

9/2/2012

AN ASSESSMENT OF THE ARCHAEOLOGICAL SITE,
BETHAL, ON THE FARM SUNNYSIDE,
CLARENS DISTRICT

OCTOBER 2002

By
Zoë Henderson
National Museum, P.O. Box 266,
Bloemfontein, 9300, South Africa

10/2/2012
10/2/2012
10/2/2012

10/2/2012
10/2/2012
10/2/2012

CONTENTS

Introduction	1
The setting	1
The site	2
The geology and sedimentology	2
The lithic material from the site and the surrounding area	3
Affinities of the material	8
Other Middle Stone Age sites in the Eastern Free State	9
Other open-air Middle Stone Age sites in Southern Africa	10
Summary	13
Recommendations	13
Acknowledgements	14
Figures	15
References	17
Appendix 1: terminology used	20
Appendix 2: photographs of the site and material	21
Appendix 3: report by Susan Kent	26

Qualifications and contact details of the archaeologist

Zoë Henderson
B.A. (Hons) M.A. (Stell.)
M.Phil. PhD (Cantab)

Contact details:

Head: Depts Archaeology and Anthropology
National Museum
P.O. Box 266
Bloemfontein
9300
South Africa

Tel: 051 - 447 9609
Fax: 051 - 447 6273
e-mail: zoelh@nasmus.co.za

INTRODUCTION

The farm, Sunnyside 1425, is located about 8 kms south east of Clarens in the eastern Free State. The new owner of the farm, Mr R. Hudson, wishes to develop a trout dam on the farm. This potential dam will flood an archaeological site (28° 32' 976"S and 28° 27' 290"E) located there. Prof. Susan Kent of Old Dominion University, USA, has excavated this archaeological site (named Bethal) for the past three years. The purpose of the archaeological assessment undertaken by the author is to establish the extent, condition and affinities of the site so that a decision can be taken on it by the South African Heritage Resources Agency (SAHRA) who would have to issue the permit for its destruction, should this take place.

This report therefore deals with the following aspects:

- extent of the site
- the condition of the site
- affinities of the material from the site
- the site in the context of other Middle Stone Age (MSA) sites in the vicinity
- the site in its context of other open-air MSA sites

Certain recommendations will then be made based on the assessment of the above criteria. A report on the excavations at the site by Prof. Kent will be included as Annexure I.

THE SETTING

The Little Caledon River makes a large horse-shoe bend in the middle of the farm Sunnyside (Fig. 1). Near the base of the bend on the eastern side of the river there is a large donga which runs away from the river in a southerly direction. The site is located in the eastern side of the donga, near its termination at the Little Caledon River (Fig. 2). A small stream trickles through the donga into the Little Caledon, creating a marshy area in the base of the donga.

Low and Rebelo (1986) classify the vegetation of the area as "wet, cold Highveld grassland". This is vegetation associated with the "rocky slopes and ravines of the lower slopes of the Drakensberg, at altitudes greater than 1 750m" (*ibid.*:44). The mountain grassland is subject to severe frosts. The area is a summer rainfall region, with about 900 mm falling per year. The average temperature is 16°C, with the variation ranging between -5°C and 36°C.

THE SITE

Artefacts are randomly eroding out of the sides of the donga (indicated by numbers on Fig. 2). The densest collection comes from an area about 40 metres in length along the east side of the donga. There are numerous artefacts scattered on the sides and floor of the donga below this concentration. Prof Kent has excavated five 2m x 2m testpits just back from the edge of the donga in the central section of the occurrence, in the edge of the donga and one smaller testpit near the bottom of the slope.

The artefacts seem to be eroding out from between 1.5 m and 2.5 m below the surface. In the excavations the artefacts were most dense between 2.05 and 2.50 m below the surface (S. Kent pers. comm.). A stratigraphic pit about 20 m to the east of the excavated area has also yielded a few artefacts at the same level.

THE GEOLOGY AND SEDIMENTOLOGY

Prof Kent commissioned two geological studies of the area (Fouche 2000, Scholtz 2001). Her main concern was to determine whether the artefacts from the site were in situ or not. This is an important consideration if one is to undertake a spatial analysis of the material, which was her intention.

The rocks in the vicinity are mainly from the Elliot Formation (Scholtz 2001). There is a dolerite intrusion with a small quartzite formation (*ibid.*). Quaternary sands, which have eroded to form the donga, cover the landscape between the sandstone outcrops. The stone artefacts are mainly cryptocrystalline silicates and quartzite. The silicates weather from

the Drakensberg Formation basalt in the region, while the quartzite occurs within a short distance of the site.

From personal observation the artefacts seem to come principally from a yellowish-grey layer above a hard, orangy layer.

Fouche (2000:3) interprets the horizon from which the artefacts come as being a dark silty clay. It contained small calcareous-rich concretions, which are interpreted as indicating a possible palaeosol. This palaeosol would have developed when the horizon was exposed for a few years. After this a weakly drained marsh developed. This could have removed some of the smaller chips, which are the debris from artefact manufacture. However, the flow regime was not high enough to transport the larger flakes. No other fluvial clasts were found amongst the artefacts to indicate a fluvial deposit (*ibid*). The site has not been reworked by fluvial activity (*ibid*:11).

Scholtz's (2001) interpretation of the unit from which the artefacts come is that it is a clayey silt changing to a silty clay. Quartz grains from the soil samples were sub angular to angular which would indicate that transport had taken place over a small distance. The near absence of heavy minerals from the artefact layer suggests an absence of a transport medium, which has been interpreted to indicate wetland conditions (*ibid*:35). However, those minerals present, have a rounded appearance, which usually indicates that transport has been from afar.

Both Fouche and Scholtz state that the artefacts show no signs of rounding or chipping due to transport by water, and therefore they conclude that the artefacts are *in situ*.

THE LITHIC MATERIAL FROM THE SITE AND SURROUNDING AREA

The entire area of the donga from its termination at the Little Caledon River to the fence at the edge of the property was searched for lithic material. All occurrences were plotted on the plan (see numbers indicated on Fig. 2). The material discovered at the occurrences is presented in Table 1. The lithics examined had either eroded out of the side of the

donga, or were still lodged in the side of the donga. The collection is therefore not very extensive, but can give some indications of what is present and the affinities of the material. For the purposes of the analysis it will be treated as one collection. All visible artefacts were examined, and no selection was made to make the sample as representative as possible.

As expected from an unselected collection, irregular flakes represent most of the artefacts present (60.5%). The second highest category is chunks, which one would expect if knapping had taken place on site. Chips, the best indicator of on-site knapping are almost absent, which could be due to the nature of the samples, or to the fact that they are underrepresented in the archaeological horizon for one of two reasons. Either knapping had not taken place on-site or the chips have been removed from the horizon by post-depositional forces. The first explanation appears to be not the case here, as cores, core trimming and platform rejuvenation flakes, and chunks are represented in the collection, so one must infer that it is either a sampling problem or that there has been post-depositional disturbance at the site.

Flake-blades and bladelets occur in equal quantities. At Rose Cottage Cave bladelets form about 36% of the combined flake-blade and bladelet category in the Middle Stone Age sequence. The three triangular flakes and the knife from Bethal are also significant indicators of the affinity of the collection, and will be discussed in more detail below. The formal tool component (the knife and the scraper) make up 0.6% of the collection.

Occurrences 1 to 15, 25 to 26, and 29 to 37 are directly related to the site in that they have eroded out of the donga edge where the main concentration occurs. All three triangular flakes are therefore directly related to the site, as are the three possible bladelet cores, eleven flake-blades, including the classic Middle Stone Age flake-blade, and ten bladelets. The knife comes from the northern end of the donga.

Table 1. Artefacts from the donga at Sunnyside (for an explanation of the terminology see Appendix 1). Total number of artefacts is 334.

Occurrence	Irregular flakes	Flake-blades	Bladelets	Cores	Core trim. flakes	Chunks	Chips	Other*
1	12			6 (2bidlt)		3		
2	6		1					
3	4		1			2		
4	7		1	1 (frag.)		1	1	
5	6							
6	11		2	1 (frag.)	2		5	
7	2	1	1	1 (frag.)		1	7	
8	6				1	3		
9	1	1						1 (tr.)
10	7					5		
11	8	1		1 (bidlt)		2		
12	1							
13	2		1		1	4		
14	11		1	1 (frag.)	1			
15	5					4		
16	2							
17	1							
18			1					
19	5					1		
20	2							
21	2					1		
22	4	2		1		3		
23	2	1			1	2		1 (kn)
24		1 (prox)						
25	7					1		
26	1					1		
27	15		1	1		4		
28	2			1 (frag.)		1		2 (pr.s)
29	15	5	1			6		
30	2					2		2 (tr.)
31	12		2		1	2		
32	1							
33	12	2	1			3		
34		1						
35	2							
36						1		
37						1		
38	1		1					
39	1				1			
40	4					1		
41	1			1		3		
42	1							
Slope	18					2		
Total % of 334	202 (60.5%)	15 (4.5%)	15 (4.5%)	15 (4.5%)	8 (2.4%)	60 (18%)	13 (3.9%)	6 (1.8%)

* Other includes triangular flakes (tri), a knife (kn), platform rejuvenation flake (pr), scraper (s)

A comparison of the percentages with those from the open-air Middle Stone Age site of Florisbad (about 340 km to the north west of Clarens) indicates that the macrodebitage is underrepresented. Knapping experiments have been undertaken where various tool shapes have been copied (Schick 1986). The proportions of macrodebitage generated during the experimental knapping were between 60% and 70% for all the experiments. Florisbad is an *in situ* butchery site where knapping took place. Macrodebitage represents nearly 60% of the assemblage (Table 2), and it is one of the indications that the Florisbad assemblage is largely intact (Henderson 2001a). It can therefore be used as a comparison for other Middle Stone Age assemblages. If macrodebitage is left out of the equation, the percentages of irregular flakes become 66.8% and 82.5% for Florisbad and Bethal respectively, shaped flakes 32.4% and 16.5% and flake tools 0.8% and 1%. Flake tools have more-or-less equivalent percentages at the two sites. The percentage of shaped flakes at Bethal is about half of that at Florisbad, whereas there is a higher percentage of irregular flakes at Bethal.

Table 2. A comparison between the artefact percentages from Florisbad (Henderson 2001a) and Bethal

	Florisbad: Frequency	Percentage	Bethal: Frequency	Percentage
macrodebitage*	2329	59.76	59	22.77
irregular flakes	1048	26.89	165	63.71
shaped flakes**	508	13.04	33	12.74
flake tools	12	0.31	2	0.77
TOTAL	3897	100	259	100

* including flakes < 20 mm² therefore a higher number than chips from Table 1

** flake-blades, bladelets and triangular flakes

The nature of the butts of the flakes is also an indication of the affinities of the collection. Prepared butts (also referred to as platforms) are used to distinguish Middle Stone Age technologies (Goodwin 1928, 1929, Volman 1984). The butts of irregular flakes, flake-blades, bladelets and triangular flakes are compared in Tables 3 and 4, and a comparison is drawn between the Middle Stone Age site of Florisbad and Bethal. Dilethal and faceted butts are an indication of prepared butts.

Table 3. Bethal: Comparison of the butts of all flakes: the percentages are calculated from the total number (f=187, all flakes with butt: missing excluded)

	Cortical		Plain		Dihedral		Facetted		Other	
	f	%	f	%	f	%	f	%	f	%
Flake-blades	0		8	4.28	4	2.13	0		1	0.53
Bladelets	0		6	3.21	2	1.06	0		2	
Triangular flakes	0		1	0.53	2	1.06	0		0	
Knives	0		1	0.53	0		0		0	
Irregular flakes	4	2.13	93	49.73	33	17.64	4	2.13	22	11.76
Core trim. flakes	0		3	1.6	1	0.53	0		0	
TOTAL	4	2.13	112	59.89	42	22.45	4	2.13	25	13.37

Table 4. Florisbad: Details of butts of all flakes: the percentages are calculated from the total number (f=1271) (Henderson 2001a).

	Cortical		Plain		Dihedral		Facetted		Other	
	f	%	f	%	f	%	f	%	f	%
Flake-blades	1	0.08	128	10.07	46	3.62	36	2.83	13	1.02
Bladelets	2	0.15	33	2.6	6	0.47	4	0.31	5	0.39
Triangular flakes	0		27	2.12	22	1.73	19	1.49	2	0.16
Points	0		1	0.08	0		1	0.08	0	
Burins	0		2	0.15	0		0		0	
Scrapers	0		1	0.08	2	0.15	0		0	
Denticulates	0		1	0.08	0		2	0.15	0	
Irregular flakes	12	0.94	562	44.22	133	10.46	57	4.48	65	5.11
Core trim. flakes	1	0.08	63	4.6	9	0.71	7	0.55	5	0.39
Plat. rej. flakes	0		2	0.15	0		0		1	0.08
TOTAL	16	1.26	820	64.51	218	17.15	126	9.91	91	7.16

Raw material :

Raw material percentages of the artefacts presented in Table 1 are as follows:

Cryptocrystalline: 61.7%

Quartzite: 37.8%

Quartz: 0.3%

Unknown: 0.3%

AFFINITIES OF THE MATERIAL

The designation of the material is Middle Stone Age for the following reasons:

1. Triangular flakes:

The presence of triangular flakes is a characteristic of the Middle Stone Age (Goodwin 1928, 1929, Volman 1984).

2. Flake-blades:

These are present in the Bethal sample. One, in particular, from occurrence 34 is a classic parallel-sided Middle Stone Age flake-blade, with dimensions of 119 mm by 39.5 mm. It has a plain butt, and is of quartzite.

3. Prepared butts:

Dihedral and faceted butts are present in the Bethal sample. The percentages in the collection compare favourably with those of the Florisbad Middle Stone Age Horizon, particularly if the total of the two categories is taken together. This gives figures of 24.58% for Bethal and 27.06% for Florisbad.

Two other categories of artefacts present at Bethal also occur in Middle Stone Age collections at sites in the Eastern Free State. These are knives and bladelets.

1. Knives:

Knives occur in the Middle Stone Age levels at Rose Cottage Cave near Ladybrand. They occur mostly in the basal and upper Middle Stone Age units and are rare in the central units, the Howieson's Poort levels (Wadley & Harper 1989).

2. Bladelets:

Bladelets also occur throughout the Rose Cottage Middle Stone Age sequence (Harper 1997a:473), with higher percentages in the Howieson's Poort levels. None of the bladelets examined in this report showed signs of backing, nor were there any other backed tools, a characteristic of the Howieson's Poort. There were three possible bladelet cores from the sample, all cryptocrystalline. Bladelets also occur in the Florisbad Middle Stone Age horizon (Henderson 2001a).

OTHER MIDDLE STONE AGE SITES IN THE EASTERN FREE STATE

The closest known Middle Stone Age site to Bethal is the site of Twin Caves on the adjoining farm of Schaapplaats (Harper 1997b). This site was excavated as part of the Rose Cottage Cave project. Four 1 metre² squares were excavated in the northern cave, one of which yielded an occupation level of 200 mm which rested on bedrock (*ibid*).

There were no formal tools in the assemblage, which was dominated by chunks (60%). Irregular flakes made up 21% of the collection, with flake-blades at 7% and bladelets at 0.5%. Eighteen percent of the flakes had faceted butts (this category would include dihedral butts). Raw material comprises 59% opaline (cryptocrystalline). Harper (1997b) has tentatively assigned the assemblage to the MSA 1, although there are problems with this designation. The most common retouched tools of the MSA 1 are denticulates (Volman 1984), of which there are none at Twin Caves.

Rose Cottage Cave is situated at Ladybrand, some 160 km south-west of Bethal. It has been extensively excavated, most recently by Lyn Wadley (1997). The sequence at Rose Cottage covers the Middle Stone Age (Wadley & Harper 1989, Harper 1997a), a transitional industry (Clark 1999), and the Later Stone Age, including the Robberg (Wadley 1996).

The Middle Stone Age includes pre- and post-Howieson's Poort levels as well as the Howieson's Poort (Wadley & Harper 1989, Harper 1997a). Dating the sequence is not easy, as most of the Middle Stone Age is beyond the range of radiocarbon dating. The

Howieson's Poort industry is thought to center around 70 000 years ago, based on its presence at sites which have been dated by other methods, most notably Klasies River (Deacon & Deacon 1999). The final Middle Stone Age at Rose Cottage is dated to 28 000 BP (Clark 1999).

Cryptocrystalline (opalines) is the most common raw material in the Rose Cottage Middle Stone Age sequence (Wadley & Harper 1989), gradually increasing through time. Backed tools are almost exclusively made on cryptocrystallines, which is why it has high percentages during the Howieson's Poort (*ibid*).

In the pre-Howieson's Poort levels at Rose Cottage points, large flakes and large parallel-sided flake-blades dominate the assemblage (Wadley & Harper 1989). This is followed by knives as the dominant class. Backed tools and a wide range of tool classes characterise the Howieson's Poort. The post-Howieson's Poort is dominated by scrapers, particularly side scrapers in the Late Middle Stone Age assemblages. There is also a relatively high proportion of irregular flake-blades, and many points and knives. Denticulates are "almost entirely" restricted to the pre-Howieson's Poort levels (*ibid*:31).

It is not possible to assign a position to the Bethal sample in the Rose Cottage sequence, but the absence of backed tools seems to indicate that it does not belong to the Howieson's Poort. It must either pre-date or post-date the Howieson's Poort. An analysis of the whole excavated collection may well bring the subtleties to light necessary to make the appropriate designation.

OTHER OPEN-AIR MIDDLE STONE AGE SITES IN SOUTHERN AFRICA

Several open-air Middle Stone Age sites have been excavated in southern Africa, however, few of them have the quality of data necessary for a spatial analysis of the site. One of these is the Middle Stone Age horizon at Florisbad (Henderson 2001a).

Florisbad is a butchery site dating to $121\ 000 \pm 6\ 000$ years BP, where the spatial integrity of the horizon and the large-scale of the excavations has permitted a

reconstruction of the activities of the Middle Stone Age people at the site (Henderson 2001b). Bone is also preserved at this site, which gives the spatial analysis an added dimension. It is a special activity location, and the range of artefacts and activities represented at the site are restricted. Knapping and the processing of *Hippopotamus* and various antelope carcasses, such as blesbok, took place at the site. The hearth, uncovered in one portion of the site, seems to have acted as a focus for the consumption of the processed meat and marrow.

Other Middle Stone Age sites for which plans are available, but for which the quality of data is not as good, or is not available, are the sites of Kalkbank, \neq Gci and Zeekoegat 27.

Kalkbank is located in the drainage area of the Hout River, about 60 km north-west of Pietersberg (Polokwane). It was initially excavated by Revil Mason in 1954 (Mason 1958) and further investigated by him in 1966 (Mason 1988). The Middle Stone Age floor was sealed by over a metre of calcrete and clay deposits, and was first exposed in the sides of a water pit. Mason used dynamite to remove the calcrete onto the underlying brown sand in which were the artefacts and faunal remains.

The published plan (Mason 1988) of the excavated material relates to the 1966 excavation only. It therefore is only a sample of the spatial patterning at the site. Both human and carnivore damage marks were identified on the bones (Brown 1988). The non-human marks on the bone (233 or 3.6%) are higher than those unquestionably made by humans (4 or 0.06%). This together with the small number of stone artefacts found in the horizon indicates that humans were not the dominant players at the site. Most of these artefacts are made of quartz, with quartzite and diabase also being utilised (Mason 1958).

\neq Gci is a pan site which was investigated in the late 1960s and mid-1970s by Alison Brookes and John Yellen (Brookes & Yellen 1977). The excavations revealed a Middle Stone Age and a Later Stone Age component to the site. \neq Gci pan is situated in north-west Ngamiland in Botswana, close to the Namibian/Botswanan border, north of the Aha Hills. Ethnographic research indicates that present-day hunters hunt at the pan (Crowell & Hitchcock 1978). Hunting blinds were constructed at the pan, and animals were

ambushed when they came to drink or came to the salt-licks. Excavations revealed a similarity in prey acquisition species between the present and the LSA and MSA units. As the location of the site is in the same place as LSA and present-day ambush sites, the MSA level has been interpreted as representing MSA hunting by ambush techniques at the edge of the pan as well.

The MSA floor was covered by a calcrete layer, and was thus well-preserved. The locations of all faunal remains, cores and retouched lithics were plotted three-dimensionally, and untrimmed flakes and debitage were recorded to square and ten cm level (Brooks & Yellen 1977). The spatial distributions have, however, not been published. The horizon is thought to have developed during the last interglacial, some 125 000 years ago (*ibid*).

Another open-air site for which spatial patterning is available is the site of Zeekoegat 27 (Sampson 1968) situated near a tributary of the Orange River. Dolerite and sandstone rocks as well as artefacts form a distinctive circular distribution pattern in a sealed “compact calcareous red-buff silt with abundant concretions” (*Ibid* 1968:63). The artefacts appear to form four clusters on the floor, three of these in the outer circular arrangements of rocks. These four clusters contain cores, blades, hammerstone and flakes, and have been interpreted as flaking foci (Sampson 1974). The assemblage has post-Howieson’s Poort affinities (*ibid*) so is late MSA. A ‘very small sample’ of bone and dental fragments was found at the site. It is suggested that the \pm 10 m diameter circular arrangement of cobbles represents the outline of a windbreak, and that the cobbles could have held (thornbush) branches in place (Sampson 1968, 1974).

Kalkbank and \approx Gi were special purpose sites like Florisbad, whereas Zeekoegat 27 could have been a habitation site. Unfortunately it is not possible to reconstruct the Zeekoegat 27 site, as the artefacts were not numbered during curation.

SUMMARY

It would appear from the small sample of artefacts analysed from Bethal that the site has Middle Stone Age affinities. Few, if any, open-air Middle Stone Age sites have been excavated in the detail required for spatial analysis, apart from the sites of Florisbad and ≠Gi. Bone is preserved at these sites, and it has been possible to reconstruct the activities that occurred, particularly at the Florisbad site.

Bethal has a rich concentration of artefacts over at least 40 m in a north-south direction. It is unknown how far it stretches in an easterly direction, as the stratigraphic pit, about 20 m to the east has only yielded a few artefacts at that same level. The random scatter of artefacts over the entire donga area on the Sunnyside farm would appear to indicate that the site is diffusely scattered over a fairly large area, with at least one focus concentration.

For a detailed spatial analysis of the site a wider area will need to be opened up than is currently being worked on.

RECOMMENDATIONS

The site is extensive enough, and appears to be consistently Middle Stone Age, to warrant further investigation. I would therefore recommend that more work is done at the site if it is to be destroyed.

On a another note, I would recommend changing the name of the site for two reasons:

1. The site is actually on the farm Sunnyside and not Bethal (although at the time of its discovery Sunnyside was owned by the owner of Bethal, the adjacent farm). On the 1:50 000 maps the farm is indicated as Sunnyside.
2. There is already a Later Stone Age site with the name of Bethal in the National Museum, Department of Archaeology, records.

ACKNOWLEDGEMENTS

Rob Hudson is thanked for an agreeable stay at Sunnyside whilst conducting the survey. Prof Lyn Wadley from the University of the Witwatersrand kindly assisted with the identification of the knife. Prof Susan Kent allowed me access to her geological reports and provided additional information about the archaeological excavations at the site. Sharon Holt aided in the drawing of the figures.

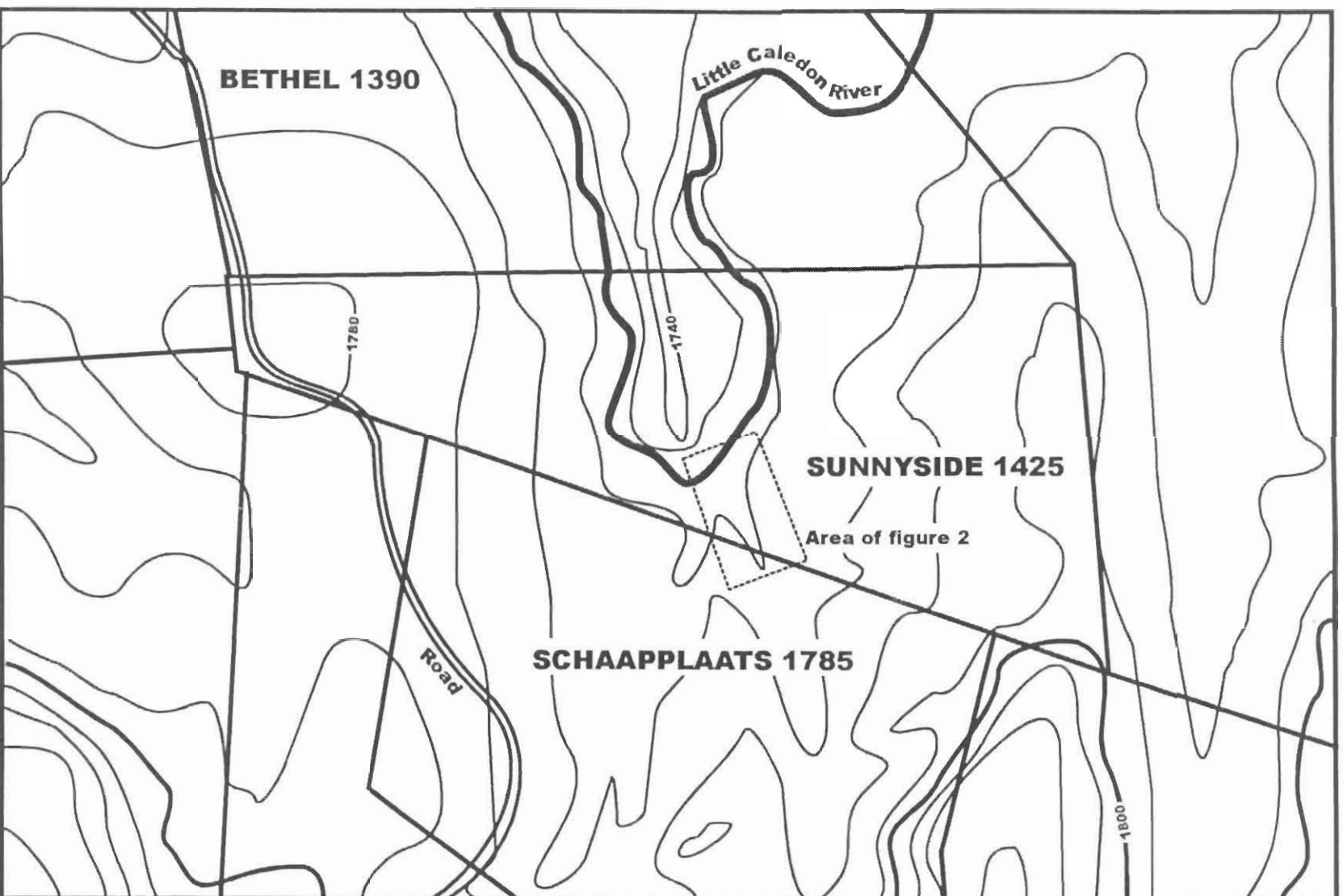


Figure 1. Map of the area indicating Sunnyside farm, the Little Caledon and the donga area. This map is enlarged from the 1:50 000 map, 2828CB CLARENS

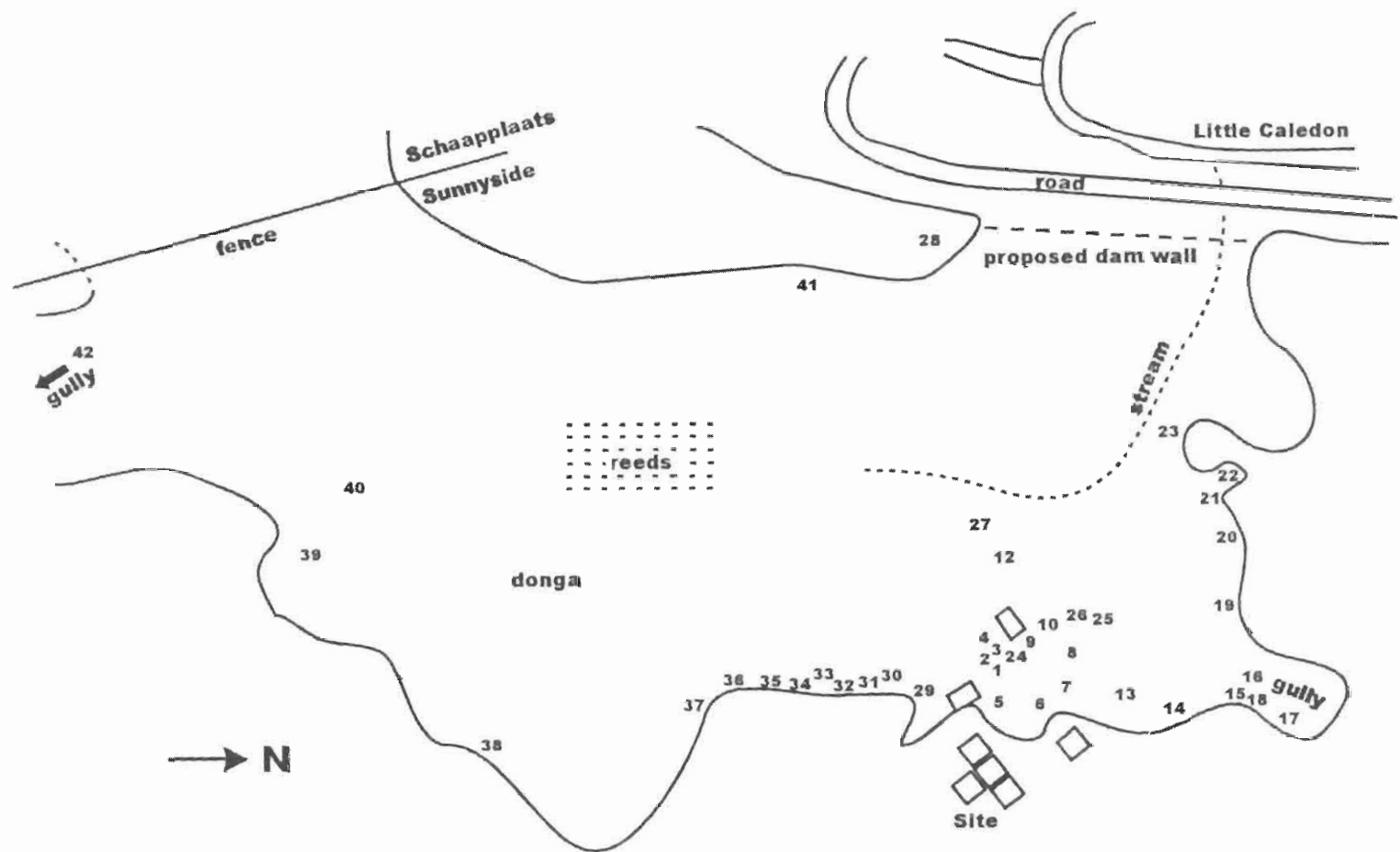


Figure 2. Plan of the donga area. Numbers indicate occurrences, as presented in Table 1. North is to the right of the plan, and the distance between 36 and 15 is about 40 m.

REFERENCES

- Brooks, A.S. & Yellen, J.E. 1977. Archaeological investigations at (G) a preliminary report on the first two field seasons. *Botswana Notes and Records* 9:21-30.
- Brown, A.J.V. 1988a. The faunal remains from Kalkbank. In: Mason, R.J. *Cave of Hearths, Makapansgat, Transvaal*. 658-663. Wits Archaeological Research Unit, Occasional Paper no. 21
- Clark, A.M.B. 1997. The final Middle Stone Age at Rose Cottage Cave: a distinct industry in the Basutolian Ecozone. *South African Journal of Science* 93:449-458.
- Clark, A.M.B. 1999. Late Pleistocene technology at Rose Cottage Cave: a search for modern behaviour in an MSA context. *African Archaeological Review* 16:93-119.
- Crowell, A.L. & Hitchcock, R.K. 1978. Basarwa ambush hunting in Botswana. *Botswana Notes and Records* 10:37-51.
- Deacon, H.J. & Deacon, J. 1999. *Human beginnings in South Africa: uncovering the secrets of the Stone Age*. Cape Town: David Philip.
- Fouche, P. 2000. *Geological report on the artifacts found on the farm Bethal in the Clarens Region - South Africa*. Unpublished report, Dept. of Geology, University of the Free State.
- Goodwin, A.J.H. 1928. An introduction to the Middle Stone Age in South Africa. *South African Journal of Science* 25:410-418.
- Goodwin, A.J.H. 1929. The Middle Stone Age. *Annals of the South African Museum* 29:95-145.

- Harper, P.T.N. 1997a. The Middle Stone Age sequences at Rose Cottage Cave: a search for continuity and discontinuity. *South African Journal of Science* 93:470-475.
- Harper, P.T.N. 1997b. Twin Caves: an early Middle Stone Age site near Clarens, Eastern Free State. *Southern African Field Archaeology* 5:96-98.
- Henderson, Z.L. 2001a. *Spatial patterning at southern African Middle Pleistocene open-air sites: Florisbad, Duinefontein 2/2 and Mwanganda's Village*. Unpublished PhD dissertation, University of Cambridge.
- Henderson, Z.L. 2001b. The integrity of the Middle Stone Age Horizon at Florisbad, South Africa. *Navorsinge van die Nasionale Museum* 17:25-52.
- Inizan, M.-L., Roche, H. & Tixier, J. 1992. *Technology of knapped stone*. Meudon: CREP.
- Kuman, K. 1989. *Florisbad and (G): the contribution of open-air sites to study of the Middle Stone Age in South Africa*. Unpublished PhD dissertation, University of Pennsylvania.
- Low, A.B. & Rebelo, A.G. (eds) 1996. *Vegetation of South Africa, Lesotho and Swaziland*. Pretoria: Dept. Environmental Affairs and Tourism.
- Mason, R.J. 1958. Bone tools at the Kalkbank Middle Stone Age site and the Makapansgat Australopithecine locality, Central Transvaal. Part 1: the Kalkbank site. *The South African Archaeological Bulletin* 51:85-93.
- Mason, R.J. 1988. *Cave of Hearths, Makapansgat, Transvaal*. Wits Archaeological Research Unit, Occasional Paper no. 21.
- Sampson, C.G. 1968. The Middle Stone Age Industries of the Orange River Scheme Area. *National Museum, Bloemfontein Memoir* no. 4.

- Sampson, C.G. 1974. *The Stone Age archaeology of Southern Africa*. New York: Academic Press.
- Schick, K.D. 1986. *Stone Age sites in the making: experiments in the formation and transformation of archaeological occurrences*. Oxford: BAR International Series no. 319.
- Scholtz, N. 2001. *The geological development of an area next to the Little Caledon River, in the Clarens district, South Africa*. Unpublished Honours Project, University of the Free State.
- Thackeray, A.I. & Kelly, A. 1988. A technological and typological analysis of Middle Stone Age assemblages antecedent to the Howieson's Poort at Klasies River main site. *South African Archaeological Bulletin* 43:15-26.
- Volman, T.P., 1984. Early Prehistory of southern Africa. In: Klein, R.G. (ed.) *Southern African prehistory and palaeoenvironments*. Rotterdam & Boston: A.A. Balkema: 169-220.
- Wadley, L. 1996. The Robberg levels of Rose Cottage Cave: technology, environments and spatial analysis. *South African Archaeological Bulletin* 51:64-74.
- Wadley, L. 1997. Rose Cottage Cave: archaeological work 1987 to 1997. *South African Journal of Science* 93:439-445.
- Wadley, L. & Harper, P. 1989. Rose Cottage Cave revisited: Malan's Middle Stone Age collection. *South African Archaeological Bulletin* 44:23-32.

APPENDIX 1: TERMINOLOGY USED

The terminology used to describe the artefacts under discussion is based on work by Thackeray & Kelly (1988), Clark (1997), Harper (1997a), Schick (1986) and Kuman (1989).

Bladelets: flakes less than 26 mm in length, and less than 13 mm in width (Harper 1997a:473, 1997b:96)

Chips: flakes less than 10 mm.

Core trimming flake: thick flake with a triangular midsection (Kuman 1989:293)

Dihedral butts: two flakes have been removed to shape the butt (Inizan *et al* 1992).

Facetted butt: more than two facets on the butt (Thackeray & Kelly 1988).

Flake-blades: Flakes more than twice as long as they are wide (Thackeray & Kelly 1988)

Knives: have a straight cutting edge, with an angle of less than 40 degrees (Clark 1997:452-453), Bordes' straight scraper (Wadley pers. comm.).

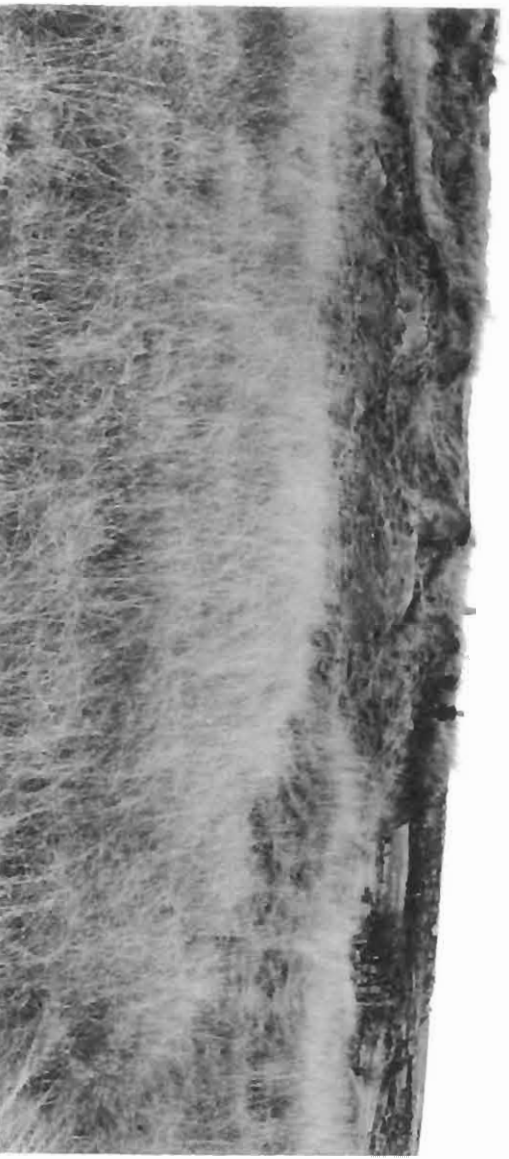
Macrodebitage: flakes less than 20 mm (Schick 1986)

Triangular Flakes: (illustrated Kuman 1989:125)

APPENDIX 2: PHOTOGRAPHS OF THE SITE AND MATERIAL



Photograph 1: View looking east across the site which is situated in the left hand portion of the donga in the centre of the photograph. The large gully at right angles to the main donga is the gully indicated on the left hand side of Fig. 2.



Photograph 2: View of the site. The person is standing at occurrence 30 (Fig. 2)



Photograph 3. Close up of the site looking east. The person is standing at occurrence 30. To the left is the excavation in the slope (on Fig. 2, the excavation between 29 and 5), the base of which is in the lighter soil.



Photograph 4. View across the top of the site looking north. In the foreground are the filled excavation pits indicated by the row of three pits in Fig. 2.



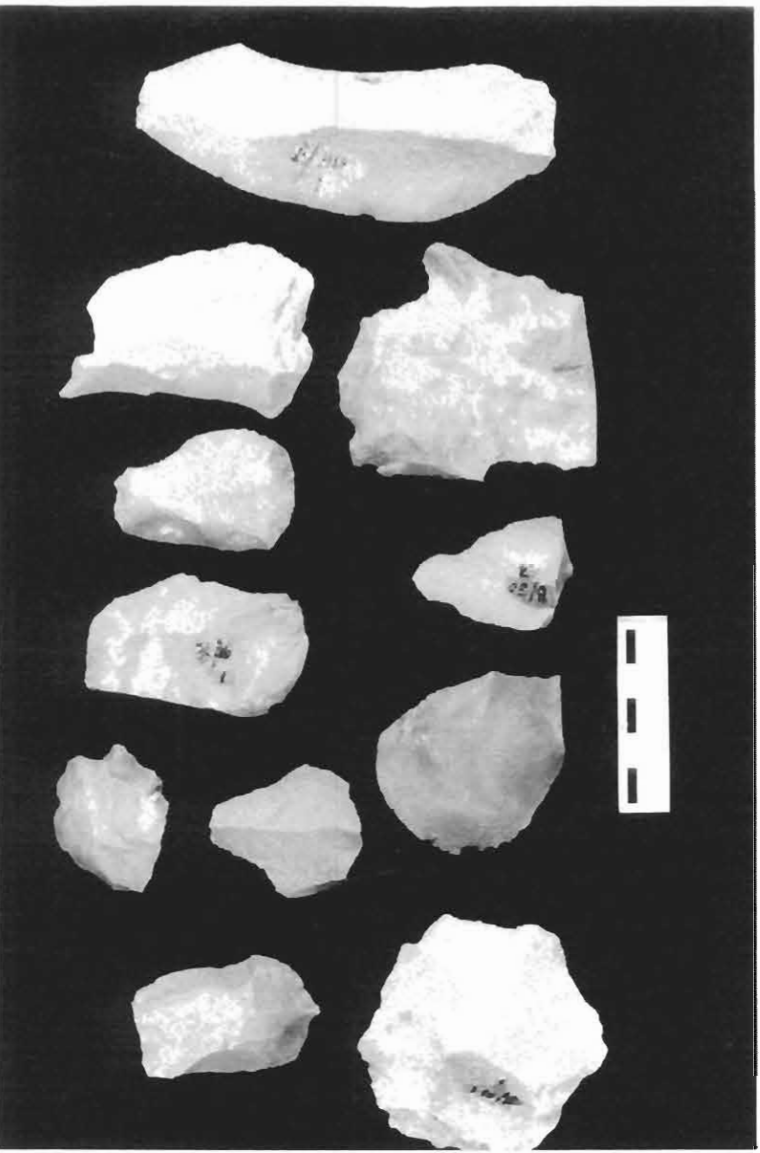
Photograph 5: View from the site looking west to the Little Caledon River (behind the large trees in the centre of the picture). The person is standing on the road. In the centre foreground is the excavation on the slope (between 4 and 9 in Fig. 2)



Photograph 6: Looking west down the gully to the right of the site (Fig. 2). Occurrence 18 would be located at the base of the bare cliff in the centre left of the picture.



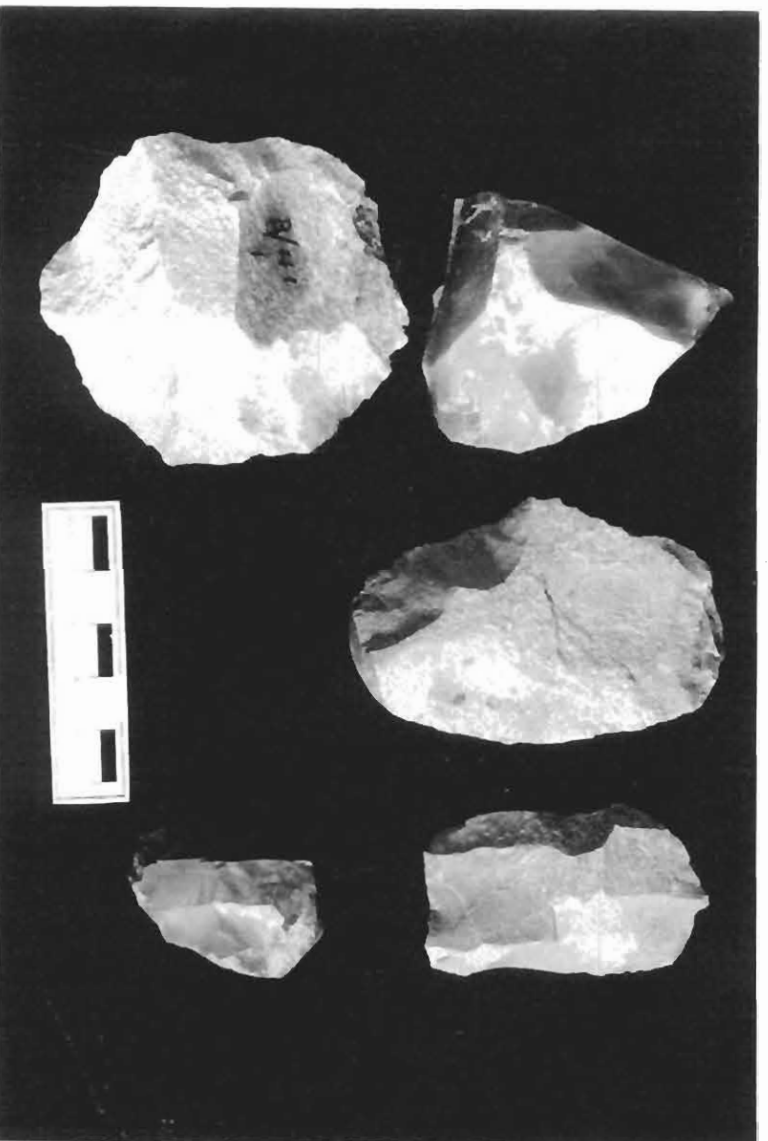
Photograph 7: Looking south from the northern termination of the donga. The site is at centre left of the photograph



Photograph 8: Quartzite artefacts from the site: on the left is the flake-blade from occurrence 34.



Photograph 9: Quartzite flakes with dihedral butts, on the left and right are triangular flakes, from occurrence 30



Photograph 10: Cores, all quartzite apart from upper left and lower right. Bladelet core at lower right

APPENDIX 3: REPORT BY SUSAN KENT

A UNIQUE MIDDLE STONE AGE OPEN-AIR HABITATION SITE ALONG THE LITTLE CALEDON RIVER: BETHAL 1

Susan Kent
Old Dominion University

Bethal 1 is one of the most fascinating sites that has been uncovered in South Africa over the past several decades because it is an open-air habitation occupation that has not been vertically or horizontally disturbed. Bethal is the only open-air Middle Stone Age archaeological habitation campsite, rather than a special purpose site, that has retained its spatial integrity. Most known Stone Age open-air sites are not pristine, but Bethal 1 is both horizontally and vertically intact. This single fact, its unique spatial preservation, makes Bethal one of the most important archaeological discoveries for the Middle Stone Age in South Africa. Another attribute of Bethal that makes it an uncommonly valuable resource in understanding the prehistory of South Africa, and of all modern humans, is that it is a habitation campsite. The only *in situ* Middle Stone Age open-air sites known anywhere in southern Africa, including Botswana, are special purpose kill or butchering/processing sites. Therefore, Bethal 1 provides information not available anywhere, either nearby in the Little Caledon River region, or even elsewhere in South Africa.

During the Middle Stone Age in southern Africa, physically modern humans appeared, but we do not yet know if these people were also behaviorally and intellectually modern. To determine the extent of modernity of these Middle Stone Age peoples, it is necessary to examine their use of space at a site with spatial integrity. Such sites are very rare and are few and far between most of the known sites in southern Africa because most open-air sites are disturbed. The spatial distribution of artifacts at Bethal provides a crucial clue to understanding the development of intellectual modernity and basic social organizational skills that characterize modern humans.

Open-Air Versus Rockshelter Sites

None of the rockshelters sites in the Little Caledon River region proper have Stone Age archaeological material *in situ* (one rockshelter was tested by a graduate student from the University of Witwatersrand; however, the deposit was not pristine and the excavation was halted after a 1 x 1 m test pit was dug). The closest site to Bethal that contains *in situ* deposits is Rose Cottage Shelter, located

near Ladybrand. It displays a very different artifact inventory. Moreover, the spatial patterning differs significantly from the preliminary work at Bethal and the reason for this needs might be attributable to the relatively small portion of area that has been excavated at Bethal. Additional units need to be excavated at Bethal to distinguish those differences that result from the very different settings, rockshelter vs. open-air sites, and those that are present only because not enough of Bethal has been excavated at this point. If it can be demonstrated that the spatial patterning differs significantly at Bethal because it is an open-air site, South African archaeologists will have to modify their current excavation strategy of only investigating rockshelter sites at the expense of investigating open-air sites. This, then, will change the entire way in which the Stone Age is investigated in South Africa. Bethal, therefore, is a pivotal site in the archaeology of South Africa.

Multipurpose Habitation / Special Purpose Sites

The artifact distribution (see informal and formal tool tables) and the debitage found thus far at Bethal all strongly suggest that the site is a multipurpose habitation camp. More work is required at Bethal to know if its dissimilar artifact inventory compared to those assemblages from Lesotho and Rose Cottage Shelter and other Middle Stone Age rockshelter sites in southern Africa are real and represent actual different uses of the sites, as special purpose in contrast to habitation sites, or are only apparent because not enough of Bethal has been excavated to determine the frequency of tool types and uses. Additional dates also need to be secured from Bethal to distinguish possible different times of site utilization. Temporal differences based on future dating of Bethal could explain the variance in artifact assemblages, but requires more excavations at the site and the collection of dates from various depths of the site.

Florisbad and Gi are some of the few well preserved open-air sites in all of southern Africa, however, they are special purpose kill and/or butchering sites. Such sites are important to our understanding of hunting, but it is critical to excavate habitation sites like Bethal in order to understand the overall repertoire of Middle Stone Age activities and behaviors. One of the key questions concerning Middle Stone Age hominids is whether they organized space in a way analogous to intellectually modern humans. The second most essential question needing evaluation is whether Middle Stone Age hominids patterned their behavior and exhibited a range of behavior that is similar to modern humans. The range of

behavior cannot be determined from a site with restricted behaviors, like a kill site. Therefore it is imperative to excavate habitation sites to gain an understanding of the evolution of cultural modernity. More investigations at Bethal are necessary to determine if the preliminary artifact dissimilates between Middle Stone Age sites the result of the small portion of the site excavated compared to Rose Cottage Shelter that has been more thoroughly investigated.

Geology

Bethal has unique geological deposition in that the upper dark organic level varied from 13 to 16 cm in depth and formed a protective cap that probably accounts for some of the preservation of the site. Below the organic top soil level is very fine orangey-red sterile silt that probably was aeolian (wind) deposited (Scholtz 2002). The silt contained heavy minerals that varied between sub-angular and rounded in shape. Because of the sub-angular grains, transport distance was probably relatively small, again showing that the site is *in situ*. The surrounding sandstone from the Elliot Formation was the probable source.

Very little is known of the geology of the Little Caledon River, but the site excavations are providing some insights. We can see that there was oscillating periods of aridity. The soil changed a bit below 105 cm. The heavy minerals became more common, suggesting more mesic period and / or more flowing streams, but by 145 cm below surface, the soil returned to the previous low level of heavy minerals. The sterile silt continued to around 180 cm below the round surface. Just below was a clayey silt that contained artifacts. It extended to 250 cm below surface, or basically the entire occupation level. Just under the occupation level was sterile silty clay that went to 300 cm. We did not excavate further. However, in 2002, a second occupation level was detected but we did not have time to investigate.

Artifacts — A New Middle Stone Age Horizon

The Middle Stone Age is characterized in most areas by moderate to large quartzite or hornfelds flakes, triangular points, prepared cores, flakes with faceted platforms, and other similarities that tend to transcend geographical regions. A precocious poorly known horizon that contains cryptocrystalline artifacts termed the Howiesons Poort has been uncovered at Rose Cottage Shelter, where the horizon includes backed tools and segments or crescents common. Bethal is fascinating because cherts and

chalcodones predominate the artifact assemblage (as can be seen in the following tables), but artifacts diagnostic of the Howiesons Poort Horizon have not yet been uncovered. Only one backed tool has been uncovered at Bethal and crescents or segments are absent. It is possible that the paucity of backed tools and other artifacts associated with the Howiesons Poort simply reflect the small portion of the site that has been excavated. Further excavation is required to place the Bethal artifacts within the established South African Middle Stone Age artifact typology.

One of the most exciting discoveries at Bethal 1 is the presence of discrete activity areas. These apparently multipurpose activity areas are in contrast to the spatial patterning reported for Rose Cottage Shelter where the excavator suggested that Middle Stone Age hominids did not use space in ways that produced activity areas. Again, more of the site needs to be excavated. However the preliminary analysis is intriguing and suggests that the absence of activity areas at Rose Cottage Shelter may result from the confines of space and the conflation of activities resulting in artifact palimpsests that are not present at Bethal.

In addition, there appears to be an inordinate amount of lithic shatter from the initial breakage of a rock from stones that have numerous internal flaws that make them unflakable, which implies that the usual selection of raw material for quality pieces that can be made into tools did not occur to the same extent at Bethal as it did at later sites occupied by humans who were completely modern in thought and behavior. Preliminarily, at Bethal it seems that any cryptocrystalline nodule was brought to the site and further reduced regardless of its quality. Further investigations are necessary to investigate the nature of the shatter, raw material quality, and its distribution at the site.

Conclusions

Because of its unusual spatial preservation due to a series of geological processes described before, Bethal can provide insights into the development of modern human intellectual development that is not possible at other archaeological sites. There are no other open-air undisturbed Middle Stone Age sites known in the general region of the Little Caledon River. More importantly, Bethal 1 is the only Middle Stone Age habitation site known in all of South Africa – other open-air sites from this time period appear to be special purpose kill or butchering/processing sites, rather than habitation sites. However, in order to

understand the development of modern human behavior and intellect, it is necessary to excavate habitation sites. Bethal allows us to explore activity area patterning during the Middle Stone Age without the confines of a rockshelter.

A second occupation underlying the floor of the excavations was discovered during the 2002 investigations. It is necessary to excavate a sample of this newly found material in order to understand its relationship to the artifacts already dug. Additional dates need to be obtained in order to securely place the site in its temporal positioning of other sites known for the Middle Stone Age period. Excavations of this lower occupation need to be undertaken in order to determine if this represents a habitation camp like the layer above it or if this is a short-term special purpose site and if it was occupied by similar peoples as the later inhabitants at Bethal.

Units need to be dug to the south and west of the current excavations for a number of reasons. One reason is to determine the extent of the site. We only have the northeast boundary uncovered and further exploration of the site is necessary to know the margins of the camp. Another reason for the need to excavate additional units is to explore the possibility of more activity areas at the site. The presence of at least several thus far is unknown for the Middle Stone Age and it is crucial to see if other activity areas are present. Further excavations are also necessary in order to understand the artifact assemblage, which so far, is unique. The assemblages that most closely resemble the Bethal artifacts include backed tools, segments or crescents, and other artifacts not yet recovered. More investigations are critical at Bethal in order to ascertain if Bethal represents a new, unreported artifact horizon. If a new horizon, then we need to determine what this new artifact horizon might mean in terms of it being a temporally distinct assemblage or one geographically confined to the Clarens municipality. Clearly, these and other questions crucial to understanding the prehistory of South Africa necessitate further excavations at Bethal.

Table 1. Table of investigations at Bethal 1 by year.

Year	Length of Investigations	Activities Conducted
2002	6 weeks; June 8 - July 25	Excavated two 2 x 2 m units
2001	5 weeks; June 4 - July 30 (with 3 weeks off site, 2 conducting laboratory work in Bloemfontein and one week out of the country)	Excavated two 2 x 2 m units
2000	8 weeks; June 3 - July 30	Excavated one 2 x 2 m unit Excavated one 1 x 1 m off-site stratigraphy pit located off of the archaeological site for comparative geological data; surveyed local area for artifacts and other sites
1999	1 day; July 12	Visited the site and recorded its location

Total time excavating the site thus far (and including 2002): 19 weeks
Current excavation permit: Valid until 1 November 2004

Table 2. Analyzed debitage by unit at Bethal 1 (note that artifacts from the 2002 excavations have not be analyzed and only have a field designation and are, therefore, not included)

DEBITAGE	Unit 109N96E	Unit 111N96E	Unit 115N100E
Whole flake	49 (6.7%)	19 (4.4%)	6 (6.1%)
Partial/broken flake	194 (26.4%)	20 (4.6%)	13 (12.7%)
Cortical flake	1 (0.1%)	9 (2.1%)	—
Prox Partial flake w/distal missing	30 (4.1%)	21 (4.8%)	1 (1.0%)
Distal flake w/prox missing	5 (0.7%)	6 (1.4%)	1 (1.0%)
Cortical flake w/dihedral platform	2 (0.3%)	1 (0.2%)	—
Partial flake w/wedge damage	23 (3.1%)	26 (6.0%)	8 (7.8%)
Chunk	299 (40.7%)	174 (40.0%)	24 (23.5%)
Chunk w/wedge damage	6 (0.8%)	13 (3.0%)	3 (2.9%)
Chip (flake spall or splinter)	33 (4.5%)	33 (7.6%)	13 (12.7%)
Core trimming flake	3 (0.4%)	4 (0.9%)	—
Core rejuvenation flake	1 (0.1%)	—	—
Bladelet w/distal missing	1 (0.1%)	1 (0.2%)	—
Bladelet	15 (2.0%)	4 (0.9%)	2 (2.0%)
Whole flake frag w/multifaceted platform	—	1 (0.2%)	—
Broken mid-section of flake	5 (0.7%)	—	1 (1.0%)
Whole flake w/wedge damage	7 (1.0%)	6 (1.4%)	—
Whole side struck flake	2 (0.3%)	2 (0.5%)	—
Core	10 (1.4%)	12 (2.8%)	2 (2.0%)
Whole flake w/dihedral platform	1 (0.1%)	5 (1.2%)	1 (1.0%)
Partial bladelet	4 (0.5%)	1 (0.2%)	—
Shatter	25 (3.4%)	48 (11.0%)	24 (23.5%)
Partial flake w/dihedral platform	1 (0.1%)	4 (0.9%)	—
Triangular Flake	—	2 (0.5%)	1 (1.0%)
Cortical chunk	9 (1.2%)	2 (0.5%)	1 (1.0%)
Bladelet w/wedge damage	2 (0.3%)	7 (1.6%)	—
Side flake w/wedge damage	1 (0.1%)	1 (0.2%)	—

Flake blade	4 (0.6%)	—	—
Blade w/edge damage	1 (0.1%)	—	—
Core w/edge damage	1 (0.1%)	—	—
Shatter w/edge damage	1 (0.1%)	—	—
Dihedral platform flake w/edge damage	—	4 (0.9%)	1 (1.0%)
Whole blade (>2.5 cm)	—	2 (0.5%)	—
Side struck flake w/dihedral platform	—	2 (0.5%)	—
Flake w/multi-faceted platform and edge damage	—	1 (0.2%)	—
Bladelet core	—	1 (0.2%)	—
Cortical flake w/edge damage	—	1 (0.2%)	—
Cortical flake w/multi-faceted platform	—	2 (0.5%)	—
TOTAL	736	435	102

Table 3. Distribution of Tools By Unit (note that the artifacts from the units excavated in 2002 have only preliminary field identifications and are not included here).

TOOL TYPE	Unit 109N96E	Unit 111N96E	Unit 115N100E
Side Scraper	1	9	
End Scraper		1	
Side Scraper With Notch		1	
Backed Flake With Utilization		1	
Denticulate	1	1	
Chunk With Retouch	2		
Flake With Retouch	1	3	
Core With Retouch			
Utilized Flake	9	7	1
Utilized Chunk	2	3	3
Utilized Core	1		
Notched Flake With Dihedral Platform	2		
Utilized Flake With Dihedral Platform	2		
Chunk With Notch	1		
Notched Flake		3	
Notched Flake With Edge Damage	1	1	
Notched Flake With Utilization	1		
Bladelet With Utilization		1	
Utilized Blade	1		
Utilized Flake Blade	1		
Notched Flake Blade	1		

Table 4. Raw Material of artifacts by unit.

RAW MATERIAL	Unit 109N96E	Unit 111N96E	Unit 115N100E
Unknown	46 (6.3%)	10 (2.3%)	1
Chert	382 (51.9%)	198 (45.5%)	19
Chalcedony	100 (13.6%)	85 (19.5%)	13
Agate	28 (3.8%)	21 (4.8%)	40
Dolorite	2 (0.3%)	1 (0.2%)	4
Quartz	86 (11.7%)	47 (10.8%)	9
Quartzite	87 (11.8%)	70 (16.1%)	11
Hornsfeld		2 (0.5%)	
Carnelian	1 (0.1%)	1 (0.2%)	1
Melinite (bloodstone)			1
Fossilized Wood	1 (0.1%)		1
Chert and metamorphized chalcedony	1 (0.1%)		1
Conglomerate	1 (0.1%)		1

Unit Highlights:
Unit 115N100E One chunk was from carnelian
One piece of shatter was from fossilized wood

Table 3. Informal tools by raw material and by excavation unit at Bethal.

UNIT 109N96E

RAW MATERIAL TYPE

INFORMAL TOOLS	Chert (1)	Chalcedony (2)	Quartz (6)	Quartzite (7)	Hornsfeld (8)	Dolorite (13)	Unknown (0)	TOTAL
Chunk w/Retouch	1					1		2
Flake w/Retouch			1					1
Core w/Retouch								---
Utilized Flake	3	3		2			1	9
Utilized Chunk	1	1						2
Utilized Core							1	1
Notched Flake w/Dihedral Platform							1	1
Utilized Flake w/Dihedral Platform		1			1			2
Chunk w/Notch	1							1
Utilized Flake w/Natural Backing								—
Notched Flake								—
Notched Flake w/Edge Damage	1							1
Notched Bladelet								—
Notched Flake w/Utilization	1							1
Bladelet w/Utilization							1	1
Utilized Blade	1							1

Utilized Flake Blade	1							1
Notched Flake Blade		1						1
TOTAL								25

UNIT 111N96E

RAW MATERIAL TYPE

INFORMAL TOOLS	Chert (1)	Chalcedony (2)	Quartz (6)	Quartzite (7)	Hornsfeld (8)	Dolorite (13)	Unknown (0)	TOTAL
Chunk w/Retouch								—
Flake w/Retouch	2	1						3
Core w/Retouch								—
Utilized Flake	3				2		1	6
Utilized Chunk	3							3
Utilized Core								—
Notched Flake w/Dihedral Platform								—
Utilized Flake w/Dihedral Platform								—
Chunk w/Notch								—
Utilized Flake w/Natural Backing	1							1
Notched Flake	1	1		1				3
Notched Flake w/Edge Damage	1							1
Notched Bladelet								—
Notched Flake w/Utilization								—

Unit 115N100E

Bladlet w/Utilization	1							
Utilized Blade								
Utilized Flake Blade								
Notched Flake Blade								
TOTAL								18

RAW MATERIAL TYPE

INFORMAL TOOLS	Chert	Agate	Quartz	Quartzite	TOTAL
Denticulate				1	1
Utilized Chunk	1	1	1		3
TOTAL	1	1	1	1	4

Table 4. Formal tools by raw material and by excavation unit at Bethal (no formal tools were found in 115N100E).

UNIT 111N96E

RAW MATERIAL TYPE							
FORMAL TOOLS	Chert (1)	Chalcedony (2)	Agate (3)	Sand stone (4)	Quartzite (7)	Unknown (0)	TOTAL
Side Scraper			1	8			9
End Scraper		1					1
Side Scraper with Notch	1						1
Knife (backed flake-blade w/utilization)		1					1
Denticulate						1	1
TOTAL	1	2	1	8	—	1	13

UNIT 109N 96E

RAW MATERIAL TYPE							
FORMAL TOOLS	Chert (1)	Chalcedony (2)	Agate (3)	Sand stone (4)	Quartzite (7)	Unknown (0)	TOTAL
Side Scraper	1						1
End Scraper							—
Denticulate					1		1
TOTAL							2

Appendix 1. Site Excavation Permits Issued By the South African Heritage Resources Agency. Note that current excavation permit is valid until November 2004.

SAHRA

South African Heritage Resources Agency

111 HARRINGTON STREET, CAPE TOWN, 8001
P O BOX 4637, CAPE TOWN, 8000
TEL (021) 462-4502 - FAX (021) 462-4509

9/2/300/12

PERMIT

No 80/01/07/003/51

Issued under Section 12(4) of the National Monuments Act, Act No 28 of 1969 as amended.
Permission is hereby given

to: Dr S B Kent,
of the Department of Anthropology, Old Dominion University, Norfolk, VA 23529, United States of America, and working with the National Museum, Bloemfontein,
for the excavation of the site Bethal,
at Bethel, at approximately 28 32 591S, 28 27.163E,
on the farm Bethel, near Clarens 1390,
in the Bethlehem District, Free State Province

The following conditions apply:

- 1 Adequate recording methods as specified in the Regulations and Guidelines pertaining to the National Heritage Resources Act must be used. Note that the position of all excavations must be marked on a plan of each site
- 2 A standard site record form must be lodged with the National Museum
- 3 All material collected and excavated will be curated by the National Museum
- 4 Copies of all field notes are to be lodged on completion of the project. A moratorium can be placed on the availability of notes to other researchers for a period of years determined by the researcher
- 5 All material must be clearly labelled and boxed (boxes not larger than 35 cm broad and 19 cm high)
- 6 A progress report must be submitted to SAHRA on or before 1 November 2003 and 1 November 2007 and a final report is due on or before 1 November 2004. SAHRA reserves the right to withhold further permits if progress is not deemed satisfactory
- 7 Reprints of all published papers, or copies of theses or reports resulting from this work, must be lodged with SAHRA
- 8 If a published report has not appeared within three years of the lapsing of this permit, the report required in terms of the permit will be made available to researchers on request
- 9 It is the responsibility of the permit holder to obtain permission from the landowner for each visit, and conditions of access imposed by the landowner must be observed.
- 10 It is the responsibility of the permit holder to fill in excavations and protect sites during and after excavation to the satisfaction of SAHRA and the landowner.
- 11 SAHRA shall not be liable for any losses, damages or injuries to persons or properties as a result of any activities in connection with this permit.
- 12 SAHRA reserves the right to cancel this permit upon notice to the permit holder.

This permit is valid until 1 November 2004

ARCHAEOLOGIST
Date 29 October 2001



Place Cape Town