is filled with dense longitudinal trabeculae and the direction of the shaft is bent posteriorly. Despite the breakage of the condyles enough fragments are present to see that the condylar surface is abnormally flattened at its most inferior aspect. The femur is also noticeably shortened.

The left patella is shaped quite differently from the right. The medial facet of the femoral condyle is narrowed and the articular surface is rough. There is a large cloaca running laterally upwards from the non-articular infero-posterior surface. The tibia is wasted in diameter and the muscle markings are reduced.

**Population affinities**

This individual displays many morphological features which show higher frequencies in European populations (Table 1). The face itself is orthognathic, with a prominent nasal spine and an acute angle of the nasal bones. Also evident is a steep curve of the frontal bone and mesa-like shape to the super-cilliary eminences. These features, as well as the facial breadth, palate shape, mandibular shape and gogval angles, tend to exclude this individual from indigenous African populations, making him a more likely candidate of European origin.

**DISCUSSION**

The conditions for preservation on this site were not very good. The fact that the burial occurred so close to the present-day tarmac resulted in post-mortem damage to many of the bones such as the cranium. This is probably partially due to compacting of the Parade grounds over the years, a routine consequence of re-surfacing this well-used central square.

From anatomical analysis the individual appears to
have been an adult male of average stature in his late forties or early fifties. His dental condition was relatively good. The reason for an anomalous wear pattern present on the anterior denition cannot be presently determined. The classic attributes of ‘pipe-smokers’ wear, namely a bucco-lingual cut and semi-circular groove on the occlusal surface, are not present (Morris 1988). And yet, the commonly used kaolin clay pipe of the 17th century could have caused flaking and striations on the teeth similar to those identified on UCT 457. At this stage the cause of this morphology remains a matter of speculation until further investigations are pursued.

The pathological disorder of the distal femur shows evidence of a large infection. The affected knee was found in a raised position in the burial. According to Prof I.D. Learmonth (Dept. Orthopaedic Surgery, UCT, pers. comm.), the joint was probably partly flexed and permanently frozen. The left leg was shortened and therefore the individual would have walked with a clear limp. Through evidence of the shortened femur as well as the healed nature of the remodelling, this was an incident which occurred during childhood growth, possibly resulting from pyogenic osteomyelitis. This could have been generated either spontaneously as a childhood illness or developed as the result of trauma. Another diagnosis could be tuberculosis, but the fact that no other lesions are present elsewhere on the body, makes this a less likely explanation.

Both the anatomical evidence and the extended position of the burial, indicative of a Western European Christian burial style, lead to the conclusion that the individual was of European genetic origin. A burial date of prior to 1700 is proposed for the following reasons. The burial was sealed by deposits containing artefacts of the 17th and 18th centuries found mostly in secondary contexts (Abrahams 1993:13). A resolution was passed in 1710 enforcing the use of coffins, if wood were available, the cost of which was to be written off as hospital expenses:

Verder ingesien zijnde, dat alle gemeene Comp. dienaaren, welke hier in’t hospitaal komen te sterven, eenlijk in een combaars, als zij die hebben, genaaid, en alsoo op’t ordinaris soldaaten, matroose en slaven kerkhof ter aarde besteld worden’t, geen met de Christelijke menschlievenheid en practijcque alomme in India, niet over eenkomen, Is ten dien reguarde verstaan, alle sodanige overleedene Europee dienaaren, gelijck meede de gemeene man, die hier uijt het guarnisoen komen te sterven, voortaan in kisten te laten begraven, bij so verre men hier daar toe planken te missen sal hebben, die op reekg. te doen stellen, en de te kwaad staande ten lasten van ‘t hospitaal af te schrijven. En is wijders goed gevonden’t voors kerkhof, thans nog geheel openleggende, met een behoorlijke muur na een beguame vereffening en verhoginge te laten omtrekken; om dus te beletten, dat de varkens of ander gedierte, de aarde niet komen om te vroeten, nog de lijken te beschadigen (Boëseken 1962:157).

The local burial practice was considered to be contrary to the Christian way of life. There was also concern about the graveyard which was to be adequately walled to prevent animals from disturbing and damaging the graves. Generally speaking, Dutch East India Company servants who died in hospital were sewn in blankets, which might also have happened with this burial.

There appears to be a contradiction, however, since this person, assumed to have been of higher status because he was buried inside the Fort, was buried without a coffin. This also points to a 17th century date for the burial, a period in which the Cape is known to have suffered from a serious shortage of wood. It illustrates the point that local circumstances can have important consequences, even on those entrenched customs such as the burial practice of 17th century inhabitants of the Cape.

Between 1697 and 1699 the Parade was levelled under the direction of Simon van der Stel and Willem Adriaan van der Stel (Theal 1897:369; Picard 1968:55; Woodward 1974:199; Emms 1975:23) and on a plan from 1693 (Cape Archives M2/17) the Parade is shown with walk-ways cutting across it. It is therefore unlikely that burials would have taken place on the site during this period. The most convincing evidence for the uppermost date of this burial, however, is a resolution of 1677 (Kantoor van die Hoofargivaris 1959:217),
Soo is goetgevonden ende geresolveert na gedane overlegh met dat nieuwe project ten aansien om de wel gelegenheit van de plaats en de nootsakelijkheijt van dien daar mede tusse wijle voort te varen.

It was resolved, after due consideration, to proceed with the project of building a new church with a graveyard in the available space in the unused old part of the Company’s garden, that is, on the site of the present Oude Kerk at the top of Adderley Street (Abrahams 1985:70). It was stated that further burials were disallowed in the grounds previously used in the new Fort (the present Castle one would presume). This means that grounds in the Castle subsequent to the original Fort had by this time become the focus of burial and furthermore that the Resolution had been put into effect since it is noted that Ds Petrus Hulsenaar had been interred on the new site. There is still underground evidence of the cemetery at the top of Adderley Street today (Abrahams 1985:52).

The burial, if superimposed on a 1653 plan showing areas of occupation in Fort de Goede Hoop (Fig. 12), was located in the vicinity of the second last room from the corner of the Oliphant bastion, referred to as the sick-comforter’s house on the plan. An additional note in the key states that parts of this house were still incomplete. The location of the burial points to the social practice of burial inside occupied building terrains, a custom brought over from The Netherlands in the 17th century (Hopkins 1965:124). This honour was, however, reserved mostly for officers of the Dutch East India Company.

Mediaeval practices were incorporated into the Christian Church. One of these customs, which continued to be used in 17th century Holland, was to bury the corpse with feet facing east (Dr S. Veltkamp-Visser, pers. comm.). The alignment of the burial under discussion is of interest here because, although not strictly facing the east, the feet were found pointing in a north-easterly direction.

The lowermost date for the burial is indicated by the excavation context. The skeleton was found in the first European context of 1652. Taking into account all of the above points, the strongest of which relate to the levelling of the Parade grounds, the stratigraphy and the presence of alternative burial sites, it is highly likely that this burial may have occurred between 1652 and 1677.

Two other burials were found on the Grand Parade in 1966 (Emms & Speed 1966; Emms 1975:19-26; Voigt 1977:108). These burials were reported by Emms and Voigt (néè Speed) as relating to the Fort of 1652-1674, overlapping with the period postulated for the burial uncovered in 1991. The only common denominators are that they were also males and that they occurred on the Parade which originally extended as far as Adderley Street. On the other hand, a number of differences are evident. The first two burials were both of sub-adults of approximately 18 years of age. They were found outside the Fort, buried in coffins and laid to rest with heads to the north-west. These observations indicate fundamental differences in the styles of the burials excavated in 1991 and 1966 which remain to be explained.

Two follow-up projects are being executed on the more recently excavated (1991) Parade skeleton. Prof V. Phillips of the Department of Oral Pathology, University of Stellenbosch, will be analysing a tooth sample for its lead content and relating these results to other comparative analyses. Prof Judy Sealy of the Archaeology Department, University of Cape Town, is formulating results from isotopic analysis of the bone and tooth samples in relation to diet (Sealy et al. 1995). The analysis thus far has yielded little variation between tissues, signifying that the individual ate a diet of fairly consistent isotopic composition throughout his life. It may be that he spent a relatively short time at the Cape before he died (Prof Judy Sealy, pers. comm.). From these results more interesting information will be available on this find.

No evidence has been found to indicate the specific identity of this individual. Seventeenth century diaries of commanders at the Cape make numerous references to deaths (Thom 1952; Broëseken 1973), but none specifically relating to a person in his early fifties, probably partly incapacitated, buried without a coffin in an honourable position inside the Fort at the Cape of Good Hope.

Fig. 12. A 1653 plan of Fort de Goede Hoop (State Archives, The Hague, Chart 814) showing the position of the burial in the sick-comforter’s house.
ACKNOWLEDGEMENTS

Our sincere thanks to Prof Alan Morris for his guidance, particularly during excavation and analysis of the skeleton. Dr Graham Avery processed and identified the fossilised buffalo tooth. The radiographs were done by Ms Leslie Monroe and diagnosis of the pathological aspects were received from Prof Learmonth. Finally, a word of thanks to those volunteers who availed themselves for additional assistance for the removal of the skeleton during the last weekend of the excavation.

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TWO SEVENTEENTH CENTURY COFFIN BURIALS AT THE CAPE*

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ABSTRACT

Two skeletons excavated in 1966 during the construction of the Cape Town Post Office Tunnel were reanalysed and described here. Although the specimens were highly fragmentary and in poor condition, it was determined that the two individuals were in their late teens and probably male. By historical inference, the time of death was narrowed down to the period between 1652-1677, but most likely occurring within the year 1652.

INTRODUCTION

In 1966, two coffin burials were discovered while digging the trench for the new Post Office Tunnel, Cape Town (Voigt 1977). The excavation was performed by E. Speed (née Voigt) as a rescue operation and written up in an unpublished report (Speed 1966). Further inquiry into the matter was made in a publication and several newspaper articles by M. Emms (Emms 1966, 1975; Emms & Speed 1966). In these, he gave brief descriptions of the burials and their context and speculated as to their ages and individual identifications.

Because burials can reveal vital details about the peopling of the early colonial Cape, this study has been undertaken as a further detailed anatomical analysis. The anatomical data have been used in an attempt to decipher these individuals’ age at death, sex and time of interment. This analysis, in addition to historical inference, is also intended to help other researchers acquire further information about these early burials (February in press; Sealy in prep.).

ANATOMICAL DESCRIPTION

Introduction

When this project was begun in February 1993, the analysis included only the fragments of two skeletons from the 1966 excavation housed in the University of Cape Town’s Department of Anatomy (UCT 255). After cleaning and reconstructing these specimens, it was discovered that two more fragmentary skeletons, said to be from the same excavation, resided at the South African Museum (SAM-AP 5078). The two sets, in fact, represented the remains of the same two individuals, both from the 1966 excavation. While there are no records of such a removal, it is thought that at some point in time someone from UCT borrowed portions of the skeletons from the SAM with the intention of analysing them more closely but the remains were never returned (A. Morris, pers. comm.). Upon completion of this study the skeletal materials were returned to their original institutions. Since it was impossible to determine which bones belonged to which individual because of similar age and size, this analysis is by element rather than by individual. A list of elements at each institution can be found in Table 1.

Preservation

The remains from the Post Office Tunnel are of two fragmentary individuals. The preservation is very poor and most bones flake upon being handled. Two vaults are represented by a nearly complete calvarium (Fig. 1) and a second, isolated left parietal (Fig. 2). A small piece of zygomatic bone, in the region of the lateral margin of the orbit, is present. One mandible and maxilla with an occluding dentition is represented. The maxilla is incomplete and broken and some teeth were lost postmortem. The mandible contains a full dentition, but is fractured at the mandibular symphysis and is missing the condylar and gonial regions. The vertebrae and ribs are present, but are highly fragmentary. All long bones exist in incomplete form with the exception of the tibiae and fibulae, which were never recovered (Speed 1966). Both pelvic sets are represented but are very friable. One set is virtually complete and articulates with the sacrum. The other is represented by a nearly complete right innominate, incomplete portions of the left side and the sacrum. Neither set includes a pubic symphysis. Small bones such as hand phalanges, metacarpals, and carpals are represented in addition to two right (Fig. 3) and one left clavicle.
Table 1. Inventory of elements at UCT and SAM 5078.

<table>
<thead>
<tr>
<th><strong>ELEMENT</strong></th>
<th><strong>SIDE</strong></th>
<th><strong>PRESERVATION</strong></th>
<th><strong>ACCESS</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Parietal</td>
<td>Left</td>
<td>Fragmentary</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Calvarium</td>
<td>Includes portions of frontal, left and right parietal, and left zygomatic bone</td>
<td>UCT 255</td>
<td></td>
</tr>
<tr>
<td>Maxilla</td>
<td>Right &amp; Left</td>
<td>fragmentary alveolar portion with teeth</td>
<td>SAM 5078</td>
</tr>
<tr>
<td>Mandible</td>
<td>Broken in two pieces at symphysis. Missing portions are: both gonial regions and a portions to the left of symphysis. Includes teeth.</td>
<td>UCT 255</td>
<td></td>
</tr>
<tr>
<td>Teeth</td>
<td>Right</td>
<td>lower II-M3 &amp; upper I1-P3, M1</td>
<td>UCT 255 &amp; SAM 5078</td>
</tr>
<tr>
<td>Clavicle</td>
<td>Right</td>
<td>lateral portion</td>
<td>SAM 5078</td>
</tr>
<tr>
<td>Vertebrae</td>
<td>Cervical, Thoracic, Lumbar</td>
<td>very fragmentary</td>
<td>UCT 255 &amp; SAM 5078</td>
</tr>
<tr>
<td>Scapula</td>
<td>Right</td>
<td>fragmentary</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Ribs</td>
<td>Very fragmentary</td>
<td>UCT 255 &amp; SAM 5078</td>
<td></td>
</tr>
<tr>
<td>Humerus</td>
<td>Right</td>
<td>complete, but broken</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Radius</td>
<td>Right</td>
<td>shaft only</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Ulna</td>
<td>Right</td>
<td>missing distal end; broken olecranon midshaft to proximal end broken; missing distal end midshaft to proximal end</td>
<td>UCT 255</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>complete, but broken</td>
<td>SAM 5078</td>
</tr>
<tr>
<td></td>
<td>Right</td>
<td>complete</td>
<td>SAM 5078</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>shaft only</td>
<td>UCT 255</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>proximal end only</td>
<td>SAM 5078</td>
</tr>
<tr>
<td>Carpals</td>
<td>Right &amp; Left</td>
<td>missing iliac crest and pubis</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Phalanges</td>
<td>Right &amp; Left</td>
<td>missing pubis</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Hip bones*</td>
<td>Right</td>
<td>fragments</td>
<td>UCT 255</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>missing anterior iliac crest and pubis</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Sacrum</td>
<td>Right</td>
<td>nearly complete</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Patella</td>
<td>Left</td>
<td>complete</td>
<td>UCT 255</td>
</tr>
<tr>
<td>Femur</td>
<td>Right</td>
<td>proximal end with separate shaft</td>
<td>SAM 5078</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>missing distal end</td>
<td>SAM 5078</td>
</tr>
<tr>
<td></td>
<td>Left</td>
<td>complete</td>
<td>SAM 5078</td>
</tr>
</tbody>
</table>

**Access**

- **SAM 5078**
- **UCT 255**

*All diagnostic markers, using tooth eruption sequences and epiphyseal fusion stages (Brothwell 1981; Ferembach et al. 1980), indicate that both individuals were of roughly the same age, between 17 and 21 years old (see Table 2). One individual consistently showed a slightly younger skeletal age than the other, so that the bones could be tentatively separated into two groups.

The eruption sequence of the mandibular teeth is not fully complete, as the third molars are still partially in their crypts. All epiphyses are in their last stages of closure, except for the iliac crest, which has not yet begun to fuse. This makes the skeletons less than 21 and more than 17 years old. A pattern of fusion emerges revealing a slightly different skeletal age between two sets of elements. The longbones can be tentatively divided into right and left pairs by epiphyseal fusion stages. One set consistently falls a stage behind the other. The radiographs of the proximal femora confirm both the age and the relationship between the two sets of elements.

**Sex and Stature**

The sex was difficult to determine in this case due to the poor condition of the skeletons. Despite this, two pelvic 'sets' have been formed. One revealed male characters. Its features included an acute angle of the greater sciatic notch and no preauricular sulcus. The other, although a more complete set, revealed only intermediate markings of diagnostic features. It is, however, quite robust.

Additionally, the single frontal bone represented, although subadult, already had quite prominent glabellar and supraciliary regions. The overall robusticity of the elements was similar between the two individuals, with...
one exception. The clavicles were markedly different in size (Fig. 3), but both are strongly angled. This may have been due simply to differential usage of the shoulder girdle region, and not a marker of sex. Muscle markings on longbones were intermediate to well-marked (Table 3).

Thus, one individual was likely a male. The second

Table 2. Age determination.

<table>
<thead>
<tr>
<th>ELEMENT</th>
<th>EXPRESSION</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mandible</td>
<td>all teeth have erupted except M3's which pass through gingival eruption</td>
<td>15-21</td>
</tr>
<tr>
<td></td>
<td>on Left but still in crypt on Right</td>
<td></td>
</tr>
<tr>
<td>Maxilla</td>
<td>M3 (isolated): roots near complete formation</td>
<td>17-21</td>
</tr>
<tr>
<td>Humerus</td>
<td>proximal (all 4) nearly complete fusion</td>
<td>20-25</td>
</tr>
<tr>
<td></td>
<td>distal- Right &amp; Left complete</td>
<td>&gt;18</td>
</tr>
<tr>
<td></td>
<td>one Right near complete</td>
<td>14-18</td>
</tr>
<tr>
<td>Proximal Ulna</td>
<td>Right &amp; Left fused</td>
<td>&lt;18</td>
</tr>
<tr>
<td></td>
<td>Right &amp; Left broken at epiphysis</td>
<td>14-18</td>
</tr>
<tr>
<td>Distal Radius</td>
<td>one right in process fusing</td>
<td>17-20</td>
</tr>
<tr>
<td>Hip Bones</td>
<td>iliac crest unfused</td>
<td>&lt;21-24</td>
</tr>
<tr>
<td></td>
<td>Ischium unfused</td>
<td>&lt;21-24</td>
</tr>
</tbody>
</table>

*ranges given are for males (Ferembach et al. 1980)

individual remains more uncertain but has been tentatively identified as a male, based on markers of skeletal (pelvic) robusticity. Stature could not be determined due to the skeletal fragmentation and the mixing of individuals.

Dental Health and Pathologies

As mentioned, only one individual's dentition is represented. The teeth are in relatively good condition, with two exceptions. A case of advanced caries is found on the lower right second molar. The entire center of the occlusal plane of the tooth has been affected, so that a large carious lesion is present. On the left lower second molar, the caries has just penetrated the enamel layer. No
Table 3. Sex determination.

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>EXPRESSION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Robusticity of longbones</td>
<td>average to heavy</td>
</tr>
<tr>
<td>Skull:</td>
<td></td>
</tr>
<tr>
<td>Superciliary eminences</td>
<td>high arc</td>
</tr>
<tr>
<td>Glabella</td>
<td>moderate extention</td>
</tr>
<tr>
<td>Orbital Border</td>
<td>round</td>
</tr>
<tr>
<td>Pelvis:</td>
<td></td>
</tr>
<tr>
<td>Preauricular Sulcus</td>
<td>one set with grooves, one set without</td>
</tr>
<tr>
<td>Greater sciatic notch</td>
<td>one intermediate, one acute</td>
</tr>
</tbody>
</table>

calculus is present and there is very little wear on any of the teeth. There are no cases of ante-mortem tooth loss, although this cannot be determined for the lost portions of the maxilla.

Two periods of metabolic stress in the form of hypoplasias have left discernible lines on the enamel of the teeth, both maxilla and mandible. According to Schour and Massler (1941), the disturbances occurred around the ages of 5 and 7. It should be noted, however, that the accuracy of this ageing method has been questioned in a recent publication (Goodman and Rose 1990). No other pathologies were noted.

Morphology and population affinity

Unfortunately, most features used to identify population origin are found on the face, and there are, therefore, no adequate biological markers to aid in the determination of population affinity.

TIME OF DEATH OF THE POST OFFICE TUNNEL BURIALS

Though an analysis of the physical remains is the main thesis of this paper, it would be useful to attempt to bracket a time in which their deaths occurred until further studies of the archaeology, chemical analyses and coffin material are undertaken.

A Short History of the Table Bay/Grand Parade Area

The future Cape Town made its debut in 1652 as a refreshment station for the Dutch-run, East India Company (VOC), which served as the halfway point between Holland and Dutch Batavia (Thompson 1990; Boxer 1979). An earthen fort was built that same year (Abrahams 1993). Though the station was never meant to become a town, it soon developed along these lines (Thompson 1990; Picard 1968). A second more substantial fort, called the Castle, was begun in 1665 and finished in 1674, at which time the walls of the old fort were demolished (Abrahams 1993). Only a few buildings of the original fort, now used for storage, still stood at this point (Abrahams 1993; fig. 5). The Grand Parade, as we know it today, was already referred to as such immediately after the fort was removed (Picard 1968). One could see soldiers training, villagers trading and later, social functions and activities performed in this open plaza (Ibid). Also, starting in 1659 (Abrahams 1993), the Freeburghers dorp had developed. This is most important because of the town’s location in relation later to the Castle, which made the area of the old Fort a major thoroughfare.

Archaeology

The two coffin burials lay relatively undisturbed until 1966 when, by accident, they were uncovered during the excavation of the Cape Town Post Office Tunnel, a portion of which fell within the bounds of the modern-day northeast corner of the Grand Parade (Fig. 5 & 6). A summary of the report of the excavation (Speed 1966) reveals some evidence for cultural affiliation. According to it, two skeletons were found, each within their own wooden coffin. The first skeleton was nearly complete, with an associated skull (which was damaged during construction). The second skeleton was headless and most of the left shoulder region and legs below the knees were missing. Both skeletons were in an extended position with their heads to the west (Speed 1966). The graves were probably associated with a fine black soil layer, which was covered by rubble fill, associated with cultural material mostly from the early 17th century (Abrahams 1993) a human femur and piece of skull (Speed 1966; Emms 1975). This was postulated by Speed (1966) to be associated with the leveling of the Parade, 1697-1707. Although no individual matches could be made of the skeletal fragments from the overlying rubble layer, similar elements were missing in the Coffin 2 skeleton. Speed assumed that when the Parade was leveled, the coffin was disturbed, leaving it to ante-date the leveling of the Parade. She further speculated that no burials took place on the Grand Parade after the fort (walls) were demolished in 1674.
In 1975 M. Emms published an article about the location of the old Fort of Good Hope; the location of which is in general agreement with Abrahams (1993, pers. comm.). In it he recounted and added information about the two coffin burials. He concluded that the burials were those of the Dutch type due to structural and elemental details of the coffins. Emms postulated that the two men must have been: (1) sailors before Van Riebeeck, (2) early burials during Van Riebeeck’s time or (3) the burial of executed criminals. Execution has been ruled out by Emms and by the absence of any evidence in the skeletal material during this analysis. That these were burials before Van Riebeeck’s tenure is possible but not probable. As Emms states, the burials seem to interred with “precognition to the existence of the fort” (1975:23, fig. 6). The burials were found in what was once a narrow peninsula between the fort’s moat and the Amstel River (Fig. 6). It seems less parsimonious to assume that the burials were interred before the existence of the Fort in 1652, remaining undisturbed during the construction of the Fort and its surrounding moat.

A recent analysis of the coffin wood (February, in press) may resolve the time of burial. Towards the end of 1652, the supply of wood brought by the settlers from Holland began to run out. After that, only indigenous Cape woods were used (Emms 1975; February in press) and in 1677 a resolution was passed that there were to be no more burials on the parade (Picard 1968). February found that the coffin wood was a species of Pinus which could only have come from Holland. He therefore places the date of the burials within the first year of European settlement, 1652, the same conclusion which Emms (1975) postulated.

Thus, for the lower end of the time period, 1652 will be posited because the burials seem to take place with some preconceived knowledge of the fort’s perimeters. Additionally, the use of Pinus in the composition of the wooden coffins is strongly indicative of burial in the first year of Cape occupation. The year 1677 is suggested as the upper end of the range. A resolution, announced in this year prohibiting burials on the Parade and the nature of the square as a high traffic activity area are given as evidence for this date. However, the burials were less likely to have taken place after 1653 due to shortage of imported wood. The conclusion, then, based on certain historical facts, is that the burials most likely took place in 1652.
CONCLUSION

The number of archaeological skeletons from colonial Cape Town is sparse. For this reason the information about the Post Office Tunnel skeletons, although fragmentary, is vital. Current studies, such as chemical dietary analysis of the bones (Sealy, in prep.) may determine whether or not the two purported young men survived on Cape, northern European or tropical grain foods and an analysis of the coffin wood (February, in press) gives resolution to the period in which the burials took place. An investigation of the material from the rubble stratum above the coffins could reveal further evidence of time of death and a comparison to contemporary burials (Abrahams & Foursé 1995) may produce interesting information about the early settlement of the Cape Peninsula.

ACKNOWLEDGMENTS

Thanks are due to the many people who helped me with this project: Ann Markell and Gabeba Abrahams for their insight and discussions about the burials and their historical context and bringing my attention to the early maps; Mike Wilson for graciously granting me access to the skeletal material housed in the South African Museum; Elise Fuller for the photographs, and Leslie Monroe of Groote Schuur Hospital, Cape Town. For providing all of her notes, reports and photos from the 1966 excavation, I would like to thank Mrs. Elizabeth Voigt; and David Frayer for his editorial assistance. Most especially, I owe my appreciation to Alan Morris for all of his support and help and Judy Sealy for providing me with this publication topic and the funding. This project was funded by the University of Cape Town’s University Research Committee.

REFERENCES


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

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*Accepted for publication August 1995

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, Tshithebe 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 Ramahoyya were buried in the cattle byre and not in the traditional burial.

Loubser excavated two trenches (Fig. 2). Trench 1 (9 m²) 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 m²) 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).
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).

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 (Thorps 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.

<table>
<thead>
<tr>
<th>Species/Group size</th>
<th>T1/1</th>
<th>T1/2</th>
<th>T1/3</th>
<th>T1/4</th>
<th>T1/5</th>
<th>T1/6</th>
<th>Mol. T1/7</th>
<th>Letaba T2/1-2</th>
<th>Moloko T2/3-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bos taurus cattle</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td>+</td>
<td></td>
<td></td>
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<tr>
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Table 3. Tshirulunli: total bone sample.

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<th>T1/5-6</th>
<th>%</th>
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Table 4. Tshirulunli T1/5-6: Letaba: meat contributions.

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<td></td>
</tr>
<tr>
<td>Loxodonota africana</td>
<td>1</td>
<td>.004</td>
<td>1.78</td>
<td>27</td>
<td>21.1</td>
</tr>
<tr>
<td>Equus burchelli</td>
<td>5</td>
<td>.032</td>
<td>1.68</td>
<td>2</td>
<td>6.4</td>
</tr>
<tr>
<td>Procavia capensis</td>
<td>1</td>
<td>.007</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Potamocherus porcus</td>
<td>1</td>
<td>.044</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.6</td>
</tr>
<tr>
<td>TOTAL HUNTED: NON-BOV</td>
<td>8</td>
<td>.047</td>
<td>3.48</td>
<td>5</td>
<td>34.1</td>
</tr>
<tr>
<td><strong>Searing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lepus saxatilis</td>
<td>1</td>
<td>.007</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Sagittarius serpenatius</td>
<td>2</td>
<td>.040</td>
<td>.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>TOTAL SNARED</td>
<td>3</td>
<td>.047</td>
<td>.02</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>Gathering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Manisa temminckii</td>
<td>3</td>
<td>.013</td>
<td>.02</td>
<td>1</td>
<td>.1</td>
</tr>
<tr>
<td>Freg.</td>
<td>1</td>
<td>.037</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Umo/Araparia</td>
<td>1</td>
<td>.250</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>TOTAL GATHERED</td>
<td>5</td>
<td>.300</td>
<td>.02</td>
<td>3</td>
<td>.1</td>
</tr>
<tr>
<td>TOTAL FOOD ANIMALS</td>
<td>256</td>
<td>1,870</td>
<td>37</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Non-contributor</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Papiro Ursinus</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Cynotis Eventa</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Felis serval</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Small feld</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Large carnivore</td>
<td>1</td>
<td></td>
<td></td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

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.

<table>
<thead>
<tr>
<th>Species</th>
<th>QSP</th>
<th>QSP value</th>
<th>QSP % meat</th>
<th>MNI</th>
<th>MNI % meat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Herdings</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Bos taurus</em></td>
<td>622</td>
<td>3,816</td>
<td>75,78</td>
<td>22</td>
<td>47,1</td>
</tr>
<tr>
<td>juv.</td>
<td>245</td>
<td>1,541</td>
<td>12,17</td>
<td>10</td>
<td>8,5</td>
</tr>
<tr>
<td>Sheep/goat</td>
<td>54</td>
<td>.331</td>
<td>.42</td>
<td>5</td>
<td>.7</td>
</tr>
<tr>
<td>adult</td>
<td>10</td>
<td>.063</td>
<td>.06</td>
<td>3</td>
<td>.3</td>
</tr>
<tr>
<td><strong>TOTAL HERDED</strong></td>
<td>931</td>
<td>5,751</td>
<td>88,43</td>
<td>40</td>
<td>56,7</td>
</tr>
<tr>
<td><strong>Hunting: Bovids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bov I adult</td>
<td>6</td>
<td>.036</td>
<td>.03</td>
<td>3</td>
<td>.2</td>
</tr>
<tr>
<td>juv.</td>
<td>3</td>
<td>.018</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Bov II non-dom</td>
<td>10</td>
<td>.061</td>
<td>.11</td>
<td>1</td>
<td>.2</td>
</tr>
<tr>
<td>adult</td>
<td>1</td>
<td>.006</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Bov III non-dom</td>
<td>26</td>
<td>.159</td>
<td>1.21</td>
<td>5</td>
<td>4.4</td>
</tr>
<tr>
<td>juv.</td>
<td>3</td>
<td>.039</td>
<td>.09</td>
<td>1</td>
<td>.5</td>
</tr>
<tr>
<td>Bov IV adult</td>
<td>20</td>
<td>.123</td>
<td>3.64</td>
<td>4</td>
<td>11.7</td>
</tr>
<tr>
<td>juv.</td>
<td>2</td>
<td>.012</td>
<td>.22</td>
<td>1</td>
<td>2.0</td>
</tr>
<tr>
<td><strong>TOTAL HUNTED:BOV</strong></td>
<td>71</td>
<td>.434</td>
<td>5.31</td>
<td>17</td>
<td>19,1</td>
</tr>
<tr>
<td><strong>Indeterminate bovids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bov. II adult</td>
<td>24</td>
<td>.147</td>
<td>.56</td>
<td>3</td>
<td>.4</td>
</tr>
<tr>
<td>juv.</td>
<td>3</td>
<td>.019</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td>Bov III adult</td>
<td>35</td>
<td>.215</td>
<td>3.77</td>
<td>2</td>
<td>1.9</td>
</tr>
<tr>
<td>juv.</td>
<td>7</td>
<td>.044</td>
<td>.23</td>
<td>1</td>
<td>.6</td>
</tr>
<tr>
<td><strong>TOTAL INDET. BOV</strong></td>
<td>69</td>
<td>.425</td>
<td>4.58</td>
<td>7</td>
<td>3.0</td>
</tr>
<tr>
<td><strong>Hunting: Non-bovids</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Loxodonem africana</em></td>
<td>1</td>
<td>.004</td>
<td>.43</td>
<td>1</td>
<td>11.7</td>
</tr>
<tr>
<td><em>Rhino/hippo</em></td>
<td>11</td>
<td>.070</td>
<td>.89</td>
<td>1</td>
<td>1.4</td>
</tr>
<tr>
<td><em>Equus burchelli</em></td>
<td>2</td>
<td>.008</td>
<td>.02</td>
<td>2</td>
<td>.6</td>
</tr>
<tr>
<td><em>Giraffa camelopardalis</em></td>
<td>1</td>
<td>.006</td>
<td>.14</td>
<td>1</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>TOTAL HUNTED:N-BOV</strong></td>
<td>16</td>
<td>.092</td>
<td>1.67</td>
<td>6</td>
<td>21.1</td>
</tr>
<tr>
<td><strong>Gathering</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>cf. <em>Geochelone pardalis</em></td>
<td>2</td>
<td>.021</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><em>Achyranthropus</em></td>
<td>6</td>
<td>.004</td>
<td>.18</td>
<td>1</td>
<td>4.9</td>
</tr>
<tr>
<td><em>Unsundae</em></td>
<td>1</td>
<td>.250</td>
<td>&lt;.01</td>
<td>1</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>TOTAL GATHERED</strong></td>
<td>9</td>
<td>3,271</td>
<td>&lt;.01</td>
<td>6</td>
<td>&lt;.1</td>
</tr>
<tr>
<td><strong>TOT. FOOD ANIMALS</strong></td>
<td>1096</td>
<td>9,937</td>
<td>76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Age classes</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voigt (1983)</td>
<td></td>
</tr>
<tr>
<td>Thorp (1984)</td>
<td></td>
</tr>
<tr>
<td><strong>Moloko</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Letaba</strong></td>
<td></td>
</tr>
<tr>
<td><em>Bos taurus</em></td>
<td></td>
</tr>
<tr>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td>II</td>
<td>I</td>
</tr>
<tr>
<td>III</td>
<td>I</td>
</tr>
<tr>
<td>IV</td>
<td>I</td>
</tr>
<tr>
<td>V</td>
<td>I</td>
</tr>
<tr>
<td>VI</td>
<td>I</td>
</tr>
<tr>
<td>VII</td>
<td>I</td>
</tr>
<tr>
<td>VIII</td>
<td>I</td>
</tr>
<tr>
<td>IX</td>
<td>V</td>
</tr>
<tr>
<td>T2/1-2 = adult = 1.</td>
<td></td>
</tr>
</tbody>
</table>

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.
T1/4 = juv. = 10; sub-adult = 3; adult = 19 = 32.
T2/1-2 = adult = 1.

Sheep/goat

<table>
<thead>
<tr>
<th>Age classes</th>
<th>MNI</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>0</td>
</tr>
<tr>
<td>II</td>
<td>0</td>
</tr>
<tr>
<td>III</td>
<td>0</td>
</tr>
<tr>
<td>IV</td>
<td>0</td>
</tr>
<tr>
<td>V</td>
<td>1</td>
</tr>
<tr>
<td>VI</td>
<td>1</td>
</tr>
<tr>
<td>T2/1-2 = adult = 1.</td>
<td></td>
</tr>
</tbody>
</table>

N.B. Including post-cranial:

T1/7 = adult = 1.
T1/5-6 = sub-adult = 1; adult = 4 = 5.
T1/4 = juv. = 4; sub-adult = 3; adult = 16 = 13.
T2/1-2 = adult = 1.

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 antler 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 bony 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 femora lie 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,
Fig. 3. Tshirululuni T1/5-6: 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.

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

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 limb bones 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.
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 limb bones 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.

ACKNOWLEDGEMENTS

I am grateful to the Human Sciences Research Council and the University of the Witwatersrand for financial support during the initial stages of this research. I extend a special thanks to the Transvaal Museum and staff for assisting me in various ways. I am grateful to Dr Ina Plug for her advice and to Dr J. Loubser for giving me access to the faunal material, successive drafts of his thesis and permission to use his site diagrams.
REFERENCES

A BRIEF REPORT ON THE RESCUE EXCAVATION OF A HUMAN SKELETON FROM NOOITGEDACHT, NORTHERN CAPE PROVINCE, SOUTH AFRICA*

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ABSTRACT

The excavation of a single burial of an older male from the farm Nooitgedacht is described. The preservation of the skeleton is extremely poor, but the context of the grave and the associated ostrich eggshell beads are consistent with other isolated graves of the late prehistoric and early historic populations of the region.

INTRODUCTION

During April 1993, David Morris of the McGregor Museum in Kimberley located a burial eroding out of the bank of the Vaal River on the farm Nooitgedacht, near Barkly West (Fig. 1). His busy schedule at the museum did not allow him time to excavate the exposed material and it was decided in consultation with the Department of Anatomy & Cell Biology at UCT that a team, made up of students from the Science Course in the Department under the direction of A.G. Morris and G.H. Louw would perform the excavation and analysis as a class project. The following is a brief report on the excavation procedures and the outcome of the analysis.

EXCAVATION

The burial was exposed in an erosion slope of the alluvium about 50 m south of the river bank. A substantial cairn consisting of 11 large stones was visible on the surface. Erosion gullies were encroaching on the north and east edge of the cairn (Fig. 2). The cranium of the burial was exposed immediately to the north of the cairn, and it appears as if the soil erosion was responsible for this exposure (Fig. 3). The area around the cairn was gridded into 1 metre squares with the exposed cranium and associated cairn falling into squares A1 and A2. Clearance of the surface stones in square A1 exposed two deeper stones at the same level as the cranium. These stones and the cranium were removed at the same time.

Although the unweathered portions of the cranium appeared well preserved as the soil was removed, it soon became apparent that the bone was severely damaged by the action of ants of the genus *Messor*. These insects had created a network of tunnels through most of the grave shaft and had used the cranium and the abdominal area of

Fig. 1. Map of Barkly West district showing location of sites mentioned in text.
the body as storage chambers for "duweltjies", spiny seeds of the genus Tribulus. Despite the poor preservation of the bone, most of the elements of the skeleton were visible, so it was decided to continue the excavation even though it was unlikely that a full physical anthropological analysis could be completed on the remains. The cranium was undercut and removed as a block.

The post-cranial skeleton was exposed at a depth of 0,20 m below the cranium which was approximately the same level as the base of the main group of superficial cairn stones. Most of the body lay directly under the cairn stones with the pelvis in the southwest corner of square A2 (Fig. 4). The body posture was an upright kneeling position with the head to the north. Both legs were tightly flexed with the right knee overlapping the left. The pelvis was upright, but the thorax had slumped over on to its left side. The arms were folded over each other with the elbows at about mid-thigh and the hands crossed under the thorax. The head was higher than the body and faced east. The skeleton was removed in two blocks. At its greatest depth the grave shaft was 0,45 m below the level of the base of the surface cairn stones.

Grave goods consisted of a single strand of ostrich eggshell beads. The beads lay along the dorsal aspect of

the pelvis as a complete row of over 70 beads. As the strand was traced over the right iliac blade it appeared to break into small clusters of beads, finally becoming untraceable as a separate strand at the level of the proximal femur. The position of the beads over the skeleton indicates that they would have lain over the buttocks at the time of burial, but it is likely that the strand originally lay around the waist, slipping down during the process of burial or decomposition of the body. The average size of the beads is a maximum of 6,6 mm and a minimum of 6,0 mm.

DESCRIPTION OF THE SKELETON

Essentially, only the right side of the cranium has been preserved in a reasonable condition. The occipital is present from lambda to the nuchal line, while the squamous temporal and mastoid are complete, as is much of the petrous temporal including the temporo-mandibular joint and auditory meatus. The preservation is poorer anteriorly and although a segment of the frontal remains, it does not include the nasion. The right zygomatic is attached but is badly eroded.

Also present is the right corpus of the mandible from M1 posteriorly, the right coronoid and part of the ramus. The canine and premolars from the same side are present as loose teeth. The left side of the mandible is represented by the ramus including gonion and the coronoid process.

The preservation of the post-cranials is very poor. Nearly all the bones were damaged by ant tunnels and virtually none of the material could be freed from the soil matrix without the crumbling of the bone. Much of the post-cranial skeleton has therefore been left in its matrix and no observations can be made about long bone length or pelvic morphology.

The cranium is robust with very strong muscularity along the root of the zygoma and on to the nuchal line. The superior orbital margin is well rounded and there is strong supra-orbital development and projection at glabella. This is consistent with a male morphology. The
right maxillary dental set is complete and the mandibular teeth are present on the same side from the canine to M3. All of the teeth are extremely heavily worn. The M1, in particular, has no enamel left on its occlusal surface and secondary dentine is exposed. There is no caries or ante-mortem tooth loss. Although no specific age can be assessed, it is reasonable to assume from this state of dental wear that the individual was an older adult.

Very few measurements can be recorded. The height of the mastoid is 23 mm. The minimum width of the left ramus is 40 mm and the projective height of the left condyle can be estimated at approximately 53 mm. The value for the rameal index is therefore 75.5%.

**BURIALS ALONG THE RIVER SYSTEMS OF THE NORTHERN CAPE**

The skeleton at Nootgedacht is not the first to be discovered in the vicinity of Barkly West. Miller et al. (1993) have reported on an isolated grave from De Hoop, less than five kilometres north of Nootgedacht. Earlier, Humphreys (1970) had briefly described a grave from Pniel, approximately eight kilometres west of the present site. All three of these burials are similar in that they are isolated graves under cairns in the alluvium of the Vaal River. The individual from Pniel was also an upright burial, although both De Hoop and Pniel provided a richer array of grave goods than did Nootgedacht.

Other skeletons have been collected under uncontrolled conditions from the shores of the Vaal River. J.H. Power, later Director of the McGregor Museum, collected some 15 skeletons during the 1920's from north of Riverton and nearly the same number from lower down the Vaal near the Barkly West loop (Morris 1992a). Unfortunately there are few burial data associated with these skeletons. Further afield is a similar cluster of over 20 graves from Douglas above the Orange-Vaal confluence (Morris 1992a). Humphreys (1982) examined 7 of these from the farm St Clair and noted that where information about burial position was available in the records, the skeletons were in a vertically flexed position. They were associated with a range of grave goods that included ostrich eggshell beads as well as grindstones, a grooved stone, a cowrie shell and shell pendants and a range of small copper items.

Perhaps the largest and most important collection from near rivers in the Northern Cape and Western Orange Free State is that from the Riet River in the region of Koffiefontein (Humphreys 1970, Morris 1992b). Records exist for 79 of these graves. Fifteen percent of these burials were vertically flexed, but this is probably an underestimate because of the lack of data for many of the graves. Thirty-three of the burials had some sort of cultural material interred with the skeleton, and in 19 of these cases the grave goods included ostrich eggshell beads. Most striking is that virtually all of the burials were recovered from within one kilometre of the river.

The common phenomenon linking these clusters of graves is their proximity to the river systems. None of the Vaal river burials have yet been dated, but the style of graves and their similar location near the river suggest that they may be similar to the Riet River pattern. From our knowledge of the Riet River sequence (Morris 1992b), it seems likely that many of the river burials are of late pre-historic or even early historic origin. Maggs (1971), Humphreys (1972) and Morris (1992b) have emphasised the relationship between the Riet River burials and the Type-R stone settlements along the river.

These authors have argued that the burials represent the remains of Khoisan populations who were within the contact zone of the neighboring agro-pastoralist Sotho-Tswana groups. The model proposed is that these were hunter-gatherer groups who learned to practice pastoralism through cultural diffusion and that the Type-R settlements were modelled on the agro-pastoralist stone wailing pattern (Humphreys 1988). Since livestock require a relatively reliable water source, this resulted in the clustering of the human populations near the river systems. The isolated graves from along the Vaal may also have been part of this process, but without the use of stone for the stock kraals. Although the excavation of the burial at Nootgedacht has not provided a great deal of information in itself, it does add to our knowledge of these river burials and confirms that the general pattern seen on the Riet and lower on the Vaal probably extends up into the Barkly West area of the river as well.

**ACKNOWLEDGEMENTS**

We must give special thanks to David Morris of the McGregor Museum for his help not only in introducing us to the skeleton at Nootgedacht, but also for providing much of the logistical support needed for the trip from Cape Town to Kimberley and for his comments on the manuscript. Developing and printing of the film was kindly performed by Elise Fuller of the Department of Anatomy & Cell Biology at UCT, and Dr H. Robertson of the South African Museum and Dr J. Hoffman of UCT provided information on the taxonomy of ants and plant seeds. We also appreciate the useful comments from the two anonymous reviewers. Financial support came from the Field Work Committee of UCT.

**REFERENCES**


Many statistical packages exist on the market, designed for use in any field of science, but here is one that has been prepared with archaeologists and physical anthropologists in mind, focusing on multivariate analysis. Users who are unfamiliar with multivariate techniques should not feel daunted. In fact, the package prepared by Richard Wright can be welcomed as something that may stimulate many archaeologists to go beyond basic descriptive statistics, and to explore their data by means of various multivariate techniques if they haven't been tried already.

A booklet by Wright entitled "The MV-NUTSHELL brochure: a concise introduction to multivariate archaeology" describes techniques available from the Main Menu of the statistical package, including Cluster Analysis, Correspondence Analysis, Principal Components Analysis, Canonical Variate Analysis and Seriations. Dendrograms can be drawn from cluster analyses based on Euclidean distance matrices. K-means cluster analysis also allows one to explore data for possible groupings.

Results can be easily plotted and explored "on screen", and images can be exported to graphic packages for purposes of publication. The author advises that users should check that plots transferred to "foreign" graphic packages correspond to images plotted on MV-NUTSHELL graphs. He warns that in some cases, images may be distorted in the process of exporting, as a result of problems associated with the use of different symbols for different variables.

In his brochure, Wright has emphasised the importance of multivariate techniques for exploring data. Simple bivariate plots can demonstrate whether or not particular variables are correlated, and scattergrams can also be used to plot the results of principal component or correspondence analyses.

The author has included a Discriminant Function Analysis programme (DISCRIM) on the MV-NUTSHELL package. This can be used to check the "reasonableness" of a priori classifications, whether one is dealing with measurements obtained from pots, stone artefacts or hominid species. Data sets can be explored by means of the DISCRIM programme to determine the degree to which a classification system has successfully separated groups based on a priori assessments. Discriminant Function Analysis can be expected to succeed when one is dealing with groups that are clearly distinct and which have not been subject to gradual changes through time or space.

The use of Principal Component Analysis in exploratory work may be considered preferable to Discriminant Function Analysis, not only because it can take into account the variable nature of measurements in spatial or temporal dimensions, but also because it may help to identify the underlying factors which contribute to variability in space and/or time.

Archaeology is notorious for the fact that often a great deal of time and effort is exerted simply to obtain data. The application of multivariate techniques in exploratory statistical analyses would seem to be eminently worthwhile if (in a fraction of the time taken to collect statistics) it allows the user to identify variables contributing to observed patterning in space and/or time. The MV-NUTSHELL package can be recommended to archaeologists who have not tried multivariate analyses before, and who wish to undertake exploratory analyses to try to enhance their understanding of archaeological data sets.

The MV-NUTSHELL package is available, on either stiff or floppy discs, directly from Richard Wright at MV-ARCH, 72 Campbell Street, Balmain, NSW 2041, Australia. The cost of the package (including airmail postage) was recently set at $60 (Australian dollars); $52 (US dollars); or £34 (UK Sterling).
CONFERENCE ANNOUNCEMENT

The 14th Biennial Conference will be held at the University of the Orange Free State, Bloemfontein, from the 1 to 4 July 1996, followed by an optional four day excursion.

The conference will be organised around six academic sessions, a session for research reports, poster presentations, a workshop session, and a half-day excursion to the Florisbad hominid and Middle Stone Age site. The programme will also include a public lecture and the biennial general meeting of the society.

The six session themes are as follows:

1. Engaging and educating the public in Archaeology: Focus on transmitting archaeological knowledge to a wider audience, and encouraging general interest in the past.

2. Hominids: their lifeways and palaeoenvironmental context: Contextualising both palaeoenvironmental studies as well as human evolution and culture change.

3. Gender and feminist studies in southern African Archaeology: Gender as structuring and bridging principle in society and archaeological discourse.

4. Interpreting material culture: Analysing the use, meaning and social value of objects.

5. Ideological and symbolic interfaces across cultural boundaries: Focus on the conceptual and ‘symbolic’ aspects of contact and contiguity between groups of people.

6. Cultural Resource Management: How to manage our history in the face of increasing and conflicting claims on resources.

As well as

7. Research reports

Post-conference excursion

There will be a four day excursion to the eastern and central Free State and Lesotho to see Middle and Later Stone Age, Rock Art, Late Iron Age and Ethno-historical sites.

The Organising Committee (consisting of James Brink, Cobus Dreyer, Zoë Henderson, and Sven Ouzman) would like to draw the attention of all archaeologists working in southern and eastern Africa to this conference. Colleagues who would like to attend the conference are asked to please contact us.

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