Koedoe 20: 77–93 (1977)

THE ARCHAEOLOGY OF THE MOUNTAIN ZEBRA NATIONAL PARK

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Abstract – Thirty archaeological sites were located during a survey of the Mountain Zebra National Park. These include three small rock shelters and 27 open station sites. The artefact samples collected from two of the latter are discussed in detail.

Introduction

In November 1973, at the request of the National Parks Board of Trustees, an archaeological survey of the Mountain Zebra National Park (MZNP), Republic of South Africa, was undertaken in order to establish the potential of sites for excavation or collection of material and for the possible creation of site museums. Five days were spent in the field and an attempt was made to cover the entire Park on foot. Most of the area was explored and 30 archaeological sites were located (Fig. 1). As this initial survey indicated that the area might provide information on the patterning of site location and even on intra-site activity patterning, a second visit was made to collect information which might test the potential of open sites in this regard. Unfortunately time was limited and material was collected from only three sites. Two of these appeared relatively undisturbed and it is with the analysis of the artefacts from these two sites that this report is primarily concerned.

The Park environment

Topographically the MZNP is dominated by the valleys of the Wilgerboom river and its tributaries which drain the mountains on the southern, western and eastern borders. To the north-east the valley widens to include flatter ground such as the Springbok Flats. To the north-west is the higher ground of the Rooiplaats plateau. The geological formations of the area are the alternating sandstones and mudstones of the Lower Beaufort Series of the Karoo System (Toerien 1972). These are intersected in places by post-Karoo dykes and sheets which are exposed to the surface over much of the river valley in the central area. (It is likely that metamorphoses in the contact zones between the sediments and the dolerite would have produced material suitable for artefacts. No such locality was, however, found).

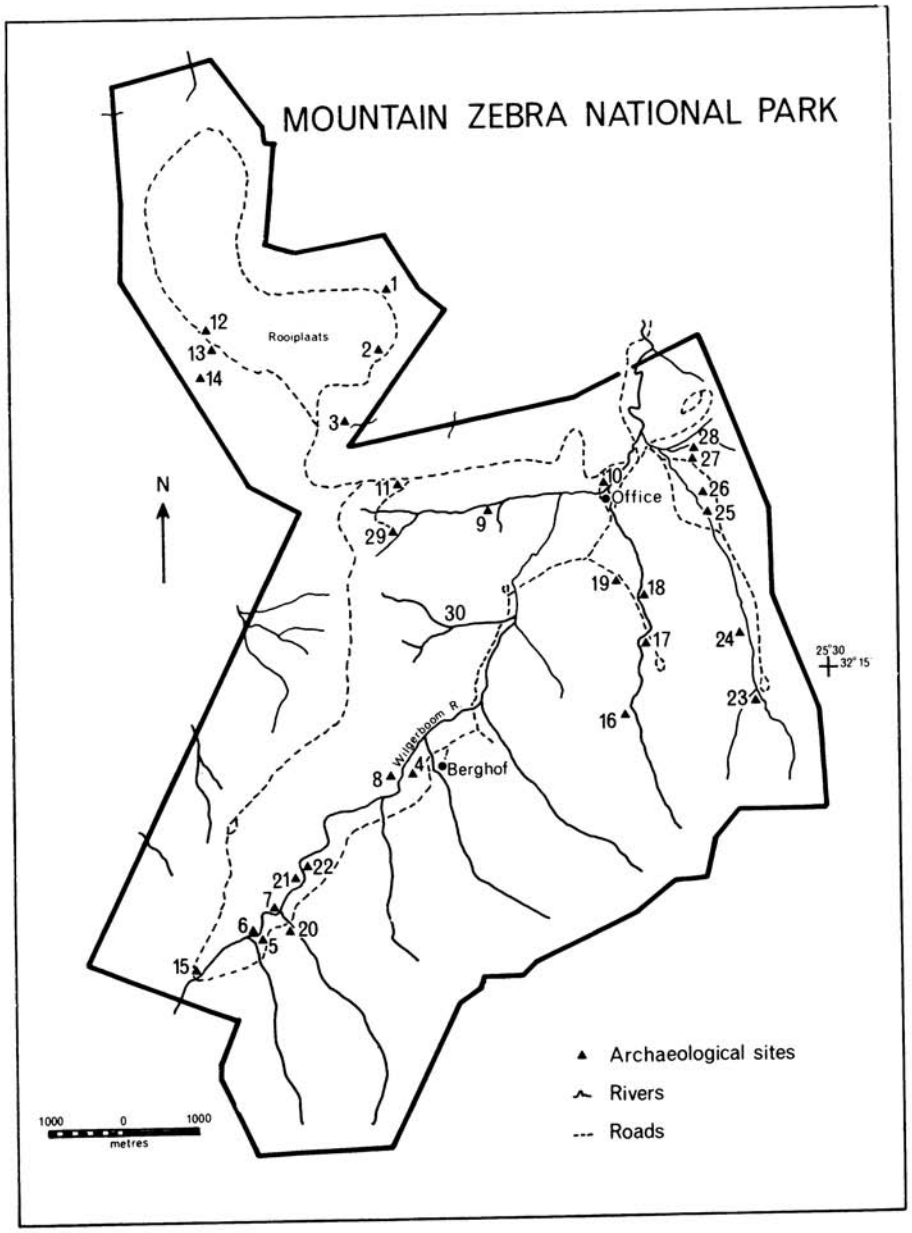

Fig. 1. Map of the archaeological sites in the Mountain Zebra National Park, Cradock.

The MZNP falls into two distinct veld types (Skead 1965 after Acocks 1953). Firstly, there is the False Karroid Brokenveld of the valleys and kloofs of the Wilgerboom River and its tributaries and secondly the *Danthonia* Mountain-veld which has been replaced by Karoo on the mountains, except on the Rooiplaats plateau which is today still open grassveld. It is suggested that the MZNP "must once have had a predominant-

ly grassy cover on the lower open spaces and on the top of the mountain, with the valley bottom well supplied with woody trees and coarse shrubs, some of which occupied areas at the bases of the boulder masses and kranses" (Skead 1965).

The archaeological occurrences

Most of the archaeological sites located in the Park, that is 27 out of 30, are open sites and these occur primarily along the river valleys where the banks are wide and flat but there is one site on the Springbok Flats and seven on the Rooiplaats plateau, which occur either beside dry pans or beside clumps of bush. The sites vary considerably in size and density, some yielding little more than a few pieces of artefactual waste and others being fairly dense scatters in areas as large as 100 square metres.

The formal artefacts from 22 of these sites are dominated by scrapers indicating a Holocene age. There is, in fact, very little evidence for occupation of the MZNP during the Middle and earlier Upper Pleistocene. A single handaxe had been found in the road (ZP19) prior to the 1973 survey but a rigorous search of the area failed to produce any other artefactual material which could be assigned to any biface industry. Large (10 cm) blades which were recorded at four localities would seem to point to the occurrence of an artefact tradition of Upper Pleistocene age but these sites (ZP8, 26, 27 and 30) are no more than nebulous surface scatters and thus preclude any further study.

There are three small shelters in the Park. One of these (ZP16) which occurs just below an intermittent waterfall in Fonteinkloof has no deposit but the presence of a circular scraper and artefactual waste indicate that it may have been occupied. Another (ZP28) is a small shelter overlooking the Springbok Flats which has a small deposit with pottery and stone artefacts on the surface. The third shelter (ZP29) is very small and has neither deposit nor artefactual waste though these may have been washed away by stream action. In a small niche on the overhang are two groups of ochre figures; one large antelope with three smaller antelope above (one possibly an eland) and the remains of four animals below (Fig. 2). At the lower left-hand is a frieze in black including two human figures, an antelope, a large cat (?leopard) and three baboons one of which is carrying its young on its back (Fig. 3). To the east of these are other paintings fairly high up on a rock face but except for two "sitting buck" (Fig. 4) these were too faded to record.

Site ZP6

The site lies on the west bank of the Wilgerboom River about 15 m from the river. It is situated on a flat spur created by the meander of the river and is protected by the hillside behind and by a curve in the river upstream. The area is relatively open with only occasional bushes (mainly *Rhus* spp.) and even the river banks are not densely vegetated in this area. The artefact scatter covers an area about 10 m by 37 m (Fig. 5) but the central area has been somewhat disturbed by animal burrows.

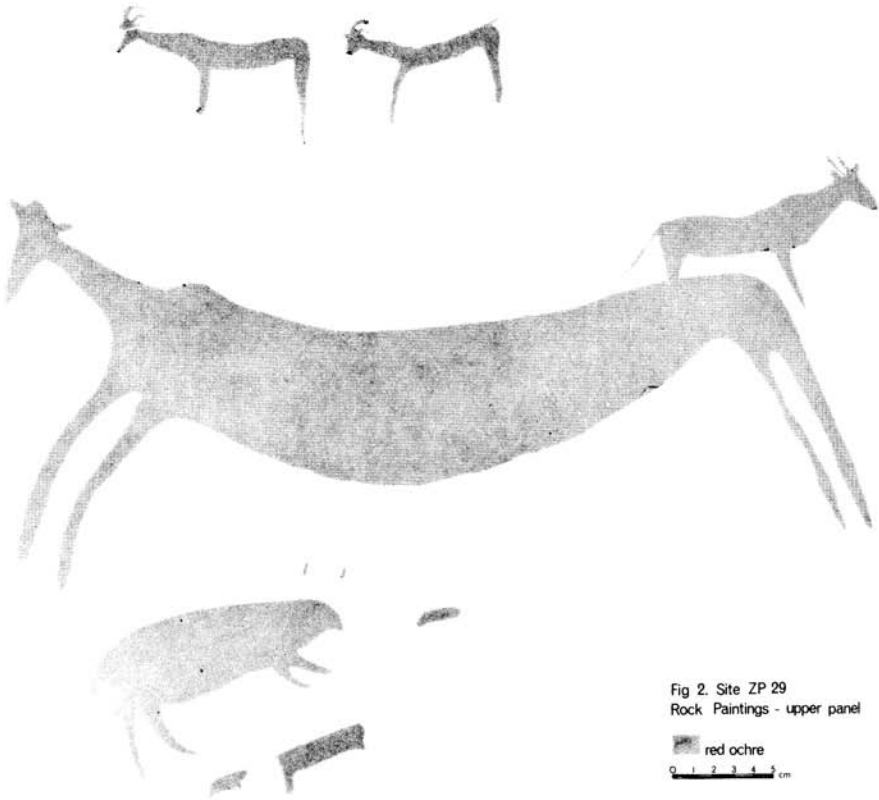

Fig 2. Site ZP 29 Rock Paintings – upper panel

Fig. 3. Site ZP 29 Rock Paintings – lower panel

Fig. 4. Site ZP 29 Rock paintings.

Visual inspection suggested that the site actually consisted of two parts, area A and area B3. Both these sections are clear (probably artificially so) of the ubiquitous dolerite boulders and cobbles which occur in the intervening areas B1 and B2. The scatter of artefacts in area A was more dense than elsewhere and seemed spatially discrete, with the artefacts clustering in the central area (Fig. 6). Consequently when a grid of metre squares had been laid out over the site, the exact position of each artefact was recorded in this area, and these have been analysed as a

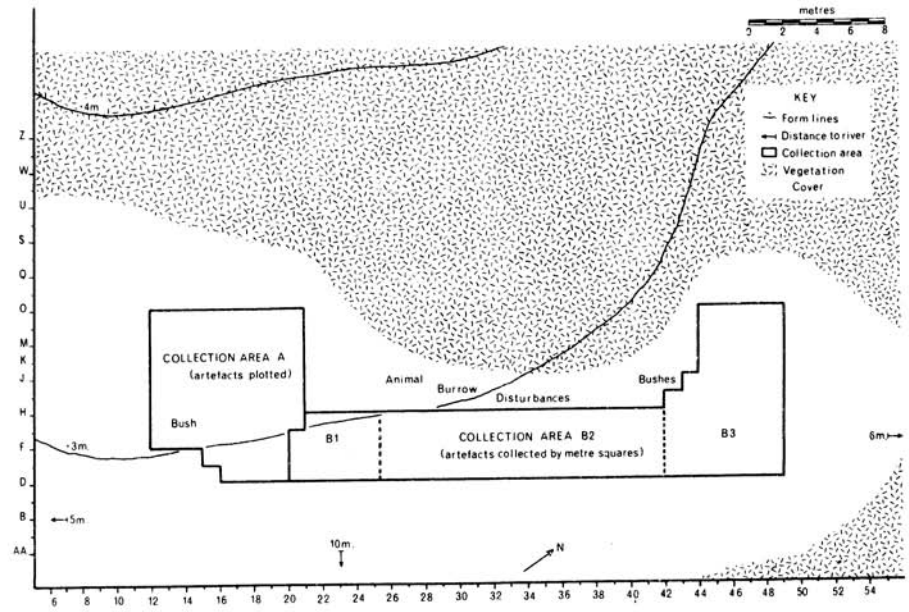

Fig. 5. Site Plan of Zebra Park Site 6.

unit. Over the remainder of the site (B1–B3) artefacts were collected by metre squares and these have been analysed separately. The disturbance adjacent to these areas made the use of more accurate recording methods less valid.

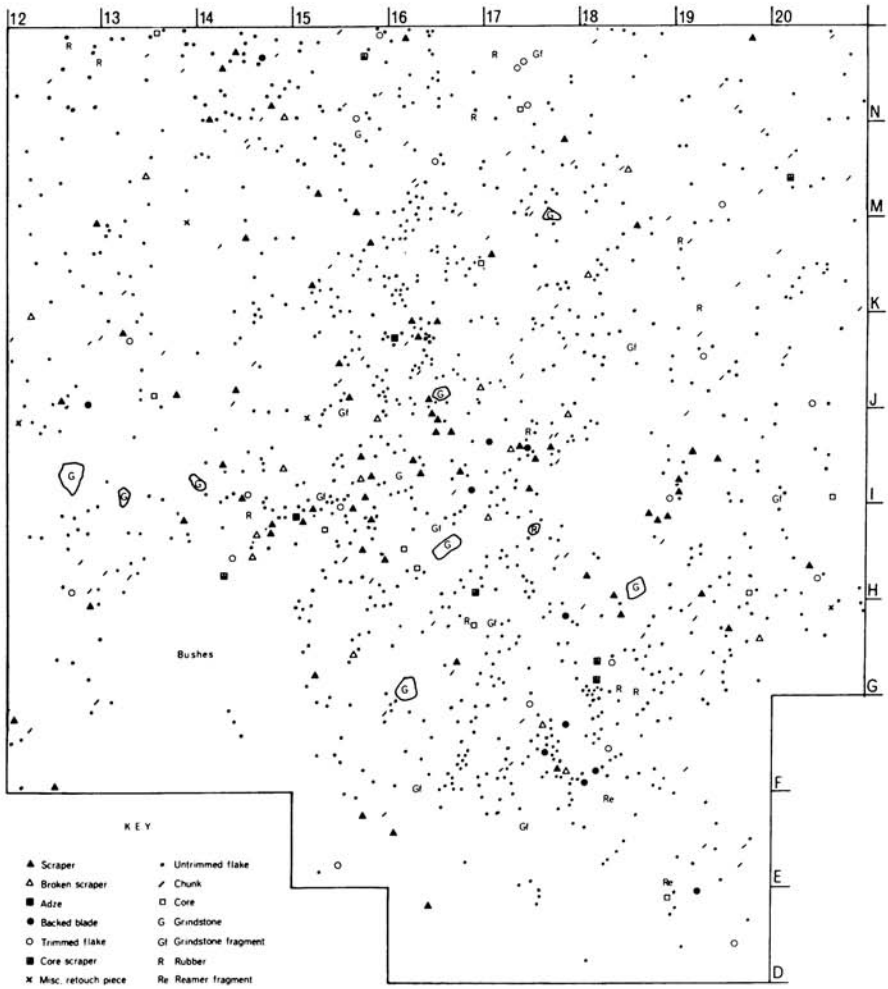

Fig. 6. Artefact scatter at Site ZP6 Area A.

The Artefact Assemblage

The artefact assemblage at ZP6 (Table 1) contains only lithic elements as no organic materials have survived. The sample has been sorted according to four main categories: Waste, Utilized, Retouched and Other and the classification of individual classes follows J. Deacon (1969). Waste here includes chunks, chips, cores and untrimmed flakes. Utilized includes miscellaneous retouched pieces and trimmed flakes. The re-

Table 1
Site ZP6 – Artefact inventory

	TOTAL	ZP6A	ZP6B
WASTE			
Chips	442	310	132
Chunks	188	97	91
Cores	31	11	20
Untrimmed Flakes	1 720	1 005	715
UTILIZED			
Misc. retouched >10 cm	13	–	13
<10 cm	16	4	12
Trimmed Flakes			
– edge damaged	40	14	26
– steep	18	5	13
– notched	9	3	6
RETOUCHED			
Core scrapers	17	6	11
Scrapers	141	72	69
Broken Scrapers	40	18	22
Adzes	7	2	5
Borers	2	1	1
Backed blades-unfin	3	2	1
– prox. discard	5	5	–
– distal discard	2	2	1
– segmented	1	1	–
OTHER			
Reamers	2	1	1
Edgeground	1	–	1
Upper grindstones	26	11	15
Lower grindstones	17	10	7
Lower grindstone frags.	43	9	34
	2 784	1 589	1 195

touched pieces or formal artefacts are dominated by the scrapers (Fig. 7a and b) which are end-scrapers typical of the "Smithfield" industry as described by Van Riet Lowe (Goodwin and Van Riet Lowe 1929). There are also core scrapers, adzes, a small complement of backed pieces, grindstones (upper and lower), one edgeground piece and two reamers. (Core scrapers here can be defined as circular or sub-circular single platform cores which have step-flaked or battered edges suggestive of utilization).

Almost all the flake tools and all the formal flake tools are made of a

Table 2

Distribution of scrapers at Site ZP6

AREA A & B1								
No. of scrapers per metre square	0	1	2	3	4	5	6	7
No. of squares observed freq.	43	26	11	3	2	4	3	1
No. of squares expected freq.	28,83	33,48	19,53	7,44	1,86	0,93	–	–
Poisson probability	0,31	0,36	0,21	0,08	0,02	0,01	–	–
	no. of scrapers		110					
	no. of squares		93					
	λ (mean)		1,1828					
	X^2 (for cols. 0–5)		25,16					
AREA B2 – 3								
No. of scrapers per metre square	0	1	2	3	4			
No. of squares observed freq.	74	36	7	4	2			
No. of squares expected freq.	70,11	39,36	11,07	2,46	–			
Poisson probability	0,57	0,32	0,09	0,02	–			
	no. of scrapers		70					
	no. of squares		123					
	λ (mean)		0,5691					
	X^2 (for cols. 0–3)		2,96					

fine-grained, hard-baked mudstone which does not have the density of true lydianite but seems to have equally good properties of fracture. There are, however, a few flakes of sandstone and one of chalcedony and the grindstones are made mainly of sandstone with some of dolerite. One of the reamers is dolerite and the other is sandstone. These tools were presumably used in the manufacture of bored stones though no bored stones were found at the site.

There is some discrepancy in the numerical distribution of artefacts in the two sections of this site (areas A and B). In area A the average number of artefacts per metre square is about 20 while in B it is eight. There is also a difference in the distribution of artefact types in the two areas. There are more cores in area B but fewer flakes and more lower grindstones fragments though fewer whole ones. While more adzes and core-scrapers and trimmed flakes occur in area B, nearly all of the backed

tools occur in area A. The scrapers from area A seem to cluster continuing into B1 but those from areas B2 and B3 appear to have a more random distribution. In order to test this observation, the numbers of scrapers per square for the two areas were compared with the Poisson's distribution. The results of this test (Table 2) indicates that the distribution of scrapers in area B2 and B3 is random (P = 0,3–0,5; df 3), whereas those in area A and B1 have a non-random distribution (P = 0.01; df 5).

A further difference between the two sections of the site is that there is a larger number of reworked pieces, that is pieces which show utilization or trimming after the original retouched surface has become patinated, in area B than there are in area A (Table 3).

Table 3

Frequency of neutralized pieces of Site ZP6

Class	Area A			Area B		
	f.	f.reut	% reut	f.	f.reut	% reut
Miscellaneous retouched pieces	4	0	0	25	7	28,00
Trimmed flakes	22	7	31,81	55	24	43,63
Scrapers	72	2	2,77	69	9	13,04

Metrical Analysis of the Scrapers

The scrapers, as the most numerous tool type were chosen for simple metrical analysis. Measurement of scraper lengths shows that the scrapers from area A, whose mean length is 50,9 mm, are significantly longer than those from area B, whose mean length is 36,6 mm (Fig. 8). A Student's *t* test shows this to be significant at better than the .001 level (= 6,46; df = 139). In other words it is unlikely that these two samples come from the same population. In actuality it is the scrapers from area B3 which form the smallest group (mean length = 33,8 mm) while areas Be and B1 form intermediate groups (mean lengths 39,1 mm and 39,5 mm respectively) between groups B3 and A. A comparison of the lengths of the scrapers with a random sample of 100 flakes (excluding those less than 10 mm which are classed as chips) whose mean length is 30,3 mm suggests that the scraper blanks, especially those in area A, were selected for their length. Thus the length of the scrapers at this site is not entirely determined by the nature of the raw material. In contrast there is a less significant difference in the widths of the scrapers and of the flakes as the modal width for both classes falls between 15 mm and 25 millimetres.

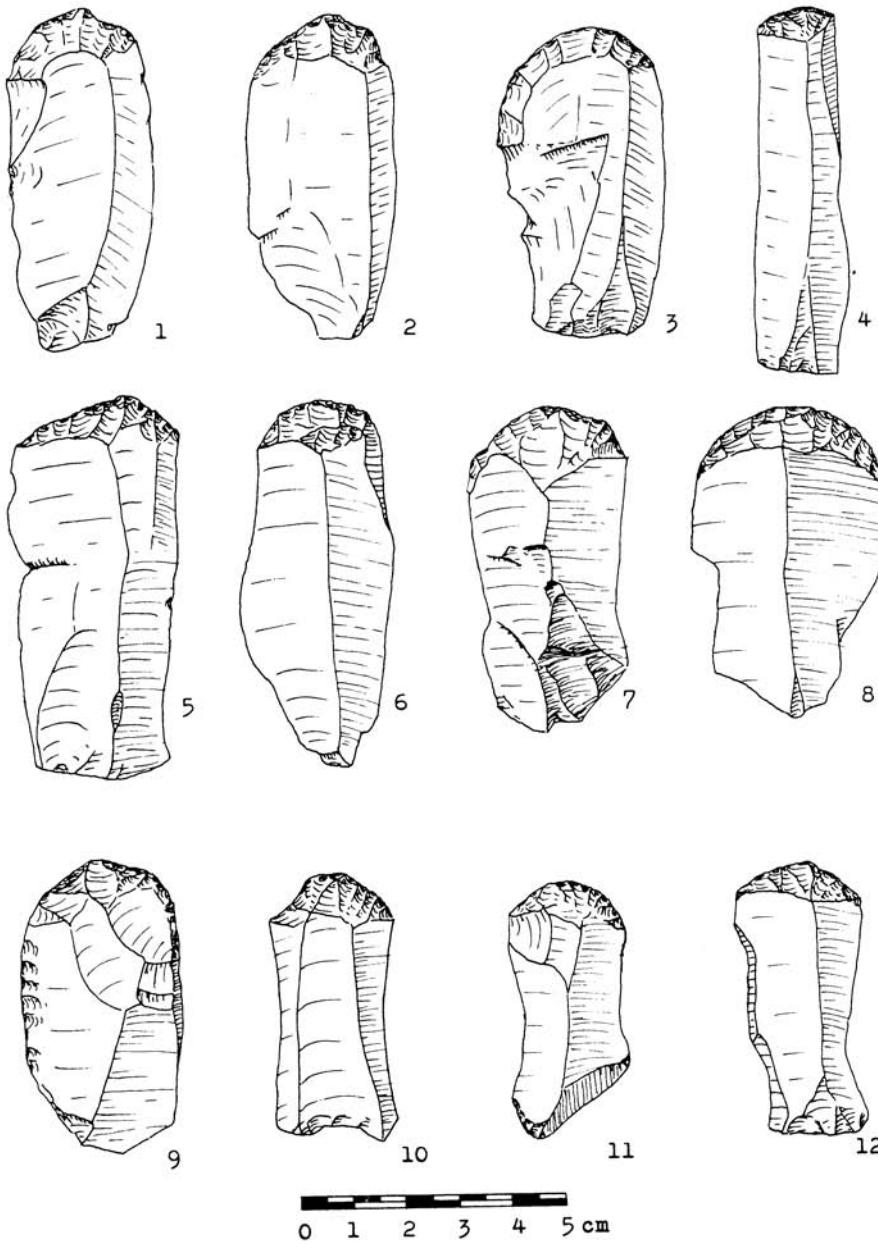

Fig. 7a. Scrapers from site ZP6, area A.

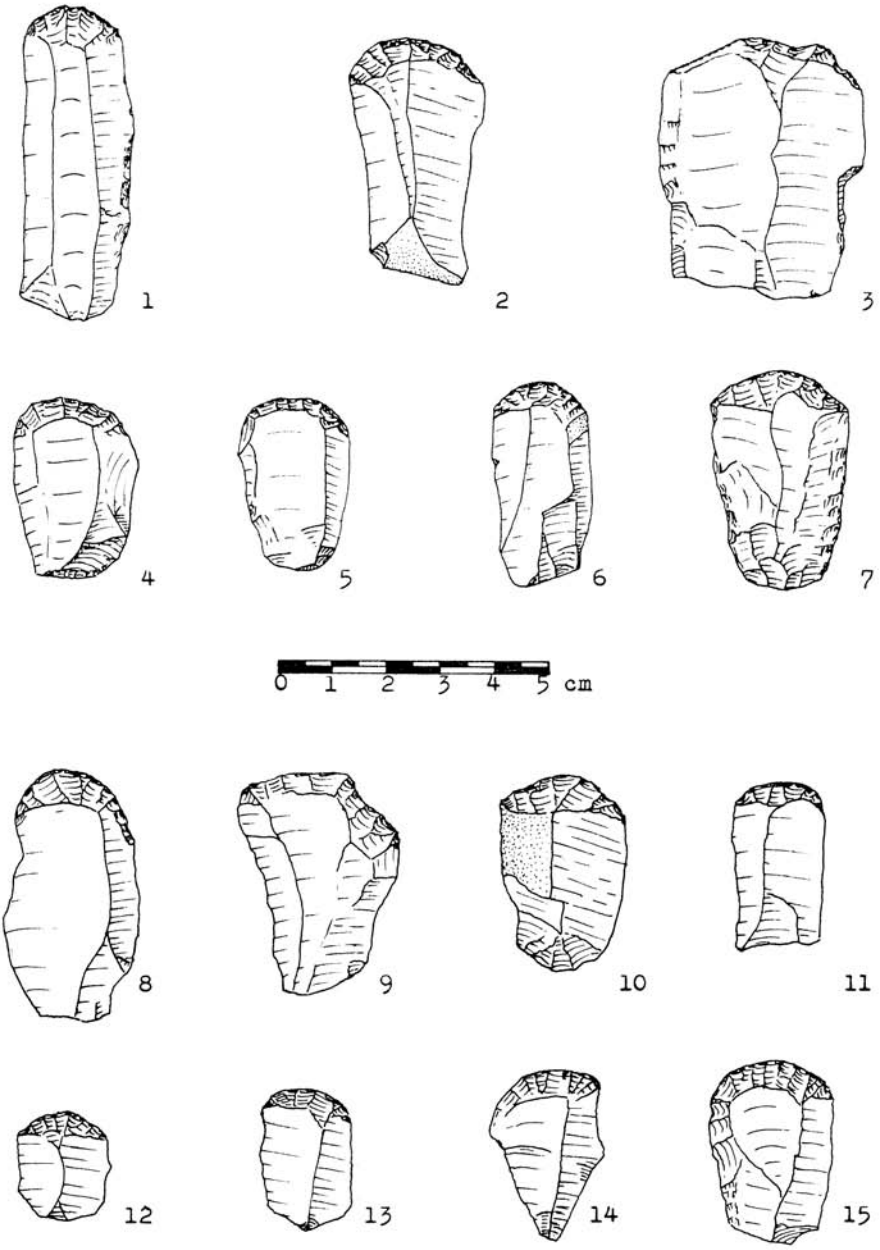

Fig. 7b. 1 – 7; Scrapers from site ZP6, areas B1 and B2. 8 – 15; Scrapers from site ZP6, area B3.

Summary

The differences between area A and the rest of the site require some explanation. Two possible hypotheses are that they reflect either a difference in activity or a difference in age of the samples. As a difference in scraper lengths is probably related to stylistic rather than functional factors (Deacon 1976) the second alternative seems the more reasonable. As ZP6B has more elements that Sampson (1972) associates with his early phases, namely a higher proportion of core scrapers (core hammers), higher proportion of trimmed flakes and adzes several fabricators (here included with large miscellaneous retouched pieces) and a higher proportion of scrapers with side trimming (51% as opposed to 25% at ZP6A) it seems possible that area ZP6B may be older than ZP6A. This idea is supported by the observation that a large number of artefacts from ZP6B are reworked indicating a successive and complex pattern of site occupation whereas ZP6A in comparison at least with ZP6B appears to be a less disturbed site with a non-random distribution of artefacts.

Site ZP11

The site is situated on top of the plateau overlooking the main valley of the Wilgerboom River. It is about five minutes walk from the kloof where the rock paintings are located (and where water is available in some seasons). The artefacts occur in a large circular area which surrounds a very old shrub (*Rhus* sp.) and is clear of the scatter of shale slabs and cobbles which cover much of this area of the Park. A grid was laid out over the site, which covered some 253 square metres. The artefacts were numbered and their positions plotted, to the nearest centimetre, as they were collected (Fig. 9).

The Artefact Assemblage

The range of artefact types at this site is similar to that at ZP6 and the formal tools are again dominated by end-scrapers (Table 4). There are, however, no backed pieces at this site. The flake tools are made on the same fine-grained mudstone as those at ZP6 and the grindstones and hammerstone are of sandstone and dolerite. The artefact scatter at this site is considerably less dense than that at ZP6 and averages only 1,5 artefacts per square metre. Many of the retouched pieces have been reworked and this includes 50% of the scrapers, a far higher percentage than at ZP6A or even ZP6B. The implication is that this site was not a single occupation but was probably used repeatedly. There is no evidence of pottery.

The most interesting aspect of this site is the clustering of two large lower grindstones, two upper grindstones, two cores and a hammerstone in the shade of the *Rhus* shrub (Fig. 9). Whether or not this shrub could have provided shelter for the people who used these artefacts is a moot point, but their distribution is convincingly suggestive. In the vicinity of square I 13 there are three large boulders which, in this situation

Table 4

Site ZP11 – Artefact inventory

WASTE:	Cores	4
	Untrimmed flakes	203
	Chips	8
	Misc. artefactual debris	32
TRIMMED FLAKES:	Invasive	11
	Steep	8
	Notched	9
	Edge damaged	53
RETOUCHED:	Scrapers	18
	Broken scrapers	5
	Adzes	
OTHER:	Grindstones	2
	Grindstone frags.	2
	Rubbers	5
	Hammerstone	1
	Edgeground frags.	11
	TOTAL	367

where the site seems to have been cleared of most of the usual scatter of cobbles, are suggestive of a hearth situation. No charcoal has survived and the boulders show no clear evidence of heat spalling but are very weathered which might obscure such traces. The formal tools show no anomalous distribution but seem rather to be randomly and sparsely scattered across the site. As scrapers are the only common tool type and as they are in all probability general purpose artefacts, this is perhaps hardly surprising.

Summary

Zebra Park Site ZP11 is spatially a discrete unit but the evidence suggests that temporally it probably represents a complex situation of repeated occupation. It is of interest that at both ZP 11 and ZP6B3, where the scraper mean lengths are relatively short, a high incidence of reworked artefacts occurs whereas at ZP6A, where the scrapers are longer, the site appears to be less disturbed and has a lower incidence of reworked pieces.

Discussion and Conclusions

These two sites, ZP6 and ZP11, and in fact all the Holocene sites located in the MZNP, compare, in terms of artefact classes represented

and also in that the formal tools are dominated by end-scrapers, with the assemblages originally described by Van Riet Lowe as 'Smithfield B'. The Smithfield was considered to comprise "three distinct phases or subdivisions, 'A', 'B' and 'C'. These despite a certain overlapping and contemporaneity apparently represent(ed) the Lower, Middle and Upper Periods" where 'A' was characterized by large circular and concavo-convex scrapers, 'B' by duckbill or end-scrapers only and 'C' by small thumbnail scrapers (Goodwin and Van Riet Lowe 1929). This concept included the implication that the scrapers decreased in size with time, "the ubiquitous duckbill end-scraper of 'A' for example, fluctuates from 110 mm to 30 mm in length; in 'B' from 40 mm to 20 mm, and in 'C' from 30 mm to 10 mm" (*ibid.*). It is of interest here that the scrapers from ZP6B and ZP11 approximate in length to those of the 'Smithfield A'. There are, however, none of the large circular and concavo-convex scrapers considered to be typical of the 'Smithfield A' at any of the Zebra Park sites.

Sampson's work in the Orange River Scheme area has supported the suggestion that the 'Smithfield A' predates the 'Smithfield B'; the former is correlated with Phase 1 and the latter with Phase 6 in his scheme of six phases for the Later Stone Age in the area. It has become apparent, however, both in Sampson's work (Sampson 1967b) and in work done in the Eastern Cape (Deacon 1969; Deacon 1976) that Van Riet Lowe's suggestion of a decrease in the size of scrapers is too symplistic. A more acceptable model is that while large scrapers occur in end-Pleistocene to early Holocene contexts, very small scrapers occur in early-mid Holocene contexts and thereafter there is an increase in size of scrapers (Deacon 1972).

It was hoped, with this in mind, that comparison of scraper lengths from Zebra Park sites with those from stratified and dated samples might enable one to suggest a possible age for the Zebra Park sites. The scrapers from these sites are relatively large and it seemed that they would compare most closely with either end-Pleistocene or late Holocene samples.

Probably the most relevant stratified sample with which to compare the Zebra Park sites is Highlands (Deacon 1976) as it is only about 50 km from the Park. In general terms they are similar samples, both having a range of formal tools dominated by endscrapers and including adzes, backed pieces and grindstones. Comparison of the length of the Highlands scrapers with those from the MZNP (Table 5) shows, however, that the scrapers from the Zebra Park sites are so large as to fall completely outside the range of those from Highlands which span the late Holocene.

The drawings of scrapers from Phases 5 and 6 at Sampson's sites, Glen Elliot and Zaayfontein (Sampson 1967a), were measured to obtain an approximation of general scraper mean length of the later Holocene in the Orange River area. The measurements (Table 5) indicate that, except for the Zaayfontein Phase 6 sample, the MZNP scrapers are in

Table 5

Scraper mean lengths

Site		$\bar{x} \pm$ s.e.	number of scrapers
Zebra Park 6		44,0 ± 1,3	141
ZP6A		50,9 ± 1,6	72
ZP6B1 + 2		39,3 ± 0,2	35
ZP6B3		33,8 ± 0,2	34
Zebra Park 11		35,7 ± 3,4	18
Highlands 2nd S		28,4 ± 2,9	10
i		27,9 ± 1,1	27
ii		24,9 ± 1,6	35
iii		18,5 ± 1,0	28
iv		16,0 ± 0,8	32
GlenElliot I-III	(Phase 6)	ca. 31,0 ± 1,0	106
IV-VI	(Phase 5)	ca. 36,13 ± 0,9	149
Zaayfontein I–IV	(Phase 6)	ca. 40,2 ± 1,6	38
V–VI	(Phase 5)	ca. 29,9 ± 1,4	68
	(Phase 5)	ca. 34,9 ± 2,0	21
Merino Walk			
Lemoensfontein 10 – 11			
Side-and-end and frontal scrapers		ca. 56,84 ± 4,5	25
Side-and-end scrapers		ca. 42,0 ± 2,5	14
Frontal scrapers		ca. 75,7 ± 6,1	11

(Highlands data – Deacon 1976: Table 41. Glen Elliot – Sampson 1967b : Fig's 11, 12, 15–17, 22–25, 31–35, 39–42, 48–50, 53. Zaayfontein – Sampson 1967a : Fig's 10, 11, 13–15, 18, 20–23. Lemoensfontein and Merino Walk – Sampson 1970 : Fig's 3 + 11, 55 + 56).

general longer than those from the Orange Free State and the ZP6A sample has a considerably higher mean length than even Zaayfontein Phase 6. Some of the scrapers from Lemoensfontein 10–11 were then measured to ascertain whether or not the MZNP samples were more similar in length to the earlier phases. The side-and-end scrapers from Lemoensfontein have an approximate mean of 42 mm and the frontal scrapers of 76 mm, the total mean being 56 mm, which is more similar to the ZP6A scrapers but the comparison is not entirely satisfactory in that the side and circular scrapers were not included in the measurements as they are not represented in the Zebra Park sites. Thus examination of scraper lengths failed to produce any convincing indication of whether the Zebra Park sites should be related to the end-Pleistocene or the late Holocene, though it suggests that the scrapers from ZP6A are far larger than those from Highlands or those from late Holocene sites in the Orange River area.

ZP11, which is probably not a single occupation site, is nevertheless analogous to the late Holocene samples and the scraper mean length is not very different from those of Glen Elliot or Merino Walk. Furthermore the site lacks the side and circular scrapers characteristic of the earlier phases. There is, however, no pottery at the site but there is a glass flake which suggests that the absence of pottery may not necessarily indicate an early date. It is perhaps noteworthy that Merino Walk, a site not actually in the Orange River area but in the Northern Cape, does not have pottery either. Sampson suggests that it may represent a "pre-pottery industry not found in the Orange River scheme area" (Sampson 1970).

ZP6A and ZP6B are also lacking the side and circular scrapers of the early Holocene. ZP6B has, however, more elements that Sampson has associated with the earlier phases, and as discussed above, the evidence suggests that ZP6A is the less disturbed and more spatially discrete area of the site. It is therefore, probable that ZP6B predates ZP6A. As regards the age of ZP6 it seems that there are three possibilities, both areas may be end Pleistocene to early Holocene, both may be late Holocene, or the B area may be end Pleistocene or early Holocene and the A area later Holocene. Typologically (in terms of the Orange River material) the last seems the more likely but the anomalously long scrapers at ZP6A and the lack of pottery provide for a degree of uncertainty, and suggests that they may actually both be end-Pleistocene occupations.

Probably the only way to resolve this problem would be the excavation of a site in the immediate area to provide comparable stratified assemblages. Whatever their exact age, it is more than likely that 22 of the open station sites found in the MZNP span the last 14 000 or 10 000 years whereas only five give any indication of being earlier. This suggests that only ephemeral occupation of the area occurred prior to the Holocene and that during the Holocene there was a relatively larger population in the area.

Acknowledgements

I am indebted to the National Parks Board of Trustees both for financial assistance for this fieldwork and for providing accommodation in the Park, and also to Mr. W. Prinsloo, then warden of the Park, for his considerable help during our stay. I would also like to thank Ms M. de Boor, Ms A. Laubser and Mr. B. Adams for their help in the field and Dr. H. J. and Mrs. J. Deacon for their helpful comments on the manuscript.

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